Construction of Cycle Tracks and the Associated Supporting Facilities From Sha Po Tsuen to Shek Sheung River

Final Environmental Impact Assessment (EIA) Report

(Volume 1 of 2 - Text)

December 2008

ATKINS

In association with
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Hong Kong Institute of Archaeology

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1. INTRODUCTION

1.1 Project Background

1.1.1 This Environmental Impact Assessment (EIA) is for the "Construction of Cycle Tracks and the Associated Supporting Facilities from Sha Po Tsuen to Shek Sheung River". The cycle track was reviewed as part of the Feasibility Study (hereinafter called "FS") (CE 52/2002(HY)) – "Cycle Track Network in New Territories – Feasibility Study" commissioned in 2002 to examine the feasibility (including the environmental aspects) of providing a cycle track network, together with supporting facilities, to connect the North West New Territories (NWNT) with the North East New Territories (NENT).

1.1.2 The FS was completed in mid 2004 and the recommended cycle track network extended from Sai Kung in the east, Fanling / Sheung Shui in the north and Tuen Mun in the west. In view of the considerable length and costs involved in developing the proposed cycle track network, it was suggested to implement the network in two phases:

- The Priority Phase connects the scattered cycle tracks in various new towns. Upon completion, there will be a continuous cycle track connecting Sha Tin, Tai Po, Fanling / Sheung Shui, Yuen Long, Tin Shui Wai and Tuen Mun together with necessary supporting facilities.
- The Long Term Phase covers the remaining works in the proposed New Territories (NT) Cycle Track Network of the FS, comprising mainly extensions and branches from the cycle track network completed under the priority phase.

1.1.3 The New Territories North and West (NTN&W) Development Office of the Civil Engineering and Development Department (CEDD) completed a Technical Feasibility Statement (TFS) for the works under the Priority Phase and included the items in the project list of the 2005 Resources Allocation Exercise. It was later upgraded to Category B of the Public Works Programme (PWP) as PWP Item No. 259RS in January 2006.

1.1.4 A Final Report[1] on the FS was issued in June 2006 and confirmed the feasibility of the implementation of the cycle track network.

1.1.5 Construction for the Priority Phase of the proposed Cycle Track Network recommended in the FS is scheduled to commence in mid 2009 for completion by early 2012.

1.1.6 Some sections of the Project are considered to be a Designated Project (DP) under the *Environmental Impact Assessment Ordinance* (EIAO). These sections have been addressed in this EIA Study and the Non-DP segments have been addressed as part of an Environmental Review (ER) Study (under a separate cover), as required under Agreement No. NTN 5/06.

[1] Agreement No. CE 52/2002 (HY) – "Cycle Track Network in New Territories – Feasibility Study", Final Report with Addendum No. 1, June 2006, Scott Wilson Ltd.

1.1.7 Atkins China Limited (ACL) was commissioned by CEDD on 3 November 2006 under Agreement No. NTN 5/06 to conduct both the EIA and the ER for the Project.

1.2 Background to this EIA

1.2.1 The EIAO DP sections of the Project fall under DP items P.1 and Q.1 of Part I, Schedule 2 of the EIAO. The Project is a recreational development falling within the Deep Bay Buffer Zone 2 and a portion of the construction works will also be carried out partly within a Conservation Area defined in the Nam Sang Wai Outline Zoning Plan (OZP) S/YL-NSW/8. The proposed cycle track alignment is shown in **Figure 1-1**.

1.2.2 A Project Profile (No. PP-288/2006) was submitted by the Project Proponent (PP-288/2006), in April 2006 under S.5 (1)(a) of the EIAO to apply for a Study Brief. The Environmental Protection Department (EPD) issued the Study Brief for the Project in May 2006 for this EIA (No. ESB-149/2006).

1.2.3 An Investigation, Design and Construction (IDC) Consultant - Scott Wilson Ltd. has been commissioned to undertake the IDC part of the Project (excluding the EIA). The IDC Consultant has provided the engineering and technical input for this EIA Study and has worked closely with the EIA Consultants to achieve a sound and cost-effective design while maintaining independence from the EIA to achieve an objective assessment of the Project.

1.2.4 This Report provides the approach, findings and recommendations of the EIA Study and has followed the requirements of EIA Study Brief No. ESB-149/2006.

1.3 Purpose and Approach of the EIA Study

1.3.1 The purpose of this EIA Study is to provide information on the nature and extent of environmental impacts arising from the construction and operation of the Project and its related activities. This information will contribute to decisions by the Director of Environmental Protection on:

- The overall acceptability of any adverse environmental consequences that are likely to arise as a result of the proposed Project;
- The conditions and requirements for the detailed design, construction and operation of the proposed Project to mitigate against adverse environmental consequences, as practicable; and
- The acceptability of residual impacts after implementation of the proposed mitigation measures.

1.3.2 This EIA Study has been conducted to achieve specific objectives in the EIA Study Brief No. ESB-149/2006. These specific objectives are to:

1. Describe the proposed Project and associated works together with the requirements for carrying out the Project;
2. Identify and describe the elements of the community and environment likely to be affected by the proposed Project and / or likely to cause adverse impacts to the proposed Project, including both the natural and man-made environment;
3. Provide information on the consideration of alternatives to avoid and minimize the potential adverse environmental impacts on the sensitive uses that may be subject to the adverse environmental impacts of the proposed developments and associated works; to provide justifications and constraints for selecting the preferred option and to describe the part of environmental factors played in the selection;
4. Identify and quantify emission sources and determine the significance of impacts on sensitive receivers (SRs) and potential affected uses;
5. Identify and quantify any potential losses or damage to flora, fauna and natural habitats;
6. Identify any negative impacts on sites of cultural heritage and propose measures to mitigate these impacts;
7. Identify and quantify any potential landscape and visual impacts and to propose measures to mitigate these impacts;
8. Propose the provision of infrastructure or mitigation measures so as to minimize pollution, environmental disturbance and nuisance during construction and operation of the Project;
9. Investigate the feasibility, practicability, effectiveness and implications of the proposed mitigation measures;
10. Identify, predict and evaluate the residual (i.e. after practicable mitigation) environmental impacts and the cumulative effects expected to arise during the construction and operation phases of the project in relation to the sensitive receivers and potential affected uses;
11. Identify, assess and specify methods, measures and standards to be included in the detailed design, construction and operation of the project which are necessary to mitigate these environmental impacts and reduce them to acceptable levels;
12. Investigate the extent of the secondary environmental impacts that may arise from the proposed mitigation measures and to identify constraints associated with the mitigation measures recommended in the EIA Study, as well as provision of any necessary modification; and
13. Design and specify the environmental monitoring and audit requirements, if required, to ensure the implementation and the effectiveness of the environmental protection and pollution control measures adopted.

1.4 Structure of this EIA Study Report

1.4.1 This EIA comprises 2 volumes:

- Volume 1 of 2 - Text
- Volume 2 of 2 - Figures

1.4.2 Volume 1 of 2 is divided into 15 sections:

- Section 1 - Introduction
- Section 2 - Project Description
- Section 3 - Air Quality (Construction Phase)
- Section 4 - Air Quality (Operational Phase)
- Section 5 - Noise
- Section 6 - Water Quality
- Section 7 - Waste Management
- Section 8 - Land Contamination
- Section 9 - Ecology
- Section 10 - Fisheries
- Section 11 - Cultural Heritage
- Section 12 - Landscape & Visual
- Section 13 - Environmental Monitoring and Audit Requirements
- Section 14 - Implementation Schedule of Mitigation Measures
- Section 15 - Overall Conclusion and Summary of Environmental Outcomes

1.4.3 All quoted figures are presented in Volume 2 of 2 - Figures under separate cover, while all Appendices are placed at the back of Volume 1 of 2 – Text.

2. PROJECT DESCRIPTION

2.1 Project Requirements & Programme

2.1.1 The EIA Study Area is shown on **Figure 2-1**. The Project includes the following primary works elements within the Study Area:

1. Construction of a new cycle track (with footpath) linking up local cycle track networks in Yuen Long and Sheung Shui.
2. Construction of the associated support facilities which includes 5 Resting Stations (formerly named "places of rest" in the EIA Study Brief) - R5, R6, R7, R8, and R9, and 1 Information Kiosk (formerly named "Education Centre" in the EIA Study Brief) integrated into R9. Also, one small seating area consisting of two benches at Mai Po Village (near chainage CH-MP5+800m).
3. The associated streetscape, landscape, utilities diversions, traffic aids installation, street lighting, water, sewerage and drainage works;
4. Provision of environmental mitigation measures.

2.1.2 The proposed cycle track will accommodate two-way traffic. A minimum width of 3.5 m will be provided as far as practicable, and a maximum gradient of 4% will be adopted as per the requirements of Transport and Planning Design Manual (TPDM).

2.1.3 The General Layout Plans for the proposed cycle track with the chainage marked for ease of reference are provided in Volume 2 of 2 – Figures (**Figure 2-2** to **Figure 2-9** are drawings provided by the IDC Consultant Scott Wilson Ltd.).

2.1.4 The proposed cycle track alignment covered under this EIA comprises a section from Yuen Long to Sheung Shui. From the existing cycle track at Sha Po Tsuen in Yuen Long to Kam Tin River, Ngau Tam Mei Drainage Channel, along Castle Peak Road to Sheung Yue River in Kwu Tung. Along Sheung Yue River and Shek Sheung River in Kwu Tung to the existing cycle track at Choi Yuen Road in Sheung Shui. **Table 2-1** summarises the details of the proposed cycle tracks.

Table 2-1 Proposed Cycle Tracks Alignment

Chainage	Alignment	Via	Length
CH-MP0+000m CH-MP11+233m	Kam Tin River – Ngau Tam Mei Main Drainage Channel	Au Tau – Tai Sang Wai – Fairview Park – Yau Mei San Tsuen	4,115 m
	Castle Peak Road	Yau Mei San Tsuen – Mai Po San Tsuen – San Tin Tsuen Road – Kwu Tung	7,118 m
	Sub-total		11,233 m
CH-KW0+000m CH-KW3+950m	Castle Peak Road	Pak Shek Au	1,220 m
	Sheung Yue River – Shek Sheung River	Kwu Tung – Ho Sheung Heung – Tsung Pak Long – Sheung Shui	2,730 m
	Sub-total		3,950 m

2.1.5 The proposed Resting Stations are designed at about 2 to 3 km intervals en-route to serve as stopovers / meeting places along the cycle tracks for the cyclists to take a short rest.

2.1.6 Due to the increased accessibility to the area from the cycle track network, an Information Kiosk will be provided to promote cycling as a sustainable transportation mode. It is proposed to be integrated at Resting Station R9, so that it can provide information on the area.

2.1.7 Details of the facilities provided at the Resting Stations and Information Kiosk covered under this EIA are summarised in **Table 2-2**.

Table 2-2 Proposed Facilities in Resting Stations and Information Kiosk

Location	Zoning / Location	Cycle parking spaces	Information Board	Mobile First Aid Station	Shelter Pavilion	Food Kiosk	Open Space / Sitting-out Area	Total Area
R5	"O" zone along Kam Tin River / Nam Sang Wai Road	70 m^2 for 20 parking units	10 m^2	N/A	N/A	N/A	200 m^2	280 m^2
R6	"OU" zone along Ngau Tam Mei Drainage Channel (near Kam Pok Road)	90 m^2 for 20 parking units	10 m^2	N/A	N/A	N/A	530 m^2	630 m^2
R7	"V" and "REC" zone near Castle Peak Road – Ngau Tam Mei Drainage Channel	50 m^2 for 20 parking units	10 m^2	N/A	N/A	N/A	160 m^2	220 m^2
R8	"RD" zone along Castle Peak Road – San Tin (near Shek Wu Wai Road)	90 m^2 for 15 parking units	10 m^2	N/A	N/A	N/A	200 m^2	300 m^2
R9 integrated with Information Kiosk	"AGR" zone opposite to Shek Wu Hui Sewage Treatment Works, at the river bank of Sheung Yue River	380 m^2 for 80 parking units	100 m^2	30 m^2	130 m^2	140 m^2	360 m^2	1,140 m^2

Note: No public toilets or practicing area / gathering ground will be provided at the Resting Stations / Information Kiosk.

2.2 Project Implementation Programme

2.2.1 This Project (the EIAO DP portion) is for the Priority Phase of the proposed Cycle Track Network recommended in the FS. The construction is scheduled to commence in mid 2009 and will be completed by early 2012.

2.3 Concurrent Projects

2.3.1 Relevant concurrent major projects in the vicinity of the Project that could have some form of cumulative environmental impacts with this DP have been identified by the IDC Consultant through confirmation from various government departments and include the following (letters from various government departments are provided in **Appendix 2-1**):

- Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2 (YLKTSSD2) (by Drainage Services Department, DSD) – construction period from 2009 to 2014;
- The Proposed Comprehensive Development at Wo Shang Wai (CDWSW) (by private developer) – construction period from 2008 to 2012;
- Salt Water Supply for North West New Territories and to Yuen Long (NWNTSWS) (by Water Services Department, WSD) – construction period from 2007 to 2013;
- Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tam in Yuen Long (DSD) – construction period from 2005 to 2009;
- Replacement and Rehabilitation of Watermains Stage 2, Mains in San Tin and Pak Shek Au (WSD) – construction period from 2007 to 2009; and
- Widening of Castle Peak Road – San Tin near Tsing Lung Tsuen, Yuen Long (by Highways Department) – construciton period from 2007 to 2009).

2.3.2 For the Construction of Sewers, Rising Mains and Sewage Pumping Station at Kam Tin, Nam Sang Wai and Au Tam in Yuen Long project, there are no expected cumulative impacts as there is only a small overlap period with the commencement of construction of this Project. As such, concurrent works are likely to be avoided. In addition, potential issues arising are expected to relate to interfacing concerns at the landscaping area along the slope berm of Kam Tin River. However, as the existing trees are approximately 4 m away from the slope berm and the cycle track will be laid along the toe of the slope, there are no expected impacts to the transplanted trees.

2.3.3 For the Replacement and Rehabilitation of Watermains Stage 2, Mains in San Tin and Pak Shek Au, and Widening of Castle Peak Road – San Tin near Tsing Lung Tsuen, Yuen Long project, there are no expected cumulative impacts as there is only a small overlap period with the commencement of construction of this Project. As such, concurrent works are likely to be avoided with careful scheduling of works.

2.3.4 For the remaining concurrent projects, the main potential cumulative impacts will be related to runoff into the watercourses, and potential noise and dust issues where works are carried out within 500 m of the Project. The measures that are prepared in this EIA will aim to minimize potential impacts to these sensitive receivers and thus minimize overall cumulative impacts to the region.

2.4 Assessment Area

2.4.1 **Figure 2-1** shows the cycle track alignment, location of the 5 Resting Stations and the Information Kiosk (integrated with Resting Station R9), and key environmental elements within the Study Area.

2.5 Need for the Project and Evaluation of Alternatives

2.5.1 At present the existing cycle tracks in Hong Kong are isolated and scattered around new towns with few linkages. The existing cycle tracks include the well-known cycle track adjacent to Tolo Harbour, connecting Sha Tin and Tai Po and extending along Ting Kok Road, and the cycle track along Castle Peak Road stretching between Tuen Mun and Yuen Long.

2.5.2 A continuous cycle track network that capitalises on the landscape assets throughout the New Territories and includes supporting facilities will provide relaxation and recreational opportunities for residents of Hong Kong and will also provide sight-seeing opportunities for tourists. The network can also help achieve better management of cycling traffic. With the network in place, cyclists would no longer need to ride on carriageways or footpaths between towns. Without the Project, connection of the NWNT and NENT cycle track systems would not be possible.

2.5.3 CEDD commissioned the FS for the Project in 2002 to examine the feasibility (including environmental aspects) of providing a continuous cycle track network together with supporting facilities connecting the NWNT with NENT. The FS has examined various alternative routes and eventually established an Updated Preferred Scheme for the cycle track network throughout the New Territories and considered planning, traffic, engineering infrastructure, geotechnical, environmental, socio-economic, land acquisition and financial aspects.

2.5.4 The FS found that it is feasible to construct a continuous cycle track from Tuen Mun to Sai Kung through Tin Shui Wai, Yuen Long, Sheung Shui, Fanling, Tai Po, Sha Tin and Ma On Shan, using the proposed Mai Po and Kwu Tung Corridor for the connection.

2.6 Consideration of Different Alignment Options

2.6.1 During the development of the Project several alternative alignments and options have been reviewed and the alignment has been refined (see **Figure 2-10**).

2.6.2 The proposed alignment in the Project Profile (No. PP-288/2006) was reviewed and an alternative alignment for the section near Mai Po Village SSSI was selected (see **Figure 2-5**) to avoid potential impacts to the Mai Po Village SSSI and the associated egretries.

2.6.3 Further, as an outcome from the consultation with the Yuen Long District Council (DC) and the San Tin Rural Committee (RC) in September 2007, an alternative alignment along San Tin Tsuen Road has also been selected in accordance with the DC and RC preferencees (see **Figure 2-6**).

2.6.4 The original Information Kiosk was reviewed and the alternative site has been

selected to allow integration with Resting Station R9 so that it will be more than 500 m from the Sheung Shui Slaughter House and Sewage Treatment Works, both of which are potential odour sources. The alternative location was also selected to avoid disturbance to the existing ecological mitigation area by Agriculture, Fisheries and Conservation Department (AFCD) in this area.

2.6.5 Other minor changes for minimizing land acquisition include the realignment along Yau Pok Road and realignment behind the Cross Boundary Shuttle Bus San Tin Terminus.

2.7 Community Consultation

2.7.1 After the endorsement of the Updated Preferred Scheme and implementation framework in the second consultation with Committee for Planning and Land Development (CPLD) in July 2004, CEDD undertook public consultation with all DCs concerned, the relevant statutory committees and the active cycling associations in Hong Kong. The DCs included North District, Tai Po, Sha Tin, Yuen Long, Tuen Mun and Sai Kung who were consulted between February 2005 and June 2005.

2.7.2 The Country Parks Committee of the Country and Marine Parks Board was consulted in August 2005. A forum with the active cycling associations in Hong Kong was also held in September 2005.

2.7.3 During the Investigation, Design and Construction (IDC) Stage of Agreement No.: CE 22/2006 (HY) – Cycle Tracks Connecting NWNT with NENT, DCs including the North District, Yuen Long, Tuen Mun, Sha Tin and Tai Po were consulted from July 2006 to September 2007. The feedback received from consultation has been considered and this information has been consided during the design.

2.7.4 In general, the public has expressed their support for the proposed scheme and implementation framework.

3. AIR QUALITY (CONSTRUCTION PHASE)

3.1 Introduction

3.1.1 This assessment has been based on the criteria and guidelines for evaluation and assessment of air quality impacts stated in Annex 4 and 12 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) and the scope outlined in Section 3.4.3 of the EIA Study Brief.

3.2 Relevant Legislations, Standards & Guidelines

3.2.1 Hong Kong's air quality is regulated through the *Air Pollution Control Ordinance (Cap. 311) (APCO)*. The APCO specifies Air Quality Objectives (AQOs), which are the statutory limits for pollutants and the maximum allowable number of times that these may be exceeded over specified periods. These pollutants are defined as Criteria Pollutants (CP). The AQOs that have been defined for these CP are given in **Table 3-1**.

Table 3-1 Hong Kong Air Quality Objectives

Pollutant	Concentration (μg/m^3)(1) Averaging Period				
	1 Hour(2)	8 Hours(3)	24 Hours(3)	3 Months(4)	1 Year(4)
Sulphur Dioxide, SO_2	800	-	350	-	80
Total Suspended Particulate, TSP	-	-	260	-	80
Respirable Suspended Particulates, RSP(5)	-	-	180	-	55
Nitrogen Dioxide, NO_2	300	-	150	-	80
Carbon Monoxide, CO	30,000	10,000	-	-	-
Photochemical Oxidants, (as ozone (6))	240	-	-	-	-
Lead	-	-	-	1.5	-

Notes:

(1) Measured at 298 K and 101.325 kPa (one atmosphere)

(2) Not to be exceeded more than 3 times per year

(3) Not to be exceeded more than once per year

(4) Arithmetic means

(5) Respirable suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 10 μm or less

(6) Photochemical oxidants are determined by measurement of ozone only

3.2.2 For impacts during the construction stage, Annex 4 of EIAO-TM stipulates an hourly average of Total Suspended Particulate (TSP) concentration of 500 μg/m^3 measured at 298 K (25℃) and 101.325 kPa (1 atmosphere) for construction dust impacts. Mitigation measures for construction sites specified in the Air Pollution Control (Construction Dust) Regulation should be followed.

3.2.3 The APCO's subsidiary regulation Air Pollution Control (Construction Dust) Regulation defines notifiable and regulatory works activities that are subject to construction dust control.

Notifiable Works:

1. Site formation;
2. Reclamation;
3. Demolition of a building;
4. Work carried out in any part of a tunnel that is within 100 m of any exit to the open air;
5. Construction of the foundation of a building;
6. Construction of the superstructure of a building; or
7. Road construction work.

Regulatory Works:

8. Renovation carried out on the outer surface of the external wall or the upper surface of the roof of a building;
9. Road opening or resurfacing work;
10. Slope stabilisation work; or
11. Any work involving any of the following activities-
    - Stockpiling of dusty materials;
    - Loading, unloading or transfer of dusty materials;
    - Transfer of dusty materials using a belt conveyor system;
    - Use of vehicles;
    - Pneumatic or power-driven drilling, cutting and polishing;
    - Debris handling;
    - Excavation or earth moving;
    - Concrete production;
    - Site clearance; or
    - Blasting.

3.2.4 Notifiable works require that advance notice of activities be given to EPD. The Regulation also requires the works contractor to ensure that both notifiable works and regulatory works will be conducted in accordance with the Schedule of the Regulation, which provides dust control and suppression measures.

3.3 Study Area and Air Sensitive Receivers

Study Area

3.3.1 Clause 3.4.3.4 of the EIA Study Brief has prescribed a Study Area as a distance of 500 m from boundary of the Project site, which covers the footprint of the proposed cycle track and the associated supporting facilities.

3.3.2 The Study Area is generally rural in nature with a mixture of land uses including village development and other mixed types of land development, transport network and farm land. Air quality is influenced primarily from vehicle traffic emissions.

Air Sensitive Receivers

3.3.3 **Figure 3-1** to **Figure 3-10** show the Study Area and representative Air Sensitive Receivers (ASRs) within this area. Although the Study Area covers an area of 500 m from the work sites, the first tier of ASRs will usually be considered in planning the works in order to minimize the dust nuisances. Other ASRs located further away from these first tier ones will be expected to be less affected. **Table 3-2** provides a list of the representative ASRs.

Table 3-2 Locations of the Selected Representative ASRs

ASR	Description	Shortest Horizontal Distance from works site	Nature of Use	Figure No.
A/NSR01	Village House near Kam Tin River	55 m (from cycle track) 156 m (from R5)	Residential	3-1
A/NSR_P01a	AFCD Pond-fish Research Sub-station ("CDA" site as in Kam Tin North OZP No. S/YL-KTN/7)	260 m	Office	3-1
A/NSR02	Village House near Kam Tin River	77 m	Residential	3-2
A/NSR03	No. 28 Man Yuen Chuen	24 m (from cycle track) 94 m (from R6)	Residential	3-3
A/NSR04	Wong Chan Sook Ying Memorial School	97 m	School	3-3
A/NSR04a	No. 10 Yau Pok Road	60 m	Residential	3-3
A/NSR05	Bethel High School	80 m	School	3-3
A/NSR06	House in Fairview Park	37 m	Residential	3-3
A/NSR07	No. 53 Castle Peak Road – Mai Po	12 m	Residential	3-4
A/NSR08	No. 1 Yau Mei San Tsuen	21 m (from cycle track) 95 m (from R7)	Residential	3-4
A/NSR09	House in Green Crest	123 m	Residential	3-4
A/NSR10	House in Royal Palms	123 m	Residential	3-4
A/NSR11	House B15 in Maple Gardens	86 m	Residential	3-4
A/NSR11a	House C1, Casa Paradizo	70 m	Residential	3-4
A/NSR12	No. 159 Mai Po San Tsuen	8 m	Residential	3-5
A/NSR13	No. 1C Mai Po Lo Wai	12 m	Residential	3-5
A/NSR13a	Yeung Hau Temple	15 m	Temple	3-5

ASR	Description	Shortest Horizontal Distance from works site	Nature of Use	Figure No.
A/NSR14	No. 111 Tsing Lung Tsuen	80 m (285m from R8)	Residential	3-6
A/NSR15	No. 88 Yan Shau Wai	72 m	Residential	3-7
A/NSR16	No. 68N Tung Chan Wai	70 m	Residential	3-7
A/NSR17	No. 78 Tung Chan Wai	67 m	Residential	3-7
A/NSR18	B15 of Europa Garden	67 m	Residential	3-8
A/NSR19	Block 2, Dills Corner Garden (Being used as home for the elderly till Oct 2008 under short term tenancy) (Site earmarked for hostels for staff of Correctional Services Department)	6 m	Residential	3-8
A/NSR20	Kwu Tung Public Oi Wah School	150 m	School	3-8
A/NSR21	Home of Loving Faithfulness	13 m	Hostel	3-8
A/NSR22	No.D2A Ho Sheung Heung	84 m (161 m from R9 & Information Kiosk)	Residential	3-9
A/NSR23	No. C110 Tsung Pak Long Village	24 m	Residential	3-10
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	275 m	Residential (planned)	3-2
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	85 m	Residential (planned)	3-3
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	82 m	Residential (planned)	3-4
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	60 m	Residential (planned)	3-8

3.4 Baseline Environmental Conditions

3.4.1 The existing air quality within the Study Area is dominated by vehicle emissions from Castle Peak Road, San Tin Highway and Fanling Highway. The baseline air quality has been derived from the EPD's Air Quality Reports. There is currently no EPD air quality monitoring station (AQMS) in operation in the Study Area. The nearest station that is most representative is located in Yuen Long (situated at No. 269 Castle Peak Road, Yuen Long). The annual average background TSP and RSP concentration monitored at Yuen Long AQMS over the last 5 years all exceeded the AQOs.

3.4.2 **Table 3-3** summarises the results for pollutants monitored at this station for the year 2003 to 2007.

Table 3-3 Annual Averages of Pollutants for Year 2003-2007 at Yuen Long Air Quality Monitoring Station

Particulate Pollutant	Annual Average Concentration (in micrograms per cubic metre)				
	2007	2006	2005	2004	2003
TSP	97	101	104	113	98
RSP	64	62	62	71	61
SO_2	24	28	28	31	18
NO_2	55	58	58	67	60
O_3	36	32	32	35	31

Note: Underlined value represents exceedance of AQOs

3.5 Impact Assessment

Project Construction Activities

3.5.1 Potential air quality impacts during construction would generally be limited to fugitive dust emissions as air pollutions generated by equipment and transport of materials to site would be generally low. The construction will include site clearance such as vegetation removal, breaking up of hard ground and removal of the first 0.2 m of topsoil for forming the sub-base.

3.5.2 Typically, the contractor can clear an area of 40 m long by 4 m wide in a day. The daily generation of construction and demolition (C&D) materials would be about 32 m^3 in total and may require about 6 trips for removal by dump trucks. To minimize dust levels, working sections of the cycle track will be separated into working areas and no adjacent sections will be worked on simultaneouly (e.g. 200 m between two neighbouring sections).

3.5.3 The cycle track sub-base will then be formed and compacted and applied with asphalt and rolled over to form the permanent surface. Afterwards, it will be fitted with railing, if applicable, and finally road markings will be applied.

3.5.4 For Resting Stations and the Information Kiosk, these sites will likely be paved with bricks with some additional landscaping works, subject to the detailed design.

3.5.5 It is expected that works at the sites could generate a small amount of dust during some of the construction stages including:

- Site clearance;
- Material stockpiling, handling and transportation; and
- Excavation.

3.5.6 The construction of the cycle tracks and associated supporting facilities would involve works which could generate fugitive dusts, some of which are notifiable / regulatory works, as listed below:

- The site clearance is considered to be a regulatory works procedure that requires appropriate dust suppression measures under the Regulation to adequately control dust to within an acceptable level.

- Site preparation and slope works may involve minor excavation, which is classified as regulatory work, and material stockpiling and handling may also require dust control measures.
- The works will involve the use of trucks for material transport. Use of vehicles is a regulatory work procedure and dust control measures should be implemented to ensure dust levels are controlled to an acceptable level.

3.5.7 Given that some of the works are dust generating, standard mitigation measures for this Project should be implemented.

Cumulative Impacts

3.5.8 Based on the current information, there are three projects that may have the potential to result in cumulative dust emissions impacts. These include "Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2" (YLKTSSD2), "The Proposed Comprehensive Development at Wo Shang Wai" (CDWSW) and "Salt Water Supply for North West New Territories and to Yuen Long" (NWNTSWS).

3.5.9 The potential for dust impacts have been assessed in the respective project EIA reports for YLKTSSD2 and CDWSW (EIA Application No. EIA-094/2004 and EIA Application No. EIA-144/2008). The construction period for the YLKTSSD2 project is from 2009 to 2014, for the CDWSW project is from 2008 to 2012, and for the NWNTSWS is from 2007 to 2013.

3.5.10 The EIA report for the YLKTSSD2 states that all works will be carried out in small sections and will be completed within a short period. As for the CDWSW project, only a small portion of the site (the entrance area) will be close to the cycle track alignment. The majority of the development area is located over 300 m from the cycle tracks.

3.5.11 Mitigation measures for controlling dust emissions have been required in both the YLKTSSD2 and CDWSW EIA reports and the contractors will be required to follow the procedures and requirements as stipulated in the Air Pollution Control (Construction Dust) Regulation. It is also mandatory for the Contractors of all the potential concurrent projects to implement dust suppression measures as stipulated in the Air Pollution Control (Construction Dust) Regulation. To this end, cumulative dust impacts that may be caused by these concurrent projects is expected to be insignificant. Furthermore, environmental monitoring and audit (EM&A) programmes have been specifically formulated for the two concurrent projects. With proper implementation of these EM&A programmes, cumulative impacts are not anticipated.

3.6 Mitigation Measures

3.6.1 Standard mitigation should be incorporated to reduce fugitive dust levels from construction works as described below.

3.6.2 To reduce the potential for fugitive dust impacts, the applicable dust control measures recommended in the Air Pollution Control (Construction Dust) Regulation should be implemented, including the following:

1. The works area for site clearance shall be sprayed with water before, during and after the operation so as to maintain the entire surface wet;

2. Restricting heights from which materials are to be dropped, as far as practicable, to minimize the fugitive dust arising from unloading/ loading;
3. Immediately before leaving a construction site, all vehicles shall be washed to remove any dusty materials from the bodies and wheels. However, all spraying of materials and surfaces should avoid excessive water usage;
4. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials will not leak from the vehicle;
5. Travelling speeds should be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks;
6. Erection of hoarding of not less than 2.4 m high from ground level along the site boundary, where appropriate;
7. Any stockpile of dusty materials shall be covered entirely by impervious sheeting; and/or placed in an area sheltered on the top and 4 sides;
8. All dusty materials shall be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet.

3.6.3 With the above mitigation measures, dust impacts are not expected to result from the Project.

3.7 Evaluation of Residual Impacts

3.7.1 With the implementation of the above mentioned mitigation measures, the residual construction air quality impacts are expected to be within the acceptable criteria.

3.8 Environmental Monitoring and Audit Requirements

3.8.1 It is necessary to ensure proper implementation of the dust control measures as required under the Air Pollution Control (Construction Dust) Regulation. No specific construction dust monitoring is recommended as dust generated by the Project is expected to be minimal and works in any one segment of the cycle tracks will be relatively short in duration. However, environmental audits shall be undertaken during the construction stage to ensure proper implementation of air quality control measures.

3.9 Conclusion

3.9.1 The Project does not require large-scale site formation or other major activities that could generate significant amount of fugitive dust and only a small amount of dust is expected to be generated during construction works.

3.9.2 Through proper implementation of dust control measures required under the Air Pollution Control (Construction Dust) Regulation by the works contractor, construction dust can be controlled at source to acceptable levels and hence no unacceptable impacts are anticipated.

References

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4. AIR QUALITY (OPERATIONAL PHASE)

4.1 Introduction

4.1.1 This section assesses the operational impacts based on the criteria and guidelines for evaluation and assessment of air quality impacts stated in Annexes 4 and 12 of the EIAO-TM and in the scope outlined in Section 3.4.3 of the EIA Study Brief.

4.1.2 The cycle tracks and the associated supporting facilities are not sources of air pollution and hence will not result in air quality impacts during the operation. Thus impacts on the surroundings during the operation of the Project is not considered further in this section.

4.2 Relevant Legislation, Standards & Guidelines

4.2.1 The principal legislation for the management of air quality is the *Air Pollution Control Ordinance (Cap. 311) (APCO)*. The Air Quality Objectives (AQOs) specified under the APCO for the Criteria Pollutants given in **Table 3-1** in Section 3.

4.2.2 The Hong Kong Planning Standards and Guidelines (HKPSG) recommends a buffer distance on usage of "open space" site for active and passive recreational uses from roads and industrial areas. **Table 4-1** outlines the HKPSG recommended buffer distances for recreational uses in open space.

Table 4-1 HKPSG Recommended Buffer Distance for Active / Passive Recreational Uses in Open Space

Pollution Sources	Parameter	Recommended Buffer Distance	
		Active	Passive
Road and Highways	*Type of Road*		
	Trunk Road and Primary Distributor	> 20 m	3 – 20 m
	District Distributor	> 10 m	< 10 m
	Local Distributor	> 5 m	< 5 m
Industrial Areas	*Difference in Height between Industrial Chimney Exit and the Site*		
	< 20 m	> 200 m	5 – 200m
	20 – 30 m	> 100 m	5 – 100m
	30 – 40 m	> 50 m	5 – 50m
	> 40 m	> 10 m	

Remarks:
1) The buffer distance is the horizontal, shortest distance from the boundary of the industrial lot, the position of existing chimneys or the edge of road kerb, to the boundary of open space sites.
2) The guidelines are generally applicable to major industrial areas but NOT individual large industrial establishments, which are likely to be significant air pollution sources.

4.3 Study Area and Air Sensitive Receivers

Study Area

4.3.1 The Study Area is generally rural in nature with a mixture of land uses including village development and other mixed types of land development, transport network and farm land. Air quality is influenced primarily by vehicle traffic emissions.

Air Sensitive Receivers

4.3.2 The Resting Stations are designed to serve as stopovers/meeting places along the cycle tracks for the cyclists who want to take a short rest. The Resting Stations are equipped with minimal facilities (e.g., bicycle parking areas, information board and sitting-out areas). No bike riding practice areas are to be provided. Thus, the Resting Stations are considered to be Air Sensitive Receivers (ASRs) being a recreational use. (Parking areas of the Resting Stations are not intended for recreational use, thus the parking areas are not considered to be air sensitive). A small seating area with two small benches will also be provided near Mai Po Village. This is also considered to be an ASR.

4.3.3 The Information Kiosk is designed to promote the cycling activities and to provide information on the surrounding areas through information boards. There will not be any formal teaching facilities provided. A food kiosk will be provided and staff working there would stay for relatively longer hours. To this end, the Information Kiosk is considered to be an ASR. The relevant figures showing the location of the operational phase ASRs are summarised below:

- Resting Station R5 - **Figure 3-1**
- Resting Station R6 - **Figure 3-3**
- Resting Station R7 - **Figure 3-4**
- Resting Station R8 - **Figure 3-6**
- Small seating area near Mai Po Village - **Figure 3-5**
- Resting Station R9 and Information Kiosk - **Figure 3-9**

4.4 Impact Assessment

4.4.1 The location and layout of the Resting Stations and Information Kiosk has already been designed to minimize the potential air quality impacts due to pollution sources with reference to the recommendations in the Hong Kong Planning Standards and Guidelines (HKPSG).

4.4.2 The Resting Stations, Information Kiosk and the small seating area at Mai Po Village are considered to be comparable to “open space” sites thus the HKPSG buffer distance to “open space” sites has been referred to.

4.4.3 Potential emission sources have been identified for each ASR with the main source of air pollution resulting from roads and highways. The setback distances of the boundary of the Resting Station and Information Kiosk from these emission sources are summarised in **Table 4-2**.

Table 4-2 Setback Distances of Air Sensitive Receivers

	R5			R6	R7	R8		R9 & Information Kiosk			Small seating area at Mai Po Village	
Adjoining Road / Industrial Area	Tsing Long Highway	Castle Peak Road (Tam Mi)	Pok Wai South Road	Kam Pok Road	Castle Peak Road (Tam Mi)	San Tin Highway	Castle Peak Road (San Tin)	Fanling Highway	Castle Peak Road (Kwu Tung)	A local soy products factory	Tam Kon Chau Road	Castle Peak Road (Mai Po)
Type of Adjoining Road / Industrial Area	Trunk Road	District Distributor	Local Distributor	Local Distributor	District Distributor	Trunk Road	District Distributor	Trunk Road	District Distributor	Chimney: <20m difference in height between chimney exit and site	Local Distributor	District Distributor
Minimum distance of Resting Station boundary from road kerb / chimney	35 m	10 m	5 m	14 m	10 m	21 m	11 m	900 m	890 m	64 m	225 m	250 m
Setback distance required for Active Recreational Uses	> 20 m	> 10 m	> 5 m	> 5 m	> 10 m	> 20 m	> 10 m	> 20 m	> 10 m	> 200 m	> 5 m	> 10 m
Setback distance required for Passive Recreational Uses	3 – 20 m	< 10 m	< 5 m	< 5 m	< 10 m	3 - 20 m	< 10 m	3 - 20 m	< 10 m	5 – 200 m	< 5 m	< 10 m
Minimum distance meets setback distance	✓	✓	✓	✓	✓	✓	✓	✓	✓	Does not meet the distance required for active recreational uses	✓	✓

4.4.4 The setback distances of the resting stations boundaries and the seating area in Mai Po to the surrounding roads all meet the HKPSG recommended buffer distances. To this end, the potential air quality impacts on the Resting Stations due to vehicular emissions are considered to be at acceptable levels. No cumulative impacts are expected to result.

4.4.5 One small chimney stack (exit point of diameter about 20 cm at 8 m above ground level (confirmed by the operator)) of a local soy products factory located at about 64 m to the southwest of the Information Kiosk has been identified. In view of the separation distance between this small chimney and the Information Kiosk which meets the HKPSG recommended buffer for passive recreational use, but does not meet the buffer for active recreational use. To this end, chimney emissions were assessed using the air dispersion model ISCST3 to check against the relevant Air Quality Objectives. Details of the chimney emissions assessment and the model run are provided in **Appendix 4-1**.

4.4.6 The assessment results indicate that the predicted SO_2, NO_2 and RSP levels at the Information Kiosk are within the relevant AQOs requirements. Thus, adverse air quality impacts on the Information Kiosk due to chimney emissions are not expected to occur.

4.4.7 Other potential air polluting sources in the general vicinity of the Information Kiosk include the the Sheung Shui Slaughter House and Shek Wu Hui Sewage Treatment Works located about 610 m and 640 m from the Information Kiosk, respectively, which are outside the 500 m Study Area for this location. Due to the distance of these potential odour emission sources, no significant odour impacts are anticipated to occur at the Information Kiosk.

4.5 Mitigation Measures

4.5.1 Impacts are not expected to result from the Project, provided the recommended setback distances for the Resting Stations and Information Kiosk form the design specifications. No further mitigation measures are required.

4.6 Evaluation of Residual Impacts

4.6.1 No impacts have been identified during the operation of the cycle tracks and the associated supporting facitilites. As such, no residual impacts will result.

4.7 Environmental Monitoring and Audit Requirements

4.7.1 No EM&A program is considered necessary for the operational phase of the Project.

4.8 Conclusion

4.8.1 The operation of the cycle tracks is not considered to result in any air quality impacts. Air quality impacts with regard to the Resting Stations and Information Kiosk have been reviewed and no adverse air quality impacts were expected to occur provided the recommended buffer distances from emission sources for the Resting Stations and Information Kiosk form the design specifications.

5. NOISE

5.1 Introduction

5.1.1 This assessment has been based on the criteria and guidelines for evaluation and assessing noise impact as stated in Annexes 5 and 13 of the EIAO-TM and has covered the scope outlined in Section 3.4.4 of the EIA Study Brief.

5.1.2 This assessment has evaluated the potential impacts quantitatively using standard acoustic principles and has focussed on each individual section of the cycle tracks and the associated supporting facilities, including Resting Stations and the Information Kiosk.

5.1.3 The proposed cycle track and the associated supporting facilities (e.g. Resting Stations and Information Kiosk) are not considered sources of noise pollution during their operational phase. There will be no formal teaching class / lecturing where unaided voice communication is required at the Information Kiosk. Thus they are not considered as noise sensitive uses and no operational noise impact assessment is required for this Project.

5.1.4 The following provides an assessment of potential construction noise impacts associated with the Project.

5.2 Relevant Legislations, Standards & Guidelines

General Construction Activities during Non-Restricted Hours

5.2.1 Noise impacts arising from general construction activities other than percussive piling during the daytime period (07:00-19:00 hours of any day not being a Sunday or general holiday) shall be assessed against the noise standards tabulated below in **Table 5-1**.

Table 5-1 Noise Standards for Daytime Construction Activities

Noise Sensitive Uses	0700 to 1900 hours on any day not being a Sunday or general holiday, Leq (30 min), dB(A)
All domestic premises including temporary housing accommodation	75
Hotels and hostel	
Educational institutions including kindergarten, nurseries and all others where unaided voice communication is required	70 65 during examination

Source: EIAO-TM, Annex 5, Table 1B - Noise Standards for Daytime Construction Activities

Note:

1) The above noise standards apply to uses, which rely on opened windows for ventilation
2) The above standards shall be viewed as the maximum permissible noise levels assessed at 1m from the external facade
3) The above standards shall be met as far as possible. All practicable mitigation measures shall be exhausted and the residual impacts are minimized

General Construction Activities During Restricted Hours and Percussive Piling During Anytime

5.2.2 Noise impacts arising from general construction activities (excluding percussive piling) conducted during the restricted hours (19:00-07:00 hours on any day and anytime on Sunday or general holiday) and percussive piling during anytime are governed by the *Noise Control Ordinance* (NCO).

5.2.3 For carrying out any general construction activities involving the use of any PME within restricted hours, a Construction Noise Permit (CNP) is required from the Authority under the NCO. The noise criteria and the assessment procedures for issuing a CNP are specified in *Technical Memorandum on Noise from Construction Work Other Than Percussive Piling* (GW-TM) under the NCO.

5.2.4 The use of Specified PME (SPME) and/or the carrying out of Prescribed Construction Work (PCW) within a Designated Area (DA) under the NCO during the restricted hours are also prohibited without a CNP. The relevant technical details can be referred to *Technical Memorandum on Noise from Construction Work in Designated Areas* (DA-TM) under NCO.

5.2.5 Designated areas, in which the control of SPME and PCW shall apply, are established through the Noise Control (Construction Work Designated Areas) Notice made under Section 8A(1) of the NCO. According to the latest Designated Area defined under the NCO, some of the works area of this project will fall within these areas.

5.2.6 As such, the application for CNP for any general construction activities involving the use of any PME shall refer to the GW-TM only. However, the Contractor has the responsibility to check the latest status and coverage of the Designated Areas at the time of construction of the project.

5.2.7 Also, percussive piling is only permitted when the Authority has granted a CNP. *Technical Memorandum on Noise from Percussive Piling* (PP-TM) under the NCO sets out the permitted hours of operation of percussive piling and Acceptable Noise Level (ANL) requirements, which are dependent on the level of exceedance of the Acceptable Noise Level (ANL).

5.2.8 Regardless of any description or assessment made in the following paragraphs, in assessing an application for a CNP, the Authority will be guided by the relevant Technical Memoranda. The Authority will consider all the factors affecting their decision taking contemporary situations/ conditions into account. Nothing in this EIA Report shall pre-empt the Authority in making their decisions, and there is no guarantee that a CNP will be issued. If a CNP is to be issued, the Authority may include any conditions they consider appropriate and such conditions are to be followed while the works covered by the CNP are being carried out. Failing to do so may lead to cancellation of the permit and prosecution action under the NCO.

5.3 Study Area and Noise Sensitive Uses

Study Area

5.3.1 Clause 3.4.4.3 (i) of the EIA Study Brief prescribed the Study Area to be an area within 300 m from the Project boundary.

Noise Sensitive Uses

5.3.2 Noise sensitive receivers (NSRs) have been identified in accordance with Annex 13 of the EIAO-TM. The NSRs have included existing NSRs and planned/ committed noise sensitive developments and relevant uses identified on the relevant Outline Zoning Plans, Development Permission Area Plans, Outline Development Plans, Layout Plans and other relevant published land use plans, including plans and drawings published by the Lands Department.

5.3.3 For the purpose of this construction noise assessment, representative first tier NSRs closest to the site have been selected for predicting the noise impacts. These would represent the worst case scenario in predicting noise impacts.

5.3.4 Other NSRs further away from these first tier NSRs are expected to be less affected by comparison. The representative NSRS are listed in **Table 5-2** and shown in **Figure 3-1** to **Figure 3-10**.

Table 5-2 Locations of the Selected Representative NSRs

NSR	Description	Shortest Horizontal Distance from works site	Nature of Use	Figure No.
A/NSR01	Village House near Kam Tin River	55 m (from cycle track) 156 m (from R5)	Residential	3-1
A/NSR02	Village House near Kam Tin River	77 m	Residential	3-2
A/NSR03	No. 28 Man Yuen Chuen	24 m (from cycle track) 94 m (from R6)	Residential	3-3
A/NSR04	Wong Chan Sook Ying Memorial School	97 m	School	3-3
A/NSR04a	No. 10 Yau Pok Road	60 m	Residential	3-3
A/NSR05	Bethel High School	80 m	School	3-3
A/NSR06	House in Fairview Park	37 m	Residential	3-3
A/NSR07	No. 53 Castle Peak Road – Mai Po	12 m (66 m from the nearest retaining wall to be constructed)	Residential	3-4
A/NSR08	No. 1 Yau Mei San Tsuen	21 m (from cycle track) (80 m from the nearest retaining wall to be constructed) 95 m (from R7)	Residential	3-4
A/NSR09	House in Green Crest	123 m	Residential	3-4

NSR	Description	Shortest Horizontal Distance from works site	Nature of Use	Figure No.
A/NSR10	House in Royal Palms	123 m	Residential	3-4
A/NSR11	House B15 in Maple Gardens	86 m (138 m from the nearest retaining wall to be constructed)	Residential	3-4
A/NSR11a	House C1, Casa Paradizo	70 m	Residential	3-4
A/NSR12	No. 159 Mai Po San Tsuen	8 m (60 m from the nearest retaining wall to be constructed)	Residential	3-5
A/NSR13	No. 1C Mai Po Lo Wai	12 m	Residential	3-5
A/NSR13a	Yeung Hau Temple	15 m (70 m from the nearest retaining wall to be constructed)	Temple	3-5
A/NSR14	No. 111 Tsing Lung Tsuen	80 m (from cycle track) 285 m (from R8)	Residential	3-6
A/NSR15	No. 88 Yan Shau Wai	72 m (123 m from the nearest retaining wall to be constructed)	Residential	3-7
A/NSR16	No. 68N Tung Chan Wai	70 m (175 m from the nearest retaining wall to be constructed)	Residential	3-7
A/NSR17	No. 78 Tung Chan Wai	67 m (185 m from the nearest retaining wall to be constructed)	Residential	3-7
A/NSR18	B15 of Europa Garden	67 m	Residential	3-8
A/NSR19	Block 2, Dills Corner Garden (Being used as home for the elderly till Oct 2008 under short term tenancy) (Site earmarked for hostels for staff of Correctional Services Department)	6 m	Residential	3-8
A/NSR20	Ku Tung Public Oi Wah School	150 m	School	3-8
A/NSR21	Home of Loving Faithfulness	13 m (72 m from the nearest retaining wall to be constructed)	Hostel	3-8
A/NSR22	No.D2A Ho Sheung Heung	84 m (from cycle track) 161 m (from R9 & Information Kiosk)	Residential	3-9
A/NSR23	No. C110 Tsung Pak Long Village	24 m	Residential	3-10
A/NSR_P01a	“CDA” site as in Kam Tin North OZP No. S/YL-KTN/7	260 m	Residential (planned)	3-1
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	275 m	Residential (planned)	3-2

NSR	Description	Shortest Horizontal Distance from works site	Nature of Use	Figure No.
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	85 m	Residential (planned)	3-3
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	82 m	Residential (planned)	3-4
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	60 m	Residential (planned)	3-8

5.3.5 The Study Area is generally rural in nature and with scattered residential developments and open storage sites. The existing residential developments are predominantly low-rises, consisting of village houses and other private residential premises.

5.3.6 There are planning zones, such as “Comprehensive Development Area”, “Village” and “Residential (D)”, in the vicinity of the proposed cycle track that may have potential NSRs such as village houses in future. However, this Study has identified the planned NSRs based on records of all approved planning application for the quantitative construction noise assessment.

5.4 Baseline Environmental Conditions

5.4.1 The Study Area is generally rural in nature and with scattered residential developments and open storage sites. The existing residential developments are predominantly low-rises, consisting of village houses and other private residential premises.

5.4.2 The proposed cycle tracks and Resting Stations will generally be located along existing paved roads. The background noise environment at the area is generally quiet except for areas located along major roads, in particular the San Tin Highway, Fanling Highway and Castle Peak Road. The identified NSRs close to these roads are exposed to traffic noise from these roads.

5.5 Impact Assessment

Analysis of Construction Activities and Sources of Noise Pollution

5.5.1 It is expected that works at the site can roughly be divided into the following types:

- Works Type 1 - Construction of cycle tracks, fill slopes, retaining walls or structures (i.e., for subway and bridge)
- Works Type 2 - Construction of Resting Stations and Information Kiosk

5.5.2 The works type and the various works stages involved are given in **Table 5-3** below together with the estimated duration. This has been developed in collaboration with the IDC Consultant and has been confirmed as feasible by the Project Proponent. No nighttime works are expected for the Project.

Table 5-3 Construction Schedule

Works Stage	Construction Activities	Estimated Duration
Works Type 1 - Construction of Cycle Tracks, Fill Slopes, Retaining Wall and Structures		
Stage 1	Site Clearance	1 week per 100 m of Cycle Track
Stage 2	Levelling/ formation of sub-base	2 weeks per 100 m of Cycle Track
Stage 3	Construction/ Paving Works	
Group 1	Slope works/ retaining wall	4-6 weeks
Group 2	Paving works	1 week per 100 m of Cycle Track
Group 3	Foundation for bridges	2 weeks
Group 4	Structures/ subways/ bridges	2 weeks
Works Type 2 - Construction of Resting Stations/ Information Kiosk		
Stage 1	Site Clearance	1 week
Stage 2	Levelling/ formation of sub-base	2 weeks
Stage 3	Construction/ Paving Works	
Group 1	Slope works/ retaining wall	4-6 weeks
Group 2	Paving works	2 weeks
Group 3	Structures	2 weeks
Group 4	Fitting works	2 weeks

Notes:

Group 1 - 4 works will not be carried out simultaneously.

The various stages involved for each work type will not be undertaken concurrently.

Note the works programme is subject to variables such as weather, conflicts with utilities, etc. and is variable upon these conditions.

5.5.3 An inventory of project-specific powered mechanical equipment required has been developed in collaboration with the IDC Consultant which is considered to be appropriate and practical for completing works within the proposed works programme, and is provided in **Table 5-4** and **Table 5-5**. Whilst it is possible that the future appointed Contractor may propose a different plant inventory, this assessment has been undertaken on the anticipated plant to allow early identification of any potential noise problem and to ensure there are practicable and sufficient noise mitigation measures that can be implemented to alleviate adverse noise impacts. The Contractor will be required to provide and implement sufficient direct noise mitigation measures based on the recommendation in this EIA to achieve acceptable noise levels on the nearby NSRs.

Table 5-4 List of Powered Mechanical Equipment (PME) Inventory for Works Type 1

PME	Description	SWL, dB(A)	No. of Item	Total SWL, dB(A)
Stage 1 - Site Clearance				
CNP081	Excavator	112	1	112
CNP048	Mobile crane	112	1	112
CNP067	Dump truck*	117	1	117
CNP201	Circular saw	108	1	108
Stage 2 - Levelling/ excavation works				
CNP002	Air compressor	102	1	102
CNP024	Hand-held breaker	108	2	111
CNP067	Dump truck*	117	1	117
CNP081	Excavator	112	1	112
Stage 3 - Construction/ Paving works				
Group 1 - Slope works/ retaining wall				
CNP021	Bar bender and cutter (electric)	90	1	90
[Note 1]	Vibrating Hammer	115	1	115
CNP102	Generator	100	1	100
CNP044	Concrete lorry mixer	109	1	109
CNP141	Lorry	112	1	112
CNP170	Poker, vibratory, hand-held	113	1	113
CNP081	Excavator	112	1	112
CNP048	Mobile crane	112	1	112
Group 2 - Paving works				
CNP004	Asphalt paver	109	1	109
CNP081	Excavator	112	1	112
CNP002	Air compressor	102	1	102
CNP050	Compactor, vibratory*	105	1	105
CNP141	Lorry	112	1	112
CNP185	Road roller	108	1	108
Group 3 – Foundation for bridges				
CNP167	Piling, earth auger	114	1	114
CNP002	Air compressor	102	2	105
CNP048	Mobile crane	112	1	112
[Note 1]	Grout Mixer	90	1	90
[Note 1]	Grout Pump	105	1	105
CNP102	Generator	100	1	100
Group 4 - structures/subways/bridges				
CNP081	Excavator	112	1	112
CNP021	Bar bender and cutter (electric)	90	1	90
CNP044	Concrete lorry mixer	109	1	109
CNP050	Compactor, vibratory*	105	1	105
CNP102	Generator	100	1	100
CNP170	Poker, vibratory, hand-held	113	1	113
CNP141	Lorry	112	1	112
CNP048	Mobile crane	112	1	112

[Note 1] Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Group 1 – 4 works will not be undertaken simultaneously

The various stages involved for each work type will not be undertaken concurrently.

* Dump trucks and vibratory compactor are PME's which will be operated on site for a short period in 30 minutes for the proposed works tasks. A 50 percentage on-time has been given.

Table 5-5 List of Powered Mechanical Equipment (PME) Inventory for Works Type 2

PME	Description	SWL, dB(A)	No. of Item	Total SWL, dB(A)
Stage 1 - Site Clearance				
CNP081	Excavator	112	1	112
CNP048	Mobile crane	112	1	112
CNP067	Dump truck*	117	1	117
CNP201	Circular saw	108	1	108
Stage 2 - Levelling/ excavation works				
CNP002	Air compressor	102	1	102
CNP024	Hand-held breaker	108	2	111
CNP067	Dump truck*	117	1	117
CNP081	Excavator	112	1	112
Stage 3 - Construction/ Paving works				
Group 1 - Slope works/ retaining wall				
CNP021	Bar bender and cutter (electric)	90	1	90
[Note 1]	Vibrating Hammer	115	1	115
CNP102	Generator	100	1	100
CNP044	Concrete lorry mixer	109	1	109
CNP141	Lorry	112	1	112
CNP170	Poker, vibratory, hand-held	113	1	113
CNP081	Excavator	112	1	112
CNP048	Mobile crane	112	1	112
Group 2 - Paving works				
CNP004	Asphalt paver	109	1	109
CNP081	Excavator	112	1	112
CNP002	Air compressor	102	1	102
CNP050	Compactor, vibratory*	105	1	105
CNP141	Lorry	112	1	112
CNP185	Road roller	108	1	108
Group 3 – Structures				
CNP081	Excavator	112	1	112
CNP021	Bar bender and cutter (electric)	90	1	90
CNP044	Concrete lorry mixer	109	1	109
CNP050	Compactor, vibratory*	105	1	105
CNP102	Generator	100	1	100
CNP170	Poker, vibratory, hand-held	113	1	113
CNP141	Lorry	112	1	112
CNP048	Mobile crane	112	1	112
Group 4 – Fitting Works				
CNP048	Mobile crane	112	1	112
CNP065	Drill/grinder, hand-held (electric)	98	3	103
CNP201	Circular saw	108	1	108
CNP102	Generator	100	1	100
CNP141	Lorry	112	1	112

[Note 1] Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Group 1 – 4 works will not be undertaken simultaneously

The various stages involved for each work type will not be undertaken concurrently.

* Dump trucks and vibratory compactor are PME's which will be operated on site for a short period in 30 minutes for the proposed works tasks. A 50 percentage on-time has been given.

Assessment Approach & Methodology

5.5.4 Reference has been made to the approach given in the EIAO Guidance Note No. 9/2004 "Preparation of Construction Noise Impact Assessment Under the Environmental Impact Assessment Ordinance" (GN9). Further, the assessment has been undertaken in accordance with the EIAO-TM Annex 13, and the guidelines given in GW-TM issued under the NCO, where appropriate. Where no sound power level ("SWL") can be found in the relevant TM, reference has been made to BS 5228 Part I or noise emission levels measured used in previous projects in Hong Kong.

5.5.5 The approach taken includes the following: -

1. Assume a typical construction schedule as in **Table 5-3**;
2. Assume a typical project-specific equipment inventory in **Table 5-4** and **Table 5-5** for each work stage together with the number and type of PME that are considered necessary for completing the works during the non-restricted hours;
3. Obtain from GW-TM, the Sound Power Level (SWL) for each PME assumed in the equipment inventory and determine the probable % on-time within any 30 minutes;
4. Select representative NSRs for the construction noise impact assessment in **Table 5-2**;
5. Calculate the unmitigated Predicted Noise Level ("PNL") and correct it for facade reflection to obtain the Corrected Noise Level ("CNL") at any NSRs as in **Appendix 5-1**;
6. If necessary, re-select typical project-specific silenced equipment and other types of mitigation measures to address noise exceedance, e.g. noise barrier and calculate the mitigated noise impact as in **Appendix 5-2**;
7. Compare the mitigated CNL with the noise standards given in **Table 5-1** to determine acceptability and the need for further mitigation/ EM&A.

5.5.6 Given the long project extent, the cycle track will be constructed in phases. Construction of the cycle tracks will be implemented in well-separated sections (e.g. 200 m between two neighbouring active working sections). This will also apply to the two ends of the Project where they join the existing cycle tracks network that improvement works will also be carried out. Thus noise impacts due to the concurrent works at different active works sections of the cycle track are not expected.

Unmitigated Construction Noise Impacts

5.5.7 Based on the construction schedule in **Table 5-3** and the assumed equipment inventory in **Table 5-4** and **Table 5-5**, the predicted worst case construction noise impact (based on a conservative approach of assuming all proposed equipment for each construction stage are operating concurrently) for the unmitigated scenario

amongst each construction stage has been summarised in **Table 5-6**. Detailed calculations are provided in **Appendix 5-1**.

Table 5-6 Predicted Unmitigated Construction Noise Levels (Daytime)

NSR	Descriptions	Predicted Unmitigated Construction Noise Level, dB(A)	EIAO Noise Standard, dB(A)
Existing Noise Sensitive Uses			
A/NSR01	Village House near Kam Tin River	67 - 79	75
A/NSR02	Village House near Kam Tin River	74 - 75	75
A/NSR03	No.28 Man Yuen	71 - 87	75
A/NSR04	Wong Chan Sook Ying Memorial School	72 - 75	70/65 *
A/NSR04a	No. 10 Yau Pok Road	76 - 79	75
A/NSR05	Bethel High School	74 - 77	70/65 *
A/NSR06	House in Fairview Park	80 - 84	75
A/NSR07	No. 53 Castle Peak Road – Mai Po	79 - 91	75
A/NSR08	No.1, Yau Mei San	71 - 87	75
A/NSR09	House in Green Crest	70 - 71	75
A/NSR10	House in Royal Palms	70 - 73	75
A/NSR11	House B15 in Maple Gardens	72 - 74	75
A/NSR11a	House C1, Casa Paradizo	75 - 78	75
A/NSR12	No.159 Mai Po San Tsuen	92 - 95	75
A/NSR13	No. 1C Mai Po Lo Wai	89 - 93	75
A/NSR13a	Yeung Hau Temple	78 - 89	70
A/NSR14	No.111 Tsing Lung Tsuen	62 - 77	75
A/NSR15	No. 88 Yan Shau Wai	73 - 76	75
A/NSR16	No. 68N Tung Chan Wai	70 - 76	75
A/NSR17	No. 78 Tung Chan Wai	70 - 77	75
A/NSR18	B15 of Europa Garden	75 - 77	75
A/NSR19	Block 2, Dills Corner Garden	95 - 97	75
A/NSR20	Ku Tung Public Oi Wah School	69 - 72	70/65 *
A/NSR21	Home of Loving Faithfulness	78 - 91	75
A/NSR22	No.D2A Ho Sheung Heung	67 - 78	75
A/NSR23	No. C110 Tsung Pak Long Village	84 - 87	75
Planned Noise Sensitive Uses			
A/NSR_P01a	"CDA" site as in Kam Tin North OZP No. S/YL-KTN/7	64 - 67	75
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	63 - 66	75
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	73 - 76	75
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	74 - 77	75
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	76 - 79	75

Note * EIAO-TM noise limits of Leq(30 min) 70 dB(A) for schools during normal hours (65 dB(A) during examination periods)

5.5.8 The predicted unmitigated construction noise impacts will range from 62 dB(A) to 97 dB(A) which would exceed the EIAO-TM noise standards by up to 22 dB(A).

5.5.9 In practice, the PME will progress along the working area of each open section. Thus, the worst case noise impact will happen when the PMEs are operating closest to the NSRs. Once the PMEs moves on along the working area within each open section and further from the NSRs, the noise impacts will be less.

Cumulative Impacts

5.5.10 There are three projects that may have the potential to result in cumulative construction noise impacts including the YLKTSSD2, CDWSW and NWNTSWS projects. The potential construction noise impacts have been assessed in the projects' EIA report (EIA Application No. EIA-094/2004 and EIA Application No. EIA-144/2008, respectively). The construction period for the YLKTSSD2 is from 2009 to 2014 (confirmed with DSD), for CDWSW is from 2008 to 2012 and for the NWNTSWS project is from 2007 to 2013 (confirmed with WSD).

5.5.11 The NSRs at Mai Po San Tsuen and Palm Springs may potentially be affected by cumulative construction noise impacts if the works at the cycle track section (near CH-MP5+100m) are to overlap with the works at the areas near Castle Peak Road of the CDWSW project. It is recommended that the works at this cycle track section be scheduled to avoid the works at the areas near Castle Peak Road of the CDWSW project if the works site of the CDWSW project is less than 300 m away from Castle Peak Road. Since the concerned cycle track section is relatively short, the associated works programme for this section can be undertaken to avoid concurrent work with this project with careful planning.

5.5.12 The NSRs in Mai Po San Tsuen and Mai Po Lo Wai that may be affected by the cycle tracks construction works will not be affected by any concurrent works from YLKTSSD2 project due to re-routing of the cycle track alignment. However, NSRs on either side of the Kam Tin Nullah along Pok Wai South Road / Kam Pok Road and Yau Pok Road, and NSRs along Castle Peak Road – Mai Po have the potential to be affected by cumulative construction noise impacts from concurrent works with YLKTSSD2.

5.5.13 The NWNTSWS project may involve laying of salt water supply alongside some sections of the cycle track alignment. The NSRs nearby may be affected by the cumulative construction noise impacts.

5.5.14 As such, it is recommended that the contractor liaise with the YLKTSSD2 and NWNTSWS works contractors so as to avoid undertaking works concurrently with the works when they are in close proximity as far as practicable. As a conservative approach, works for the cycle track shall be carried out when the works from the other projects are over 300 m away. The requirements shall be included in the works contracts.

5.6 Possible Noise Mitigation Measures and Mitigated Impacts

5.6.1 Due to the narrow works areas, it is expected that smaller plant (e.g. mini-excavator and road pavers) will be used rather than the regular PME listed in the GW-TM to avoid blocking roadside traffic and pedestrian access. **Table 5-7** below shows the possible alternative quieter PME. These quieter PMEs (e.g. QPME) are available in

the market and have been successfully applied on other projects and have achieved noticeable noise reductions.

Table 5-7 Recommended Quiet PME and the SWL

Description	Equivalent Quiet PME	SWL, dB(A)
Mini excavator	[Note 1]	94
Road ripper, excavator mounted	[Note 1]	105
Mobile crane	BS 5228 Table C.7/118	99
Dump truck	BS 5228 Table C.9/39	103
Hand-held electric circular saw	BS 5228 Table C.7/75	105
Concrete Lorry Mixer	BS 5228 Table C.6/23	100
Lorry	BS 5228 Table C.8/25	96
Poker, vibratory, hand-held	BS 5228 Table C.6/40	98
Asphalt Paver	BS 5228 Table C.8/24	101
Crane mounted auger	BS 5228 Table C.4/37	111
Road Roller	BS 5228 Table C.8/30	101

[Note 1] Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

5.6.2 Use of temporary noise barrier / enclosure has been recommended for certain PME to alleviate the construction noise impacts. In general, a 5 dB(A) reduction for movable plant and 10 dB(A) for stationary plant can be assumed depending on the actual design with reference to Paragraph 4.6 of EIAO GN9. **Table 5-8** shows the assumed noise reduction effects achieved by the temporary noise barrier for certain items of PME. In general, temporary noise barrier will be in the form of site hoardings. In the case of noise enclosure, the openings that are required for exhaust / ventilation shall be minimised. The barrier / enclosure material's surface mass in excess of 7 kg/m^2 is recommended. The Contractor shall be responsible for design of the temporary noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and PME. The mitigation proposal has been developed in collaboration with the IDC Consultant and has been confirmed as technically feasible by the Project Proponent.

Table 5-8 Noise Mitigation Measures for Certain PME

PME	Proposed Mitigation Measures	Assumed Noise Reduction, dB(A)
Mini excavator	Noise barrier	5
Mobile crane	Noise barrier	5
Dump truck	Noise barrier	5
Hand-held electric circular saw	Noise barrier	10
Air compressor	Noise enclosure	10
Hand-held breaker	Noise enclosure	10
Bar bender	Noise barrier	5
Vibrating hammer	Noise barrier	10
Generator	Noise barrier	5
Concrete Lorry Mixer	Noise barrier	5

PME	Proposed Mitigation Measures	Assumed Noise Reduction, dB(A)
Lorry	Noise barrier	5
Poker, vibratory, hand-held	Noise barrier	5
Asphalt Paver	Noise barrier	5
Compactor	Noise barrier	10
Road Roller	Noise barrier	5
Crane mounted auger	Noise barrier	10
Grout mixer	Noise barrier	5
Grout pump	Noise barrier	5
Drill	Noise barrier	5
Road ripper, excavator mounted	Noise barrier	10

5.6.3 It should be noted that the noise screening effect due to the temporary noise barriers (as shown in **Table 5-8**) and the noise mitigation measures including phasing of the works adopted in this EIA Report are specific to this Project with considerations of specific work types, low-rise houses, specific design of temporary noise barriers in the form of site hoardings and screening without direct line of sight between the NSRs and the PMEs. The measures and the noise screening effect should not be lightly applied to other projects without careful considerations of the specific construction works, design of barriers and NSRs' situations.

5.6.4 There are 6 NSRs located very close to the works area (within 15 m or less), namely No. 53 Castle Peak Road – Mai Po (A/NSR07, see **Figure 3-4**), No. 159 Mai Po San Tsuen (A/NSR12, see **Figure 3-5**), No. 1C Mai Po Lo Wai (A/NSR13, see **Figure 3-5**), Yeung Hau Temple (A/NSR13a, see **Figure 3-5**), Block 2 of the Dills Corner Garden (A/NSR20, see **Figure 3-8**), and Home of Loving Faithfulness (A/NSR22, see **Figure 3-8**). A more detailed assessment has been undertaken for these NSRs taking into account of the actual operation of the PME for the construction works.

5.6.5 In view of the small works area that is available for accommodating the construction equipment, only limited number of operative plant will be located nearest to the NSRs at any one time. These are summarised below.

- During Stage 1 (site clearance) works of Works Type 1, only one of the following PMEs shall be operating at one time:

  Sub-group A: 1 mini excavator

  Sub-group B: 1 mobile crane

  Sub-group C: 1 dump truck

  Sub-group D: 1 handheld electric circular saw

- During Stage 2 (levelling / excavation) works of Works Type 1, sub-grouping of PMEs, as described below, shall be operating at one time:

  Sub-group A: 1 air compressor + 1 handheld breaker

  Sub-group B: 1 dump truck

  Sub-group C: 1 mini excavator

- During Stage 3 works of Works Type 1, sub-grouping of PMEs, as described below, shall be operating:

  Group 1 – slope works/ retaining wall

  Sub-group A: 1 bar bender and cutter + 1 mini excavator + 1 generator

  Sub-group B: 1 crane mounted auger + 1 mini excavator + 1 generator

  Sub-group C: 1 mobile crane

  Sub-group D: 1 lorry

  Sub-group E: 1 concrete lorry mixer + 1 vibratory poker

  Group 2 – paving works

  Sub-group A: 1 asphalt paver

  Sub-group B: 1 mini excavator

  Sub-group C: 1 lorry

  Sub-group D: 1 road roller

  Sub-group E: 1 air compressor + 1 vibratory compactor

5.6.6 Alternative quieter plant has been considered to alleviate the noise impacts arising from the use of handheld breaker during Stage 2 (levelling / excavation) works of Works Type 1 near NSR12 and NSR 20 as mitigation measures. These are summarised below:

Sub-group A: 1 road ripper, excavator mounted

Sub-group B: 1 dump truck

Sub-group C: 1 mini excavator

5.6.7 The IDC Consultant of the Project Proponent has confirmed the above phasing and the adoption of the PMEs as being practical and adequate for completing the works within the scheduled timeframe. With the proposed measures in place, the predicted noise levels at all of the NSRs would comply with the EIAO-TM noise standards. **Table 5-9** presents the mitigated noise levels during normal daytime working hours at NSRs. A sample calculation of construction noise levels for mitigated scenario is presented in **Appendix 5-2**.

Table 5-9 Predicted Mitigated Construction Noise Levels (Daytime)

NSR	Descriptions	Predicted Mitigated Construction Noise Level, dB(A)	EIAO Noise Standard, dB(A)
Existing Noise Sensitive Uses			
A/NSR01	Village House near Kam Tin River	51 - 64	75
A/NSR02	Village House near Kam Tin River	57 - 60	75
A/NSR03	No.28 Man Yuen	55 - 74	75
A/NSR04	Wong Chan Sook Ying Memorial School	55 - 62	70/65 *
A/NSR04a	No. 10 Yau Pok Road	59 - 66	75
A/NSR05	Bethel High School	57 - 64	70/65 *
A/NSR06	House in Fairview Park	63 - 71	75
A/NSR07	No. 53 Castle Peak Road – Mai Po	66 - 73	75
A/NSR08	No.1, Yau Mei San	55 - 72	75
A/NSR09	House in Green Crest	53 - 56	75
A/NSR10	House in Royal Palms	53 - 60	75
A/NSR11	House B15 in Maple Gardens	56 - 59	75
A/NSR11a	House C1, Casa Paradizo	58 - 65	75
A/NSR12	No.159 Mai Po San Tsuen	70 - 73	75
A/NSR13	No. 1C Mai Po Lo Wai	68 - 75	75
A/NSR13a	Yeung Hau Temple	65 - 70	70
A/NSR14	No.111 Tsing Lung Tsuen	46 - 64	75
A/NSR15	No. 88 Yan Shau Wai	58 - 61	75
A/NSR16	No. 68N Tung Chan Wai	57 - 61	75
A/NSR17	No. 78 Tung Chan Wai	57 - 62	75
A/NSR18	B15 of Europa Garden	58 - 62	75
A/NSR19	Block 2, Dills Corner Garden	73 - 75	75
A/NSR20	Ku Tung Public Oi Wah School	52 - 59	70/65 *
A/NSR21	Home of Loving Faithfulness	64 - 73	75
A/NSR22	No.D2A Ho Sheung Heung	51 - 65	75
A/NSR23	No. C110 Tsung Pak Long Village	67 - 74	75
Planned Noise Sensitive Uses			
A/NSR_P01a	"CDA" site as in Kam Tin North OZP No. S/YL-KTN/7	47 - 54	75
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	46 - 53	75
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	56 - 63	75
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	57 - 64	75
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	59 - 66	75

Note

* EIAO-TM noise limits of Leq(30 min) 70 dB(A) for schools during normal hours (65 dB(A) during examination periods)

5.6.8 It is recommended further that the Contractor should also adopt working practices in order to minimize construction noise as far as possible, including the following:

1. The Contractor shall adopt the Code of Practice on Good Management Practice to Prevent Violation of the *Noise Control Ordinance* (Cap. 400) (for Construction Industry) published by EPD;
2. The Contractor shall observe and comply with the statutory and non-statutory requirements and guidelines;
3. Before commencing any work, the Contractor shall submit to the Project Engineer for approval the method of working, equipment and noise mitigation measures intended to be used at the site;
4. The Contractor shall devise and execute working methods to minimize the noise impact on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented;
5. Noisy equipment and noisy activities should be located as far away from the NSRs as is practical;
6. Unused equipment should be turned off and PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
7. Regular maintenance of all plant and equipment should be undertaken;
8. Material stockpiles and other structures should be effectively utilised as noise barriers, where practicable;
9. The Contractor shall liaise with the schools that are located near the works sites regarding their examination period and schedule the noisy works to avoid the examination period as far as possible.

5.6.9 The Contractor shall, from time to time, be aware of the noise impacts on the surrounding NSRs through adequate noise monitoring during the works so that adjustments could be made to the number of plants to be used at any one time and the plants' positions. These requirements shall be incorporated into the works contract.

5.6.10 It would not be possible to prescribe the PME list at the EIA stage and make it a requirement for the future contract, as this would limit the flexibility of the contractor to do the works. Nevertheless, the various means of mitigation identified in this EIA has been useful in testing and confirming feasibility of construction noise mitigation. The IDC Consultant of the Project Proponent also has confirmed the practicability of the assumed PMEs and the proposed noise mitigation measures. The relevant findings in this EIA are useful reference and guidance for the Contractor in planning of the future works.

5.6.11 As noted in Section 5.3.6, there are planning zones in the vicinity of the proposed cycle track which may have potential NSRs such as village houses located close to the cycle track in future. They may be affected by the construction works of the Project if they are occupied prior to the construction. Whilst noting that the construction noise impact of the identified NSRs in this Study located adjacent to the cycle track could be mitigated with various noise mitigation measures as assessed, construction noise impact could also be mitigated with implementation of the various noise mitigation measures for these potential NSRs in these planning zones.

5.7 Environmental Monitoring and Audit Requirements

5.7.1 In order to ensure that the nearby NSRs will not be subject to unacceptable construction noise impact, an Environmental Monitoring and Audit (EM&A) programme is recommended. The recommended mitigation measures, monitoring procedures and locations are presented in details in the EM&A Manual. This will facilitate the contractor to have early warning and undertake the necessary actions to reduce noise emissions at specific areas.

5.8 Conclusion

5.8.1 The potential noise impact that could arise from daytime construction activities of the project has been evaluated. Whilst the Contractor may prefer to use different construction methods, types and numbers of PME, the assumed tentative construction schedule and plant inventory are expected to be representative and provide a conservative noise impact scenario of reference value.

5.8.2 Practical noise abatement measures, such as the use of quieter plant, use of temporary noise barriers/enclosures, use of alternative plant, and limiting the number of operative plants concurrently, where possible, have been considered and recommended to minimize the construction noise impacts. With the incorporation of such mitigation measures, construction noise levels at the NSRs will comply with the noise standards. No residual noise impact is anticipated.

5.8.3 An EM&A programme will be implemented to ensure the proper implementation of all the recommended noise mitigation measures. Noise monitoring is recommended at selected representative NSRs during the construction phase to check for compliance with permissible noise levels and effectiveness of the proposed mitigation measures.

6. WATER QUALITY IMPACT

6.1 Introduction

6.1.1 This assessment has been based on the criteria and guidelines for evaluation and assessment of water quality impact stated in Annexes 6 and 14 of the EIAO-TM and covered in the scope outlined in Section 3.4.5 of the EIA Study Brief.

6.1.2 The operation of the cycle tracks and the associated supporting facilities are inherently non-polluting in nature. They will be served with stormwater drainage facilities and run-off from the cycle track will not contain pollutants. No sewerage provisions will be required, as toilets are provided at nearby facilities and kitchen waste is not expected to be generated (no cooking will be undertaken. In addition, there will be no maintenance dredging associated with the operation of the cycle tracks and the associated supporting facilities. As such, no water quality impacts during the operation would result.

6.1.3 The Project will not involve any dredging of the sea or disruption to the riverbed. Sediment quality is not a concern in connection with construction and operation of cycle tracks and the supporting facilities.

6.1.4 The following sections provide an assessment of the potential impacts during construction of the Project.

6.2 Relevant Legislations, Standards & Guidelines

6.2.1 In carrying out the assessment, reference has been made to the following relevant Hong Kong legislations/ guidelines governing water pollution control. Relevant ones include:

- *Environmental Impact Assessment Ordinance* and EIAO-TM (Annex 6 and 14).
- *Water Pollution Control Ordinance* (WPCO) (Cap. 358) (as amended by the *Water Pollution Control (Amendment) Ordinance* 1990 and 1993)
- *Water Pollution Control (General) Regulations* (as amended by the *Water Pollution Control (General) (Amendment) Regulations* 1990 and 1994)
- *Water Pollution Control (Sewerage) Regulation*;
- Water Quality Objectives (WQOs) for relevant Water Control Zones (WCZs)
- Practice Note for Professional Persons ProPECC PN1/94, Construction Site Drainage

6.3 Study Area and Sensitive Receivers

Study Area

6.3.1 Section 3.4.5.2 of the EIA Study Brief specifies an assessment area for the water quality impact to include all areas within 500 m from the project site boundary, including the Kam Tin River, Ngau Tam Mei Drainage Channel, San Tin Eastern Main Drainage Channel, Sheung Yue River, Shek Sheung River, surrounding fish

ponds, and wetland within the Conservation Area and Deep Bay Buffer Zones. **Figure 6-1** shows the assessment area, water sensitive receivers and related water bodies. This assessment area could be extended to include other areas such as stream course and the associated water systems in the vicinity being impact by the Project.

Water Systems, Catchments and Water Sensitive Receivers

6.3.2 The project area is entirely within the catchment of the Deep Bay Water Control Zone and is situated in the NWNT. It is traversed by a number of streams and rivers, which receives stormwater runoff from upper catchments including mainly the Kai Kung Leng and Lam Tsuen/ Fanling.

6.3.3 The cycle track will be constructed along the lower part of the Kam Tin River and the Ngau Tam Mei Main Drainage Channel. It will then cross over the San Tin Eastern Main Drainage Channel near San Tin and circumvent the Long Valley along River Beas (Sheung Yue River) and Shek Sheung River. The main water quality sensitive receivers (WSR) in the vicinity of the cycle track and those downstream that could be affected are shown in **Figure 6-1** and listed below: -

1.	Kam Tin River	(neighbouring)
2.	Ngau Tam Mei Main Drainage Channel	(neighbouring)
3.	Fairview Park Nullah	(downstream)
4.	San Tin Eastern Main Drainage Channel	(downstream)
5.	River Beas (Sheung Yue River)	(neighbouring)
6.	Shek Sheung River	(neighbouring)
7.	River Indus (Ng Tung Ho)	(downstream)
8.	Surrounding fish ponds	(neighbouring & downstreams)
9.	Bodies of open water to the west of Castle Peak Road, collectively forming the Wetland Conservation Area	(downstream)
10.	Deep Bay	(downstream)

6.4 Baseline Water Quality Conditions and Trend

Baseline Water Quality

6.4.1 There are EPD routine water quality monitoring stations located along the Kam Tin River (Stations KT1 and KT2), the Fairview Park Nullah (FVR1), the River Beas (RB1, RB2 and RB3), and Rivier Indus (IN1, IN2 and IN3). The locations of these monitoring stations are shown **Figure 6-1**. A summary of water quality data for these stations is presented in **Table 6-1**. These data were measured in 2006 and are the most recently published data (River Water Quality in Hong Kong in 2006, EPD).

6.4.2 In addition to determining compliance with the WQOs, EPD also compiles a Water Quality Index (WQI). The WQI is based on the key parameters of dissolved oxygen saturation, 5-day biochemical oxygen demand and ammonia-nitrogen.

6.4.3 The river water quality at the Kam Tin River was graded “Bad” (KT1) and “Very Bad” (KT2) in the WQI in 2005, respectively with an overall WQO compliance rate at 39%,

6.4.4 The Fairview Park Nullah was graded “Bad" in WQI in 2006 with an overall WQO compliance rate at 45%. This is mainly caused by a reduction in the catchment area, with water diverted into the Kam Tin River after completion of the Ngau Tam Mei Drainage Channel in 2002. The diversion has significantly reduced the flow and thus lowered the nullah’s ability to dilute or disperse pollutants.

6.4.5 The River Beas (Sheung Yue River), though a tributary of the River Indus, is a major river in its own right. Its catchment area covers 15 km^2, and flows northward from Lin Tong Mei through Hang Tau Tai Po and Kwu Tung to join the River Indus at Ho Sheung Heung. Water quality was monitored at a number of stations, of which this project concerns are RB1, RB2, and RB3. In 2006, the WQI was graded “Good” (RB1 and RB2) and “Fair” (RB3) with an overall WQO compliance rate at 78%.

6.4.6 The River Indus has a total catchment area (including that of the River Beas and other tributaries) of around 65 km^2. Its main stream flows westward through Man Uk Pin, Kwan Tei and Sheung Shui, until it joins the Shenzhen River at Lo Wu. Water quality was monitored at a number of stations, of which this project concerns are IN1 and IN2. In 2006, the WQI was graded “Bad” (IN1) and “Good” (IN2) with an overall WQO compliance rate at 73%.

Effect of Existing and Future Water Related Activities and WSR

6.4.7 The water quality trend for the four rivers/ nullah of concern is presented in **Table 6-2**. All these four major rivers show a certain degree of improvement trend over the past 20 years. With implementation of the Livestock Waste Control Scheme and progressive provision of sewers to unsewered areas, the future water quality in the water sensitive receivers – mainly rivers will be expected to improve further.

Table 6-1 Water Quality Objectives (WQO) and Water Quality Index (WQI) and Compliance Rate in 2006

Watercourse		River Indus			River Beas			Kam Tin River		Fairview Park Nullah
Monitoring Station		IN1	IN2	IN3	RB1	RB2	RB3	KT1	KT2	FVR1
Key Water Quality Objectives (WQO)	pH range	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.5-8.5	6.0-9.0
	(Compliance rate)	100%			100%			100%		100%
	Max. 5-day Biological Oxygen Demand (BOD5), mg/L	3	3	3	3	3	3	3	3	5
	(Compliance rate)	53%			42%			0%		8%
	Max. Chemical Oxygen demand (COD), mg/L	15	15	15	15	15	15	15	15	30
	(Compliance rate)	64%			53%			8%		25%
	Max Annual Median Suspended Solids (SS), mg/L	20	20	20	20	20	20	20	20	20
	(Compliance rate)	67%			100%			50%		0%
	Min. Dissolved Oxygen (DO), mg/L	4	4	4	4	4	4	4	4	4
	(Compliance rate)	83%			97%			38%		92%
Overall Compliance		73%			78%			39%		45%
Water Quality Index		Bad	Good	Excellent	Good	Good	Fair	Bad	Bad	Bad

Source: River Water Quality Monitoring in Hong Kong in 2006 by EPD

Table 6-2 Water Quality Trend for Kam Tin River, Fairview Park Nullah, River Indus and River Beas in 2006

Watercourse		River Indus			River Beas			Kam Tin River		Fairview Park Nullah
Monitoring station		IN1	IN2	IN3	RB1	RB2	RB3	KT1	KT2	FVR1
Monitoring period*		87-06			86-06			86-06		93-06
Parameter	Unit	Results of the Seasonal Kendall Test								
Dissolved oxygen	mg/L	↑	↑	↑	↑	↑	↑	↑	↑	↑
pH	pH	↑	↑	↑	↑	↑	↑	↑	↑	↑
Suspended solids	mg/L	-	↓	↓	↓	↓	↓	↓	-	↑
BOD5	mg/L	↓	↓	↓	↓	↓	↓	↓	↓	↓
COD	mg/L	↓	↓	↓	↓	↓	↓	↓	-	-
Oil & grease	mg/L	-	-	-	↓	-	↓	↓	-	-
E.coil	cfu/100ml	↓	↓	↓	↓	↓	↓	↓	-	↓
Faecal coliforms	cfu/100ml	-	↓	↓	↓	↓	↓	-	-	↓
Ammonia-nitrogen	mg/L	↓	↓	↓	↓	↓	↓	↓	↓	↓
Nitrate-nitrogen	mg/L	-	↑	↑	↑	↑	↑	↑	-	↑
Total Kjeldahl nitrogen (SP)	mg/L	↓	↓	↓	↓	↓	↓	↓	↓	↓
Ortho-phosphate	mg/L	↓	↓	↓	↓	↓	↓	↓	↓	↓
Total phosphorus (SP)	mg/L	↓	↓	↓	↓	↓	↓	↓	↓	↓
Sulphide (SP)	mg/L	↓	↓	-	↓	↓	↓	↓	↓	↓
Aluminium	µg/L	-	-	↓	↓	↓	↓	-	-	↑
Cadmium	µg/L	-	-	-	-	-	-	-	-	-
Chromium	µg/L	-	-	-	-	-	-	↓	-	-
Copper	µg/L	↓	↓	↓	↓	↓	↓	-	-	↓
Lead	µg/L	↓	-	↓	↓	↓	↓	↓	-	-
Zinc	µg/L	↓	↑	↓	↓	↓	↓	-	-	-
Flow	L/s	×	×	-	-	-	×	↓	-	×

Notes to Table 6-1:

Source: 20 Years of River Water Quality Monitoring in Hong Kong by EPD

(1) (SP) soluble and particulate fractions (i.e. total) of the water quality parameter.

(2) − indicates no significant trend is detected at $p < 0.05$.

(3) ↑ represents an increasing trend significant at $p < 0.05$.

(4) ↓represents a decreasing trend significant at $p < 0.05$.

(5) × indicates no measurement was taken.

(6) * indicates the monitoring period for most of the parameters, a few commenced in different years during the period.

6.5 Water Quality Impact Assessment

Potential Impacts and Evaluation

6.5.1 During construction of the Project the primary sources of potential impacts to water quality will be from pollutants in site run-off, which may enter surface waters directly or enter storm drains discharging into these waters. The primary pollutant will be mainly suspended solids. Spillage, hydraulic leakage and runoff from the surface of standby construction equipment during rainy conditions may also release oil and lubricants to the environment if surface runoff is not adequately controlled.

6.5.2 The Project will be land-based and will not cause any physical, chemical and biological disruptions of marine, estuarine or fresh water system(s) nor it will alter any natural/artificial watercourses, meanders, fishponds, wetlands, flow regimes, and ground water levels. No dredging will be required. The project is also not situated within any designated water gathering grounds.

6.5.3 The potential impacts of land based construction activities on water quality can be readily controlled by appropriate on-site measures. These measures will be sufficient to control/prevent impacts to the water sensitive receivers in the vicinity of the works area and downsteam.

Control for Construction Activities

6.5.4 Construction runoff will be controlled to avoid adverse impacts on water sensitive receivers. The control of potential water quality impact arising from the construction works will be achieved by the following:

- Minimisation of runoff;
- Prevention or minimisation of the likelihood of the identified pollutants to be in contact with rainfall or runoff; and
- Measures to abate pollutants in the stormwater runoff.

6.5.5 During wet seasons, surface run-off from the construction sites will be directed into storm drains via adequately designed wastewater treatment facilities such as sand traps, silt traps and sediment settling basins. This is particularly important for works immediately adjacent to the Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River. Works adjacent to the fishponds near Kam Tin River inside the conservation area (CA), and Mai Po San Tsuen and along San Tin Tsuen Road should be avoided as far as possible during the wet season to avoid runoff into the fishponds and, if this is not avoidable, careful containment of potential discharge sources shall be implemented.

6.5.6 Wastewater from temporary site facilities (such as toilets) will be discharged to foul sewer, where available. Chemical toilets will be provided where there is no foul sewer connection. There is not expected to be a temporary canteen. All site discharges within this Deep Bay Water Control Zones must comply with the terms and conditions of a valid discharge licence to be issued by EPD.

6.5.7 With proper implementation of control measures, it is expected that stormwater runoff will be adequately controlled and the project will not cause unacceptable impact on WSRs downstream.

Cumulative Impacts from Concurrent Projects during Construction

6.5.8 Water pollutants in relation to construction of the cycle tracks will be limited to runoff of suspended solids.

6.5.9 Three projects (Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2 (YLKTSSD2), The Proposed Comprehensive Development at Wo Shang Wai (CDWSW) and the Salt Water Supply for North West New Territories and to Yuen Long (NWNTSWS) are identified which may have cumulative water quality impacts on the Deep Bay Water Control Zone during the construction phase of this Project. The cumulative impact of runoff and polluting discharges from this Project will be controlled through implementation measures described in this report and those committed for the other projects. It is essential that all projects within the catchment of Inner Deep Bay implement appropriate and adequate mitigation measures to minimize impacts on downstream water quality.

6.5.10 To prevent any potential cumulative construction impacts, mitigation measures described in this report include the retention of runoff in a sedimentation tank before discharge should be enforced. Similar measures should be used for all works areas where there is a potential for polluting adjacent watercourses.

6.5.11 The potential impacts of land based construction activities on water quality can be readily controlled by appropriate on-site measures. The measures are considered sufficient to control/prevent impacts to the water sensitive receivers in the vicinity of the works area as well as to prevent adverse downsteam impacts. It is envisaged that there could be a number of public/ private works to be carried concurrently with this project during the construction period. The cumulative impact due to suspended solids, if any, will be limited and insignificant given the limited scale of civil works envisaged for cycle tracks and the supporting facilities.

6.6 Water Pollution Mitigation and Management

Stormwater and Non-point Source Pollution

6.6.1 Mitigation measures should be implemented to prevent the uncontrolled discharge of wastewater from the construction site in accordance with ProPECC PN 1/94 – Construction Site Drainage. It is envisaged that the following measures will effectively control runoff from works sites and avoid water pollution downstream:

1. Surface run-off from the construction sites will be directed into storm drains via adequately designed wastewater treatment facilities such as sand traps, silt traps and sediment settling basins. This is important for works immediately along the Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River;
2. Channels, earth bunds or sand bag barriers will be provided on-site to properly direct stormwater to the above-mentioned facilities;
3. Existing silt removal facilities, channels and manholes along roads and pedestrian walkways will be maintained and the deposited silt and grit will be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times;
4. Other manholes (including any newly constructed ones) will be adequately covered and temporarily sealed so as to prevent silt, construction materials

or debris from getting into the drainage system;

5. Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms. Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system and river channels;
6. Where possible, works entailing soil excavation will be minimized during the rainy season (i.e. April to September);
7. Where applicable, final earthworks surfaces/ slopes will be well compacted and hydro-seeded following completion to prevent erosion;
8. During construction works, chemical toilets will be provided for the use of site staff. These will be provided by a licensed contractor, who will be responsible for appropriate disposal and maintenance of the effluent;
9. Works adjacent to the fishponds near Kam Tin River inside the conservation area (CA) and Mai Po San Tsuen should be avoided as far as possible during the wet season to avoid runoff into the fishponds;
10. All site discharges within the Water Control Zones must comply with the terms and conditions of a valid discharge licence issued by EPD;
11. Vehicle wheel washing facilities should be considered, where applicable given the site constraints, at the exits such that mud, debris, etc. deposited onto the vehicle wheels or body can be washed off before the vehicles are leaving the site area;
12. Section of the road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.

Protection Against Accidental Spillage

1. The Project may occasionally involve the handling of fuel and generation of chemical wastes. It must be ensured that all fuel tanks and chemical storage are sited on sealed areas and provided with locks.
2. The storage areas will be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent accidentally spilled oil, fuel or chemicals from reaching the receiving waters.
3. Oil and grease removal facilities will be provided where appropriate, for example, in areas near plant workshop/ maintenance areas; and
4. Chemical waste arising from the site should be properly stored, handled, treated and disposed of in compliance with the requirements stipulated under the Waste Disposal (Chemical Waste) (General) Regulation.

6.7 Evaluation of Residual Impacts

6.7.1 No residual water quality impacts have been predicted to occur due to the construction of the Project provided the above described mitigation measures are implemented.

6.8 Environmental Monitoring and Audit Requirements

6.8.1 No adverse impacts on water quality would be expected from the construction phase, with proper implementation of the recommended environmental mitigation

measures. Thus, no monitoring of water quality would be required during the construction phase. Regular on-site environmental audit is recommended to ensure proper implementation of water pollution control measures during the construction phase.

6.8.2 Any wastewater discharges from the construction sites will require a WPCO discharge licence to be issued. There may be a requirement for monitoring the quality/quantity of the discharges to show compliance with the conditions of the licence. However, such monitoring would not form part of the EM&A programme.

6.9 Conclusion

6.9.1 An assessment of the potential water quality impact arising from the Project has been completed. It is envisaged that the best practicable pollution control measures recommended for the construction phases should be effective to control the potential water quality impacts resulting from stormwater runoff into receiving waters, usually water sensitive receivers.

6.9.2 No specific water quality monitoring is considered necessary and effective for non-point runoff, particularly when the baseline water quality in the WSRs does occasionally exceed the WQO. Regular on-site environmental audit is recommended instead to ensure proper implementation of water pollution control measures during the construction phase. The section of the proposed cycle tracks near Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River and fishponds at Mai Po shall receive particular attention in the environmental audit to avoid pollution of immediate and downstream waters.

6.9.3 These requirements for audit should be required as part of the EM&A program which should be incorporated into the works contract in order to make it enforceable.

7. WASTE MANAGEMENT

7.1 Introduction

7.1.1 This assessment has been based on the criteria and guidelines stated in Annex 7 and Annex 15 of the EIAO-TM for evaluating and assessing waste management implications and has covered the scope outlined in Section 3.4.6 of the EIA Study Brief. These are summarised below:

- estimation of the types, timing and quantities of the wastes to be generated;
- assessment of the secondary environmental impacts due to the management of waste; and
- assessment of the potential impacts on the capacity of waste collection, transfer and disposal facilities.

7.1.2 This section identifies the types of wastes that are likely to be generated during the construction and operation phases of the Project and evaluates the potential environmental impacts that may result from these wastes. The primary waste arising will be generated during the construction phase. During the operational phase, only general refuse will be expected. Mitigation measures and good site practices, including waste handling, storage and disposal, are recommended with reference to the applicable waste legislation and guidelines.

7.2 Relevant Legislation Standards & Guidelines

7.2.1 In carrying out this assessment, reference has been made to the following relevant Hong Kong legislations governing waste management and disposal:

- The *Waste Disposal Ordinance* (Cap. 354) and subsidiary legislation such as the *Waste Disposal (Chemical Waste) (General) Regulation* that set out requirements for the storage, handling and transportation of all types of wastes.
- *Land (Miscellaneous Provisions) Ordinance* (Cap. 28).
- *Environmental Impact Assessment Ordinance* (Cap. 499), Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM), Annexes 7 and 15;
- *Public Health and Municipal Services Ordinance* (Cap. 132) – Public Cleansing and Prevention of Nuisance Regulation – control of disposal of general refuse.

7.2.2 Other relevant documents and guidelines that are applicable to waste management and disposal in Hong Kong include:

- ETWB Technical Circular (Works) No. 19/2005, Environmental Management on Construction Sites;
- ETWB Technical Circular (Works) No. 31/2004 Trip-ticket System for Disposal of Construction and Demolition Materials;
- ETWB Technical Circular (Works) No. 22/2003A, Additional Measures to Improve Site Cleanliness and Control Mosquito Breeding on Construction Sites;

- ETWB Technical Circular (Works) No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness;
- ETWB Technical Circular (Works) No. 33/2002, Management of Construction and Demolition Material Including Rock;
- Practice Note for Authorised Persons and Registered Structural Engineers 243: Construction and Demolition Waste
- Code of Practice of the Packaging, Labelling and Storage of Chemical Waste, EPD (1992)

Waste Disposal Ordinance

7.2.3 The Waste Disposal Ordinance (WDO) prohibits the unauthorised disposal of wastes. Construction waste is defined as any substance, matter or thing that is generated from construction work and abandoned, whether or not it has been processed or stockpiled before being abandoned, but does not include any sludge, screenings or matter removed in or generated from any desludging, desilting or dredging works. Under the WDO, wastes can be disposed of only at designated waste disposal facilities.

7.2.4 Under the WDO, the Chemical Waste (General) Regulation 1992 provides regulations for chemical waste control, and administers the possession, storage, collection, transport and disposal of chemical wastes. EPD has also issued a guideline document, the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes (1992), which details how the Contractor should comply with the regulations on chemical wastes.

Public Health and Municipal Services Ordinance

7.2.5 Public Cleansing and Prevention of Nuisances Regulation provides control on illegal tipping of wastes on unauthorised (unlicensed) sites.

Construction and Demolition (C&D) Material

7.2.6 The current policy related to the disposal of C&D material is documented in the Works Branch Technical Circular No. 2/93, 'Public Dumps'. Construction and demolition materials that are wholly inert, namely public fill, should not be disposed of to landfill, but taken to public filling areas, which usually form part of reclamation schemes. The Land (Miscellaneous Provisions) Ordinance requires that dumping licences be obtained by individuals or companies who deliver public fill to public filling areas. The Civil Engineering & Development Department (CEDD) issues the licences under delegated powers from the Director of Lands.

7.2.7 Under the Waste Disposal (Charges for Disposal of Construction Waste) Regulation, enacted in January 2006, construction waste delivered to a landfill for disposal must not contain more than 50% by weight of inert material. Construction waste delivered to a sorting facility for disposal must contain more than 50% by weight of inert material, and construction waste delivered to a public fill reception facility for disposal must consist entirely of inert material.

7.2.8 The new ETWB TCW No. 19/2005 "Environmental Management on Construction Sites" includes procedures on waste management requiring contractors to reduce the C&D material to be disposed of during the course of construction. Under ETWB

TCW No. 19/2005, the Contractor is required to prepare and implement an Environmental Management Plan (EMP) and the WMP becomes part of the EMP.

Chemical Waste

7.2.9 Under the Waste Disposal (Chemical Waste) (General) Regulations, all producers of chemical waste must register with EPD and treat their wastes, either utilising on-site plant licensed by EPD, or arranging for a licensed collector to transport the wastes to a licensed facility. The regulation also prescribes the storage facilities to be provided on site, including labelling and warning signs, and requires the preparation of written procedures and training to deal with emergencies such as spillages, leakages or accidents arising from the storage of chemical wastes.

7.3 Waste Generation & Potential Impacts

Construction Waste

7.3.1 The construction activities to be carried out for the proposed Project will result in the generation of a variety of wastes which can be divided into distinct categories based on their composition and ultimate method of disposal. The identified waste types include:

- construction and demolition (C&D) material;
- chemical wastes; and
- general refuse / sewage

7.3.2 The nature of each type of waste arising and an evaluation of the potential environmental impacts associated with these waste arisings is provided below.

Construction and Demolition (C&D) Material

7.3.3 Construction and demolition (C&D) material would be generated from the cycle track and associated works and will include soil, fill and concrete / asphalt. C&D material will be reused on site as far as practicable. The volume of the C&D material was estimated by the Project IDC Consultant to be approximately 35,758 m^3 of which 34,230 m^3 would be reused on site, 604 m^3 would be disposed of at public fill reception facilities and 924 m^3 of C&D waste (non-inert) would be disposed of to designated landfill. Tuen Mun Area 38 Fill Bank and NENT Landfill have been assigned for disposal of inert and non-inert C&D materials, respectively. The estimated quantities of C&D material to be generated, to be re-used, and to be disposed of are summarised in **Table 7-1** below.

Table 7-1 Summary of C&D Material Generation

	Material to be re-used on site (m^3)	Material to be disposed of at Public Fill Bank	Material to be disposed of at landfill (m^3)	Total C&D material (m^3)
Inert C&D Materials (soft public fill)	34,230	0	0	34,230
C&D Waste* (non-inert)	N/A	N/A	924	924
Others: Bitumen of broken concrete	0	604	0	604
Total	34,230	604	924	35,758

Note:

*This includes the timber formwork for the construction of retaining wall and general refuses.

Data sourced from the Construction & Demolition Material Managemtn Plan (Final), February 2008 prepared by the IDC Consultant.

Chemical Waste

7.3.4 Plant and vehicle maintenance will generate a small amount of chemical wastes during the construction period. Typically they include: -

- Solid wastes (empty fuel/ lubricant drums, used oil/air filters, scrap batteries, brake clutch linings which may contain asbestos); and
- Liquid wastes (waste oils/ grease, spent solvents/ detergents, which may be halogenated, and possibly spent acid/ alkali from battery maintenance).

7.3.5 The volume of chemical waste will depend upon the total number of plant/ vehicles and how much maintenance is actually required to be carried out on site by the Contractor.

7.3.6 In view of the small number of plant expected to be required for the works, it is anticipated that the quantity of chemical waste to be generated would be small and in the order of 50 litres/ month per every 100 m of cycle track. Given the small quantities anticipated, provided the waste is properly handled, stored and disposed of, no unacceptable impact is expected.

General Refuse / Sewage

7.3.7 The construction workforce will generate a small amount of refuse such as waste papers, plastic packaging and possibly food wastes. Such refuse will be collected on-site, separately from C&D material by an appropriate waste collector employed by the contractor. It is expected that no canteen will be provided on-site.

7.3.8 Prior to disposal off-site, such wastes will have to be temporarily put in a suitably covered storage area where it will have to be regularly cleaned and maintained to avoid attracting vermin and pests. With proper on-site handling and storage as well as regular disposal of these wastes, no adverse impacts will be envisaged.

7.3.9 The construction work force will generate sewage on a daily basis which requires proper disposal. It is anticipated that chemical toilets shall be provided on-site for

the workforce, in which case night soil will need to be collected by an approved contractor for disposal on a regular basis to avoid odour issues.

7.3.10 A summary of the expected waste arisings is provided in **Table 7-2**.

Table 7-2 Summary of General Works Wastes Generation during the Construction Phase

Activity	Material Type	Likely time of arising	Estimated Amount per 100 m of cycle track	Disposal / Treatment Site
General works	General refuse arising from works	Throughout construction	500 kg/week	Nearest RCP
	Chemical waste arising from machineries	Throughout construction	50 litre/month	Chemical Waste Treatment Centre
	General refuse (generated by site staff)	Throughout construction	100 kg/week	Nearest RCP

Operational Waste

7.3.11 General refuse would arise primarily from the users of the cycle track and the supporting facilities. Waste would include food, paper, wood, plastic, etc. General refuse should be removed on a daily basis to minimize potential odour, pest and litter impacts.

7.4 Mitigation Measures

Waste Management Practice During the Construction Phase

7.4.1 It is not anticipated that adverse waste management related impacts would arise, provided that good site practices are adhered to. In line with Government's position on waste minimisation, the practice of avoiding and minimising waste generation and waste recycling should be adopted as far as practicable. Recommended mitigation measures to be implemented throughout the course of the construction of the Project include:

1. An on-site environmental co-ordinator employed by the Contractor should be identified at the outset of the works. Prior to commencement of Project works, the co-ordinator shall prepare a WMP in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Sites, for the ER's approval. The WMP shall include monthly and yearly Waste Flow Tables (WFT) that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated;
2. The Contractor's waste management practices and effectiveness shall also be audited by the ER on regular basis;
3. The reuse/ recycling of all materials on site shall be investigated and exhausted prior to treatment/ disposal off-site;
4. Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation;

5. All waste materials shall be sorted on-site into inert and non-inert C&D materials, and where the materials can be recycled or reused, they shall be further segregated. Inert material, or public fill will comprise stone, rock, masonry, brick, concrete and soil which is suitable for land reclamation and site formation whilst non-inert materials include all other wastes generated from the construction process such as plastic packaging and vegetation (from site clearance).

6. The Contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or off-site. In the event of the latter, the Contractor shall make arrangements for the collection of the recyclable materials. Any remaining non-inert waste shall be collected and disposed of to the Public Filling Areas whilst any inert C&D materials shall be re-used on site as far as possible. Alternatively, if no use of the inert material can be found on-site, the materials can be delivered to a Public Fill Area or Public Fill Bank after obtaining the appropriate licence;

7. In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills, and control fly-tipping, a trip-ticket system shall be implemented by the Contractor, in accordance with the contract and the requirements of WBTC 31/2004 “Trip Ticket System for Disposal of Construction and Demolition Material”.

8. Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on site. Only licensed chemical waste collectors shall be employed to collect any chemical waste generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme both published by EPD;

9. A sufficient number of covered bins shall be provided on site for the containment of general refuse to prevent visual impacts and nuisance to the sensitive surroundings. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the issue of ETWB TCW No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness, the Contractor is required to maintain a clean and hygienic site throughout the project works;

10. All chemical toilets, if any, shall be regularly cleaned and the night-soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal; and

11. Toolbox talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.

12. The Contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of project construction.

Waste Management Practice During the Operational Phase

7.4.2 Waste collection facilities (e.g. litter bins) will be included in the design of the supporting facilities, and at regular intervals along the route. The Government

Department responsible for managing the facilities will be responsible for arranging for regular collection of litter from these facilities. Separate collection bins shall be provided for aluminium cans, plastic drinks bottles and paper wastes, which will facilitate recycling of these waste streams.

7.5 Residual Impacts

7.5.1 With the implementation of recommended mitigation measures, in particular the establishment and implementation of a Waste Management Plan, no residual impacts are expected to occur during either the construction or operation of the Project.

7.6 Environmental Monitoring and Audit Requirements

7.6.1 The assessment has concluded that proper handling, storage, collection, transportation and disposal of waste materials generated during construction of the Project will not give rise to any significant impacts to nearby sensitive receivers.

7.6.2 It is recommended that during the construction phase, site inspections and supervisions of waste management procedures and auditing of the effectiveness of implemented mitigation measures should be undertaken on a regular basis (e.g. weekly as a minimum). These tasks shall be scheduled in the Waste Management Plan (WMP) to be prepared by the Contractor, and a summary of the site audits shall be presented in the EM&A reports.

7.6.3 Given the nature of use of the project, there is no EM&A requirement considered necessary during the operational phase.

7.7 Conclusion

7.7.1 The construction activities associated with the proposed works will generate a variety of wastes including vegetation from site clearance, excavated materials, construction wastes, chemical and municipal solid wastes.

7.7.2 In view of the Government policy towards the promotion recycling schemes and due to the clear environmental benefits this will provide, recycling and waste reduction by site staff/ contractors (construction phase) should be encouraged.

7.7.3 While an estimate has been made on the likely volumes and types of waste to be generated from the construction of the project, the Contractor should regularly update and submit the details of their WMP, including monthly and yearly WFT, which would provide a more accurate estimate on volumes of waste generation on-site.

7.7.4 Good waste management practices have been recommended to prevent and minimize any adverse environmental impacts from the handling and disposal of construction and operational wastes. It is concluded that no unacceptable environmental impacts will result from the storage, handling, collection, transport, and disposal of wastes arising from the construction and operation of the Project.

8. LAND CONTAMINATION

8.1 Introduction

8.1.1 This assessment has been based upon the guidelines for evaluation and assessment of potential contaminated land as stated in Annex 19 of the EIAO-TM and has covered the scope outlined in Section 3.4.6.2 (iii) of the EIA Study Brief.

8.1.2 The following sections analyse the baseline situation for all land lots within the Study Area boundary, which due to their past or present land uses, could be potential contaminated sites.

8.2 Relevant Legislation, Standards & Guidelines

8.2.1 Guidance on land contamination assessment issued by EPD includes:

- Guidance Note for Contaminated Land Assessment and Remediation (Guidance Note)
- Guidance Notes for Investigation and Remediation of Contaminated Sites of: Petrol Filling Stations, Boatyards, and Car Repair/ Dismantling Workshops
- Guidance Manual for use of Risk-based Remediation Goals for Contamination Land Management (Guidance Manual)

8.2.2 The Guidance Note for Contaminated Land Assessment and Remediation refers the Risk-based Remediation Goals (RBRGs) as the soil and groundwater contamination criteria. The Guidance Manual issued by EPD in December 2007 presents instructions for comparison of soil and groundwater data to the RBRGs levels developed for relevant future land-use scenarios.

8.2.3 Provisions for assessment of land contamination are also given in the Section 3 - "Potential Contaminated Land Issues" of Annex 19 - "Guidelines for Assessment of Impact on Sites of Cultural Heritage and Other Impacts" of EIAO-TM.

8.2.4 Annex 19 of the EIAO-TM listed out the approach to deal with potential contaminated land. In the event that there are any sites suspected to have been contaminated, a Contamination Assessment Plan ("CAP") shall be prepared to document the intended investigation and any other actions that should be taken to confirm the status of land contamination. This CAP shall be endorsed by EPD prior to any contamination assessment. If there is confirmed land contamination, a Contamination Assessment Report ("CAR") and a Remediation Action Plan ("RAP") shall be submitted prior to engaging in any site remediation.

8.3 Baseline Environmental Condition

8.3.1 As detailed in Section 2, the Project includes a new cycle track linking up the local cycle track network in Yuen Long and Sheung Shui and the associated supporting facilities. The proposed cycle track alignment and the associated supporting facilities are mainly located adjacent to the roadside areas of Castle Peak Road, Pok Wai South Road, Yau Pok Road, San Tin Tsuen Road, San Sam Road, and along maintenance access roads of Ngau Tam Mei Drainage Channel, Kam Tin River and Sheung Yue River.

8.3.2 The present land uses that give rise to potential concerns for land contamination include individual vehicle parking areas (with vehicle repair workshop) and fuel storage areas within the general area.

8.4 Approach and Scope of Assessment

8.4.1 According to the EIA Study Brief, the objective of land contamination assessment is to identify all land lots/ sites within the Study Area boundary which, due to their past or present land uses, are potential contaminated sites.

8.4.2 The land take required for the Project (construction of cycle tracks along existing road/ drainage channel and the supporting facilities) is minimal. This assessment scope has focused on the potential contaminated land uses within 5 m on either side of the proposed cycle track alignment centreline, and within the supporting facilities (the Study Area) at which excavation might be carried out or the top soil layers may be disturbed for the Project works.

8.4.3 The following approach was used for the land contamination assessment:

- Desktop study to review the current and historical land uses. The objective is to identify any potential contaminative land uses within the Study Area.
- Site reconnaissance to identify the existing land uses and to confirm the general environmental conditions associated with each of the identified sites. This is a non-intrusive approach for making an initial determination of the likely nature of any potential contamination, and, where identified, to evaluate whether there were any significant land contamination concerns associated with these properties

8.4.4 In addition, the following sources of information have been collated and reviewed:

- Historical aerial photos[2] (1993-2003);
- Historical Hong Kong survey maps;
- Hong Kong Geological Survey Sheet Reports;
- Previous applications for planning permission at the Town Planning Board;
- Records and photographs taken from site visits;
- Geochemical Atlas of Hong Kong, GEO 1999; and
- Contamination Assessment Report and Remediation Action Plan of DSD's Eastern Main Drainage Channel project[3].

[2] All aerial photos are available at the Survey and Mapping Offices of the Lands Department. Historical land use information before 1993 was not available at the Survey and Mapping Offices during the assessment.

[3] Agreement No. CE49/2000 Design of Ecological Mitigation Measures and Landscaping Works and Assessment of Land Contamination for Eastern main Drainage Channel for San Tin – Contamination Assessment Report and Remediation Action Plan, April 2002 by Maunsell Environmental Management Consultants Ltd.

8.5 Potential Impacts

8.5.1 The potential impacts due to the Project from contaminated soil are considered to be the following:

- health risks to site workers;
- disposal of contaminated soils, where encountered; and
- potential health risks to future users of the cycle tracks.

Health Risk to Site Workers

8.5.2 Site construction workers may become exposed to contaminated soils during the excavation and earth moving operations. The main exposure routes for site construction workers are accidental direct ingestion of contaminated materials through poor hygiene and eating on site, or through direct contact with potentially toxic or harmful contaminants in excavated soil or sediments.

Handling of Contaminated Soils

8.5.3 In the event that any contaminated soils are identified during site investigation (SI) works or further environmental investigations, they may require remediation or disposal prior to or as part of the construction programme. Prior agreement will need to be reached with EPD to ensure that these materials are dealt with appropriately in accordance with Guidance Note. Nonetheless, all practical options in handling any contaminated soil encountered, such as in-situ or ex-situ remediation measures and appropriate reuse of soil either on-site or off-site shall need to be explored.

8.5.4 Any contaminated soils which are excavated will require treatment and/or off site disposal at an appropriate site which is licensed to accept 'contaminated' soils. The actual type(s) and concentration(s) of contaminants will determine the final disposal requirements, following agreement of the proper disposal option with the Waste Facilities Management Group, and Waste Policy and Services Group of the EPD. Nonetheless, disposal of contaminated soils at landfill shall always be considered as the last resort.

Potential Health Risk to Future Users

8.5.5 During the operational phase of the cycle track, there is considered to be little potential for impacts associated with contaminated soils which may remain *in situ* as the cycle track and the associated supporting facilities will be paved. Cyclists will not come into direct contact with such materials. However, if contaminated material is identified during the construction stage, it is expected that appropriate remedial measures will have been undertaken either to ensure this material is mitigated or removed, or to ensure that future, direct contact with *in situ* materials is avoided.

8.6 Prediction of Potential Impacts

8.6.1 A preliminary desktop review and site reconnaissance have identified the various current land uses along the proposed cycle track alignment as follows:

1. Rural area, farmlands, with scattered village houses along Kam Tin River

and Ngau Tam Mei Drainage Channel. Low density residential areas such as the Fairview Park and Man Yuen Chuen are located in the middle section of the Ngau Tam Mei Drainage Channel;

2. For the section along Castle Peak Road (Mai Po), major land uses on the roadside are villages, setups for gardening and horticulture. There are also a few long vehicle parking areas, particularly along the Castle Peak Road between the Mai Po San Tsuen and Tsing Lung Tsuen;

3. For the section along Castle Peak Road (San Tin), the land uses along the roadside are mainly rural areas and villages up to the Tun Yu School near the road junction between Castle Peak Road (San Tin) and Kwu Tung Road. An existing petrol filling station is located on the opposite side of the Tun Yu School and at the junction between Castle Peak Road (San Tin) and Kwu Tung Road. A few long vehicle parking areas and private cars parking areas are located on the roadside within the rest of Castle Peak Road (San Tin) sections;

4. For the section along Castle Peak Road (Chau Tau), residential developments are mainly located at the roadside with a small fuel storage area located at Shek Tsai Leng near Sheung Yue River; and

5. For the section along Sheung Yue River up to the project end point, the area within Sheung Yue River is mainly rural in nature with some scattered village houses along the maintenance access road.

Potential Contaminated Sites near Project Boundary

8.6.2 Based on a preliminary desktop assessment, six locations shown in **Figure 8-1** to **Figure 8-3** have been identified as having the potential for contamination due to historical/ current land uses and with reference to Section 3.1 of Annex 19 of the EIAO-TM. These six locations are located in close proximity of the construction boundary of the proposed cycle track.

8.6.3 A detailed description of the sites is given in **Table 8-1** for the current and historical land uses. From this information, it has been found that land uses at these potential contaminated areas were mainly rural areas consisting of planted areas and fishponds in 1993. The existing land uses were mostly developed since 1997.

8.6.4 The site reconnaissance was carried out in November 2006 and in March 2007 to confirm the land use status. However, access to all the potential sites is restricted as they are still operating. Detailed site investigation for contamination is not possible at this stage as no soil samplings to confirm the likelihood of contamination could be conducted.

8.6.5 From the site visits, it was found that the proposed cycle track alignment will generally be located at the perimeter of the potentially contaminated sites of concern. Contamination concerns would arise if any leakage or spillage of chemicals or contaminants have migrated from specific spots of these sites through to the areas where construction workers might come into contact with the soil. Since incidence of any spillage or leakage is unknown, there remains a small, yet un-quantified potential for impacts to arise from the migration of contaminants from these sites to the works areas. To this end, it is considered that a certain volume of contaminants could have been accidentally spilled, and resulting in negative impact to the works areas.

Table 8-1 Potential Contaminated Sites and Current Land Uses

Potential Contaminated Site	Location	Current Land Use	Historical Land Use	Potential Contamination Impact on the Project Areas	Figure No.
Site A	At the road junction between Castle Peak Road (Mai Po) and Tam Kon Chau Road.	Long vehicle parking. A small vehicle repair workshop is operating near the roadside during the site visits.	The site was a planted area before 1997. Land use of this area changed into a car park in 1997, since then the ground floor was concrete paved. Records of large scale spillage or leakage of chemical are not known.	No specific oil stains were found on the concrete paved areas where the cycle track alignment lies. There is a potential of leakage of chemicals from vehicle repair workshop near the roadside to the project area.	8-1
Site B	On the eastbound roadside of Castle Peak Road (Mai Po).	Long vehicle parking and potential vehicle repair activities.	The site was a piece of bare ground with some vegetation in 1993. Open car park was developed since 1997. Some temporary structures were erected within the car park, which may be used for vehicle repair. Records of large scale spillage or leakage of chemical are not known.	Temporary structures which are in fairly good conditions, are not upon any works areas or proposed alignment. There is a potential of leakage of chemicals from possible vehicle repair workshop in these temporary structures to the project area.	8-1
Site C	On the westbound side of the Castle Peak Road (Mai Po) near the road junction of Castle Peak Road (Mai Po) and Mai Po Lung Road.	Vehicle parking, open storage of construction plant and potential vehicle repair activities. Site reconnaissance has identified construction plant resting on bare soil, which appeared to have been darkened.	The site appears to be a machine / construction plant storage area since 1993. Site reconnaissance found that the ground at this location was not concrete paved. The colour of surface soil was seen to be dark, which suggests that the soil may have been contaminated due to leakage from the machine / plant (e.g. leakage of hydraulic / lubrication oil) due to its land use. Records of large scale spillage or leakage of chemical are not known.	Dark colour soil suggests potential contamination.	8-1
Site D	At the junction of Castle Peak Road (San Tin) and Mai Po Lung Road.	Vehicle parking with vehicle repair workshop.	This site was partly a car parking area in 1995. The area adjacent to the Mai Po Lung Road and San Tin Highway (the western part of the site) became a car parking area in 1998. It was found during the site reconnaissance that the area was concrete paved. Review of the previous application for planning permissions by the Town Planning Board indicated that the site was granted for long-vehicle parking area and vehicle repair activities since 1999. The land use permission has been granted for another three years in September 2006. Records of large scale spillage or leakage of chemical are not known.	No specific oil stains were found on the concrete paved areas where the cycle track alignment lies. The eastern part of the site was vacant and fenced off. No specific activities were seen in this area. There is a potential of leakage of chemicals from the vehicle repair workshop within the site to the project area.	8-1

Potential Contaminated Site	Location	Current Land Use	Historical Land Use	Potential Contamination Impact on the Project Areas	Figure No.
Site E	At the eastbound of Castle Peak Road (San Tin) near the San Sham Road.	Long vehicle parking and vehicle repair workshops. Site reconnaissance has found that the area abutting the Castle Peak Road is being used as vehicle repair workshops.	This site was used as open car park since 1993. Site reconnaissance found that the site was paved with concrete and there were vehicle repair activities, particularly in areas adjacent to the Castle Peak Road. A review of previous applications for planning permission by the Town Planning Board has indicated that the site was granted for cross-border traffic station and container repair since 1997. The land use permission has been granted for another three years in October 2006. Records of large scale spillage or leakage of chemical are not known.	No specific oil stains were found on the concrete paved areas where the cycle track alignment lies. Vehicle repair actitivies were found close to the project alignment. There is a potential of leakage of chemicals to the project area.	8-2
Site F	At the eastbound of Castle peak Road (Kwu Tung) near Shek Tsai Leng.	Roadside fuel storage area was identified during the site reconnaissance.	This site was identified as a fuel storage area during the site reconnaissance. Two tankers were seen parked on-site. A review of the historical aerial photos have identified that the building at this location was constructed in about 1995. However, it is unclear when the site was used for fuel storage and whether the site has any underground fuel storage tanks. In addition, the ground surface was paved with concrete. Records of large scale spillage or leakage of chemical/fuel are not known.	Presence of underground fuel storage tanks is unknown. There is a potential of leakage to the project area.	8-3

Potential Contaminants

8.6.6 Based on historical/ current land uses described above and findings of the site reconnaissance, there is a potential that soil at the identified sites has been contaminated due to its prolonged current land use activities. The potential land contaminants specific to the current/ historical land uses are given in **Table 8-2**.

Table 8-2 Potential Contaminants Associated with Current/ Historical Land Uses

Land Use	Potential Contaminants
Vehicle Repair /Servicing Workshops	Simple aromatics (e.g. benzene, toluene, ethylbenzene, xylene (BTEX)) Halogenated and non halogenated solvents Polyaromatic hydrocarbons Fuel / oils (petroleum hydrocarbons) Acids (from acid batteries) Metals (lead, chromium, copper, zinc)
Fuel storage area/ petrol filling station	Simple aromatics (e.g. benzene, toluene, ethylbenzene, xylene (BTEX)) Polyaromatic hydrocarbons Fuel / oils (petroleum hydrocarbons) Heavy metal (lead)

8.6.7 According to the Contamination Assessment Report and Remediation Action Plan of DSD's Eastern Main Drainage Channel project[4] and the "Geochemical Atlas of Hong Kong, GEO 1999", both documented elevated arsenic levels in a broad area of the northern New Territories (i.e. Ngau Tam Mei, Lok Ma Chau and Lin Tong Mei). The highest level of arsenic recorded in Lok Ma Chau could range from 117 to 492 ppm. To this end, arsenic may also be present in soil in the Lok Ma Chau area.

8.6.8 Based on the available information on the proposed cycle track alignment and the identified potentially contaminated sites, it is estimated that under the theoretical worst scenario (i.e., assuming all excavated materials from the cycle track construction adjacent to potentially contaminated sites as shown in **Table 8-1** are contaminated), the amount of contaminated soil to be treated will be in the order of approximately 2,736 m^3, i.e., 1,140 m (L) x 4 m (W) x 0.6 m (D). However, it should be noted that this is a very conservative assumption. The actual quantity of contaminated soils, if any, will need to be confirmed subject to further investigation, and this is expected to be less than that estimated under the theoretical worst-case scenario.

[4] Agreement No. CE49/2000 Design of Ecological Mitigation Measures and Landscaping Works and Assessment of Land Contamination for Eastern Main Drainage Channel for San Tin – Contamination Assessment Report and Remediation Action Plan, April 2002 by Maunsell Environmental Management Consultants Ltd.

8.7 Further Investigations and Mitigation Options

Potential Contaminated Sites

8.7.1 As there could be possibilities of land contamination at the Project area adjacent to the identified sites (i.e. Sites A to F), a detailed land contamination investigation shall therefore be carried out within 5 m of the cycle track alignment and the proposed Resting Stations neighbouring these sites. Investigation at works areas close to Lok Ma Chau is also recommended to confirm the arsenic level. It is suggested to carry out the investigation on arsenic at the works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road as it is closest to Lok Ma Chau.

8.7.2 Once the suspected sites have been vacated or access can be arranged for site investigation, the project Contractor(s) shall engage a qualified land contamination specialist to prepare the Contamination Assessment Plan(s) (CAP) for EPD's approval prior to the investigation.

8.7.3 Upon approval of the CAP, the Contractor(s) shall carry out site investigation and sampling works in accordance with the sampling proposal detailed in the approved CAP. Should contamination be identified during the investigation, Contamination Assessment Report(s) (CAR) and Remediation Action Plan(s) (RAP) shall also be prepared and submitted to EPD for approval. Remediation measures as recommended in the RAP shall be fully implemented by the Contractor(s) prior to commencement of works.

8.7.4 With regard to the above, all the land contamination assessments, including detailed site surveys, supervision during the sampling works, preparation of the CAP, CAR and/ or RAP shall be conducted/ supervised by the qualified Land Contamination Specialist who shall have adequate experience in land contamination assessment, investigation and remediation.

Safety Precautionary Measures

8.7.5 To minimize the potential impact on health and safety / contamination exposure during the construction works, the following control measures should be implemented when handling identified contaminated materials:

1. General site safety shall be enforced to include basic practices such as the use of safety boots, hard hats, coveralls, gloves and eye protection.
2. Though not expected to be a significant risk, it is important to avoid skin contact, ingestion and inhalation of excavated contaminated soils. Basic personal protective equipment should be used.
3. In addition to statutory occupational safety requirements, site staff and workers shall be given adequate training and instructions specific to the potential hazards associated with contaminated materials ~~arsenic~~, their health and safety responsibilities and safe working practice including basic personal hygiene.
4. Measures shall be implemented to prevent non-workers from approaching the identified works areas in order to avoid exposure to contaminants.

Management of Contaminated Soils

1. Where appropriate, the use of bulk handling equipment should be maximised to reduce the potential contacts between excavated contaminated materials and associated workers.
2. The plants for excavation and transportation of the material shall be cleaned prior to leaving the Site.
3. All temporary stockpiles of the materials shall be completely covered with plastic/ tarpaulin sheets, particularly during heavy rainstorms. The stockpiling areas should be concrete-paved or lined with its perimeter constructed of a concrete bund where appropriate in order to avoid any leachate from migrating out of the area.
4. Any vehicles transporting the material shall be suitably covered to limit potential dust emissions.
5. Surface waters shall be diverted around any contaminated areas or stockpiles to minimize potential runoff into excavations, as runoff might increase the volume of contaminated water requiring disposal and suspended solids in the wastewater stream.

8.8 Residual Environmental Impacts

8.8.1 With the implementation of the recommended mitigation measures for the assessment of the presence and extent of contamination, handling and disposal of the identified (if any) contaminants, no residual impact is anticipated during the construction and operation of the Project.

8.9 Environmental Monitoring and Audit (EM&A) Requirements

8.9.1 Six potential areas have been proposed for further investigation as presence of potential contaminative land uses located within the Project boundary is suspected. Investigation at works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road (as it is close to Lok Ma Chau) is also recommended to confirm the arsenic level. A CAP should be submitted to EPD for endorsement prior to conducting the contamination assessment works. Contamination assessment at the potential contaminated zones should follow the requirements laid out in the CAP. A CAR and RAP, where necessary, should be prepared based on the results obtained from the site investigation and submitted for EPD's approval. The contaminated site(s) shall be remediated in accordance with the approved CAR/RAP. Details of the requirements are provided in the EM&A Manual.

8.10 Conclusion

8.10.1 Potential contaminated sites due to its historical and current land uses within and close to the project boundary have been identified through the desktop assessment. Site reconnaissance has also been carried to confirm the land use status. Recommendations for investigation and mitigation options have been proposed for the potential contaminated sites, which shall be fully implemented accordingly.

8.10.2 Any land lots within the project areas that are suspected to be contaminated but are still occupied by existing operators that prevent entry/ access for investigation, shall be revisited after vacation and the investigation should be conducted prior to excavation of these areas.

8.10.3 It is considered that the potential land contamination issues can be adequately controlled with suitably planned construction and works in accordance with the remediation action plan and the recommended precautionary protection measures for frontline workers.

9. ECOLOGY

9.1 Introduction

9.1.1 This section of the report addresses the potential impacts of the proposed cycle track and its associated supporting facilities on the ecology within the Study Area. A literature review, complemented with field studies between November 2006 and April 2007, was undertaken to highlight any ecological sensitive receivers and to establish an ecological baseline for the Study Area.

9.1.2 Based on a review of the potential ecological impacts of the Project in the vicinity of the Mai Po Egretry, changes have been made to the alignment to reduce impacts and the final alignment differs slightly from that provided in the Project Profile.

9.1.3 This assessment has been based on the criteria and guidelines for evaluation and assessment of ecological impact stated in Annexes 8 and 16 of the EIAO-TM and covered in the scope outlined in Section 3.4.7 of the EIA Study Brief.

9.2 Relevant Legislation, Standards & Guidelines

9.2.1 In carrying out the assessment, reference has been made to the following relevant Hong Kong legislation / guidelines governing ecological impact assessment, including:

1. *Environmental Impact Assessment Ordinance* and Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM) (Annexes 8 and 16)
2. *Forests and Countryside Ordinance* (Cap. 96) and Forestry Regulations
3. *Town Planning Ordinance* (Cap. 131) particularly the Town Planning Board Guidelines for application of development within Deep Bay
4. *Wild Animals Protection Ordinance* (Cap. 170)
5. *Protection of Endangered Species of Animals & Plants Ordinance* (Cap. 586)
6. *Country Parks Ordinance* (Cap. 208)
7. Hong Kong Planning Standards & Guidelines (HKPSG) Chapter 10: Conservation; Part 3: Conservation of Natural Landscapes & Habitats
8. The Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention)
9. China Red Data Book
10. EIAO Guidance Notes No. 6/2002, 7/2002 and 10/2004

9.3 Assessment Methodology

Study Area

9.3.1 The Study Area for the terrestrial and aquatic ecological assessment includes all areas within 500 m of the project boundary as shown in **Figure 2-1**. The cycle track is a linear feature approximately 4 m wide and 15 km in length, for the section considered in this EIA.

9.3.2 In addition, 5 Resting Stations (R5, R6, R7, R8 and R9) and an Information Kiosk (combined with R9) are proposed. Particular focus has been made to the immediate area occupied by the development footprint, as it was considered that the construction of a cycle track size would be limited to a local level.

9.3.3 The requirements of the ecological impact assessment were highlighted in Section 3.4.7 of the Study Brief ESB-149/2006. The assessment methodology followed a comprehensive literature review, combined with habitat mapping and vegetation surveys and specific wintering bird surveys.

Literature Review

9.3.4 From relevant publications and previous assessments conducted in the Study Area, data was reviewed in order to develop a picture of the ecological character of the area and to highlight any particular sensitive receivers that may occur. The publications searched included:

1. Past Environmental Impact Assessment Reports
2. Porcupine! (Newsletter of Department of Ecology & Biodiversity, University of Hong Kong)
3. Hong Kong Biodiversity (AFCD publication)
4. Hong Kong Bird Watching Society (HKBWS) study reports
5. Memoirs of Hong Kong Natural History Society
6. Various natural history field guides for Hong Kong

Field Survey

9.3.5 Based on literature review, a walkover visit of the site and the requirements of the Study brief, it was considered that the following field surveys would be required for the assessment:

- Ground truthing of aerial maps and habitat plans, habitat mapping and specific vegetation surveys;
- Winter bird surveys of the river channels along the Kam Tin Section and Long Valley Section (once a month at each section throughout the winter period); and
- Update as to the status of Mai Po Egretry.

9.3.6 The baseline ecological conditions were evaluated using the criteria in *Annexes 8 and 16* of the EIAO-TM.

Habitat and Vegetation Surveys

9.3.7 A desktop review of the habitats present within the Study Area was made using recent (2005) aerial photographs complemented with other available maps and plans for the area. For such a large Study Area, 1:5000 scale habitat maps were produced. Due to the limited footprint of the cycle track, some similar habitat types were grouped together. These included:

- Developed Area – to include areas of built area, container storage, wasteland, urban parks and residential; and

- Mixed Woodland - Secondary woodland and *Fung Shui* woodland

9.3.8 Ground truthing was implemented for verification purposes as even over a short period of time, changes to the habitats present can occur, particularly in this area of rapid development. These exercises were completed over the course of the study period and integrated with specific surveys.

9.3.9 It was found during the literature review that most of the previous studies indicated that many areas of this part of the New Territories are limited botanically, with species of conservation interest appearing to be concentrated in areas of cultivation. In view of the low botanical diversity in the area, and the reasonably small development footprint required, detailed vegetation surveys were limited to the immediate area of the actual cycle track alignment. Plant species, relative abundance and conservation value were recorded. A general review of habitats and any notable species outside of the development footprint, though still in the Study Area, were made. Botanical nomenclature follows Xing et al. (2000).

Bird Surveys

9.3.10 The length of the proposed alignment was initially walked over four days between 8 and 13 November 2006 and all areas with potential significance for avifauna were noted and recommended for further specific surveys.

9.3.11 In line with the Study Brief it was considered that the three main areas with avifauna issues included the winter bird use of the Kam Tin River and the Long Valley Rivers (i.e. Shek Sheung and Sheung Yue Rivers), along with the egretry at Mai Po Village. Though none of these areas lay directly on the cycle track alignment, it was considered that there could potentially be indirect impacts to birds by way of disturbance.

9.3.12 Incidental observations and recording of bird use of other parts of the Study Area were made throughout the study period. These additions to the overall list for the specific surveys aided to give a more complete list for the Study Area.

9.3.13 Ornithological nomenclature for this Study follows Carey *et al* (2001). Scientific names for species are not used in the main text of this report, however a full species list and relevant nomenclature can be seen in **Appendix 9-2**.

Monthly Monitoring Survey

9.3.14 Surveys of the wintering bird use of the river channels at Kam Tim and Long Valley took the form of a single morning or afternoon survey each month between November and March (inclusive). Surveys were carried out at a period of low tide so that as much of the rivers' substrate was exposed during the bird counts in order to maximise bird numbers. At high tide, notes on observations of any roosting or loafing birds were made within the Study Area. Surveys dates for both sites were as follows:

- Kam Tin River – 08 November 2006, 29 December 2006, 19 January 2007, 17 February 2007, 16 March 2007.
- Long Valley Rivers – 11 November 2006, 30 December 2006, 22 January 2007, 14 February 2007, 16 March 2007.

9.3.15 Line transects, following Bibby *et al.* (1992), were employed and all bird species and numbers using the main river channels were recorded. Direct observations of birds were made using binoculars.

9.3.16 Along the Kam Tin River, particular focus was made to those species utilising the nearside bank as this was considered to be the area most likely to be impacted by human disturbance. The river channel is particularly wide, about 100 m, in this section. As such, birds utilising the offside bank of the River, were considered to be a significant distance away from the proposed alignment and therefore are unlikely to be affected by human activity along the cycle track. Notes were made on species and numbers using the offside bank and areas of the river downstream of the alignment, within the Study Area.

9.3.17 All the birds within the Long Valley River channels were recorded during surveys as these two channels are much narrower than that of the Kam Tin River and any increase in human activity along the proposed alignment was considered to have the potential to create disturbance to birds.

9.3.18 The Kam Tin Section of the alignment follows the Kam Tin River for approximately 1,700 m. The Long Valley section follows approximately 1,500 m of drainage channel (combination of Sheung Yue and Shek Sheung Rivers).

9.3.19 In addition, careful notes were made of any other bird species utilising the habitats along the alignment or in habitats immediately adjacent i.e. fishponds, former meanders of the original river course) particularly with respect to wintering or migratory bird species and also for resident bird species that may have potential to breed in particular habitats.

Egretry Studies

9.3.20 All the egretries in Hong Kong have been subject to regular monitoring and study since 1999 and this data was utilised as part of the literature review and assessment process. The literature review was complemented by an early season site visit 6 April 2007 of the egretry itself to assess recent use and potential locations of nesting birds in relation to the project proposals. Discussions were made with members of AFCD on 22 December 2006 as to the extent of the egretries within the area.

9.3.21 In addition, a site visit was carried out on 14 February 2007 with members of Worldwide Fund for Nature (WWF), Kadoorie Farm and Botanical Gardens (KFBG) and Hong Kong Bird Watching Society (HKBWS) to discuss the implications of the proposed cycle track and to determine the exact locations of the nesting ardeids at Mai Po Village from previous years.

9.4 Description of Existing Ecological Baseline Conditions

Existing Sites of Conservation Importance

Ramsar Site

9.4.1 The Mai Po Marshes and the Mai Po Inner Deep Bay Ramsar Site lie less than 1.5 km from the closest point of the proposed cycle track. This site is particularly important for migratory and over-wintering waterfowl, and was recognised as such

in 1995 through its designation as a Ramsar Site, i.e. a Wetland of International Importance under the Ramsar Convention.

Sites of Special Scientific Interest (SSSI)

9.4.2 The only SSSI within the Study Area is the Mai Po Village Egretry SSSI, located some 30-40 m south of the proposed cycle track as it leaves Mai Po Village heading east. Designated in 1978, it is an area on *Fung Shui* woodland, which has been an important breeding site for herons and egrets (ardeids) in the past. A total of five ardeid species have been recorded breeding at this site. However, in recent years, the nesting activity has moved short distances to the south and north of the SSSI itself and ardeids no longer utilise the SSSI as a breeding site. Several conservation groups including The Conservancy Association, HKBWS and AFCD have conducted annual monitoring of all egretries in the Territory, including Mai Po Village Egretry, since 1999.

9.4.3 In the wider landscape, Mai Po Marshes SSSI is located just over 1 km to the north west of the Study Area. The area was designated a SSSI in 1976 due to the large numbers of migratory birds it receives through the course of a year. The largest stands of mangroves in Hong Kong are within this SSSI boundary and the extensive mudflats are valuable to the many migratory and over wintering birds that occur.

Wetland Conservation Area and Wetland Buffer Area

9.4.4 To protect the ecological integrity of the nearby Ramsar site from incompatible development, the Town Planning Board, in accordance with the *Town Planning Ordinance* (Cap. 131) has designated a Wetland Conservation Area (WCA) and a Wetland Buffer Area (WBA) for the Deep Bay area under Town Planning Board Guidelines for "Application for Developments within Deep Bay Area" (TPB PG-No.12B) to provide guidelines to guide and control developments within the area (**Figure 2-1** refers).

9.4.5 The WCA covers and affords some protection to the landward part of the Ramsar site. The Guidelines stipulate that new development within WCA should not be allowed unless it is required to support the conservation of the area's natural features and scenic qualities. New development within WBA would not be considered unless the applicant demonstrated that the proposed development would have insignificant impact on the environment, ecology, drainage, sewerage and traffic in the area including the Ramsar site.

9.4.6 A small section of the proposed cycle track alignment does pass through an area of the WCA close to the Kam Tin River and Ngau Tam Mei Drainage Channel.

Conservation Areas

9.4.7 Several Conservation Areas (CA) occur throughout the Study Area and these are statutory land zones, which derive their legal status from the *Town Planning Ordinance* (Cap. 131). Conservation Areas are zoned to protect and retain existing natural landscape, ecological or topographical features of the area for conservation, education and research purposes and to separate sensitive mature environments such as Country Parks from the adverse effects of development. (**Figure 2-1** refers)

Compensatory Wetland Habitats

9.4.8 Within the Study Area there are several areas of wetland habitats that have been created as mitigation for other large-scale development projects. Examples include the constructed wetlands for the San Tin East Main Drainage Channel (EMDC) and also for the Yuen Long Bypass Floodway. In addition smaller wetland areas, by way of former meanders and sections of the original channels, are retained along the Kam Tin and Sheung Yue Rivers, and the San Tin Western Main Drainage Channel (STWMDC).

Other Important Areas of Conversation – Long Valley

9.4.9 The triangle of land enclosed by the Sheung Yue and Shek Sheung Rivers is known as Long Valley. The area comprises of both dry and wet agricultural land, with Brassicas, water spinach and watercress the dominant crops. There are also bloodworm and lotus ponds, and fruit trees surround the farms and ditches running through the fields, creating a variety of microhabitats and niches valuable to local wildlife. The high diversity of birds has been recorded at Long Valley and this is recognised by the area being included in the Important Bird Area for Deep Bay by Birdlife International.

9.5 Habitat Types and Vegetation

Literature Review

9.5.1 There are extensive areas of fishponds, rivers and drainage channels combined with large areas of urban development, container storage facilities and road networks across the NWNT. For much of the alignment, the cycle track follows either existing public highways i.e. Castle Peak Road or maintenance access roads for Drainage Channels. The route can be split into three sections for ease of description, as follows:

Kam Tin River Section

9.5.2 This section includes the channelised upstream Kam Tin River 60CD Works and the Ngau Tam Mei Drainage Channel 29CD (NTMDC) (ERM 1996). The residential estate, Fairview Park, is also located within this section close to the NTMDC. The majority of fishponds within the Study Area are found in this section.

Castle Peak Road Section

9.5.3 The majority of the route follows Castle Peak Road. It travels from the NTMDC, past the residential estate of Palm Springs towards Mai Po Village, through San Tin and on to Kwu Tung, where the route meets the Long Valley Section. Much of the Castle Peak Road Section is subject to development and is particularly urbanised. Previous development work has occurred on the San Tin Main Drainage Channel (ERM 1999) and at the time of survey, improvement to the San Tin Highway Interchange was underway.

9.5.4 Much of the Study Area along the Castle Peak Road Section is comprised of urbanised land, where ribbon development has resulted in a mixture of residential, light commercial/ industrial units, container storage, extensive car parking and wasteland areas for new development schemes. Plantation trees line the roads along this stretch and there are also several small areas of woodland within the

village areas of this section.

Long Valley Section

9.5.5 The Sheung Yue and Shek Sheung Rivers (formerly River Beas and Upper Indus Rivers respectively) were channelised as part of the Main Drainage Channels for Fanling, Sheung Shui and Hinterland (Maunsell 1998, TDD 1998) and work completed on these sections in 2002 (Lam & Lee 2002). The triangle of land enclosed by the Sheung Yue and Shek Sheung Rivers is known as Long Valley and the variety of microhabitats make this area especially favourable to avifauna.

Mitigation Schemes in the Study Area

9.5.6 Past development schemes within the Study Area have led to the establishment of several ecological mitigation projects. Some of the mitigation is by way of simple amenity planting e.g. ornamental plant species along the NTMDC. Larger scale wetland creation schemes have also been implemented, specifically as part of the Yuen Long Bypass Floodway and San Tin EMDC (DSD 2007). Smaller wetland mitigation schemes by way of small areas of managed wetland have been created by channelisation projects along with tree and scrub planting e.g. former meanders of the Kam Tin River (ERM 1996) and the River Beas (Maunsell 1998, TDD 1998).

9.5.7 A 7.8 ha artificial wetland habitat has been created as part of the mitigation for the construction of Yuen Long Bypass Floodway (see **Figure 9-1**), which includes reedbeds, shallow ponds and marshes (DSD 2007). This wetland is located within the Study Area though is on the opposite side of the Kam Tin River to the proposed alignment. The San Tin Created Wetland (see **Figure 9-3**) includes establishment of 3.7 ha of wetland habitat comprising ponds and reed bed alongside the channel (*ibid.*). Though both of these habitats are located within the Study Area, neither is located directly on the route of the proposed alignment.

Field Survey

9.5.8 A range of habitat types that would be typically expected of this area was identified through the aerial photography and ground truthing exercises. The most dominant habitat type within the Study Area was developed area (including residential and industrial areas, container storage, wasteland and transport infrastructure) occupying 61.3% of the total area. Much of the route alignment also passes through this habitat type. Habitat maps for the Study Area can be seen in **Figure 9-1** to **Figure 9-4** with plates of representative habitat types. At total of nine habitat types are described in the Study Area and summarised in **Table 9-1**:

Table 9-1 Habitat Types within the Study Area

Habitat Type	Ecological Value#	Area (ha)	% Cover
Fishponds	Medium	189	12.3
Managed Wetlands and Marsh	Medium-High (Low for the seasonal marsh with open water at Hip Shing Wai)	35	2.3
River Channels and Nullahs	Low-Medium	72	4.7

Habitat Type	Ecological Value#	Area (ha)	% Cover
Grassland/Shrubland Mosaic	Low-Medium	99	6.4
Developed Areas and Wasteland	Low-Negligible	945	61.3
Plantation	Low (High)*	55	3.6
Mixed Woodland	Medium	41	2.7
Cultivated Land - Long Valley	High	25	1.7
Cultivated Land - others	Low	78	5.2
Mangrove	Low-Medium	2	>0.1

Notes

#Ecological value relates to Habitat Value as assessed for this Study in Tables 9-6 to 9-15.
(High)* – relates to plantation used by breeding egrets at Mai Po Egretry

9.5.9 The vegetation survey recorded a total 336 plant species from within the Study Area, though none of these species were species of conservation interest. A comprehensive list of species and dominance within habitats can be seen in **Appendix 9-1**.

Fishponds

9.5.10 Fishponds are features typically associated with the NWNT, with the highest densities in the Kam Tin and San Tin Sections of the Study Area within the WCA. They also occur in the Long Valley and San Tin areas, though in lower densities. The alignment passes within 10 m of three ponds adjacent to the NTMDC (see **Figure 9-13**) and also a single pond near Mai Po (see **Figure 9-14**) on the Castle Peak Road Section. Eight ponds along the San Tin Tsuen Road section of the alignment are within 20 m of the alignment (see **Figure 9-14**).

9.5.11 Variable in size and in active management, they are generally four-sided bunded ponds utilised for aquaculture. The vegetative cover of pond bunds varies considerably, from bare soil to tree lined, with intermediate phases of grass and scrub cover. Typical plant species such as those found on the bunds and sometimes in semi-aquatic states, included *Pennisetum alopecuroides, Paspalum spp., Panicum spp., Bidens pilosa* and *Lantana camara*.

9.5.12 A number of the active ponds display obvious bird deterrents to prevent piscivorous species consuming or damaging fish stock. These are primarily represented by wires strung across the pond to prevent birds landing on the water's surface or objects to scare off birds i.e. scarecrows, suspended compact discs. Inactive ponds were also present, and were apparent from the overgrown bund vegetation and were in various states of overall management.

9.5.13 The majority of ponds at Long Valley are used either for bloodworm cultivation or as wet agricultural land, which provides habitat and feeding opportunities for a range of invertebrate and vertebrate species.

Managed Wetlands and Marsh

9.5.14 This particular habitat type is represented in the Study Area by the created mitigation wetland on the south side of the Kam Tin River, small ponds/marshes and the abandoned meanders created from past channelisation works and also a larger marsh near to Sha Po Tsuen and behind Mai Po Tsuen. Two small patches of seasonal marsh with open water are located at Hip Shing Wai, and were not in water at the time of survey. A combination of vegetative succession and dumping has led to the decrease in value of these patches of seasonal marsh as a marsh feature.

9.5.15 On the larger river channelisation schemes, several of the original meanders were retained as mitigation features and to compensate for the heavy engineering of these rivers. These features are typically seen as part of 60CD works on the Kam Tin River, and also along the Sheung Yue River, where several wet areas are retained. These water bodies are predominantly areas of open water with well-vegetated fringes. In some cases there is extensive macrophyte cover across the ponds.

9.5.16 On the western side of the Kam Tin River channel occurs the Yuen Long Bypass Floodway Habitat Creation Area, a 7.8 ha wetland mitigation project (DSD 2007). None of the compensatory freshwater wetlands created for the San Tin EMDC works are within the Study Area, other than the grasscreted bottom of the drainage channel.

9.5.17 Former meanders of the River Beas (Sheung Yue River) have been retained as mitigation measures of the channelisation project and are now managed specially for wildlife by AFCD (TDD 1998, Lam & Lee 2002). Also in Long Valley, several agricultural plots are managed by HKBWS specifically to provide foraging opportunities and shelter for birds.

9.5.18 Typical species found in these environments include *Cyperus spp.*, *Nelumbo nucifera*, *Commelina nudiflora*, *Ipomoea aquatica*, *Panicum paludosum*, *Juncus effuses* and *Lemna minor*. The marsh at Sha Po was dominated by *Phragmites australis* and one pond adjacent to the Kam Tin River was dominated by *Typha angustifloia*.

River Channels and Nullahs

9.5.19 The most obvious channel that appears to have a natural substrate, even following channelisation, is Kam Tin River. While the routes of this river have been obviously altered in recent times, they still retain expanses of mud, that when exposed at low tide, provide feeding opportunities for waterbirds.

9.5.20 The smaller waterways and nullahs in along this section are concrete lined features with either single or double dry weather flow (DWF) channels that run along the base of the drain. Examples include the Sheung Yue River, San Tin EMDC, Yuen Long Floodway and NTMDC. These channels, as well as the many smaller nullahs, are composed predominantly of concrete bottoms and banks. There is often little substrate in the base of the channel, though there are on occasions areas of mud and shingle that have become sparsely vegetated with ruderal species.

9.5.21 Aside from the San Tin EMDC, the beds of the smaller channels have little aquatic

vegetation. There are occasional areas where vegetation has colonised when a wet flush appears at the point where surface drains enter the nullahs. The larger channels have sloped embankments lined in part with grasscrete, to allow some vegetative cover. This has allowed vegetation to become established which offers some ecological opportunities to local wildlife.

9.5.22 Typical species seen in and along the drainage channels included *Rynchelytrum repens*, *Panicum maxima*, *Bidens pilosa*, *Alocasia* spp., with trees such as *Macranga tanarius* and *Leucaena leucocephala* planted and colonising along the top of embankments.

Grassland/ Shrubland Mosaic

9.5.23 A large percentage of the Study Area is occupied by these habitats. The habitat type is predominantly confined to upland locations on the southern edges of the Study Area, athough there is an area of grassland located near to the Kam Tin River. Cattle periodically graze the larger area of grassland adjacent to the Kam Tin River. The alignment does not directly impact on any of this area or any of the grassland/ shrubland areas within the Study Area.

Developed Areas and Wasteland

9.5.24 The majority of the proposed cycle track alignment follows existing roads and maintenance roads of the larger drainage channels, and travels through largely urban areas. These developed areas are comprised of small villages, towns and residential estates, industrial and commercial areas, including large scrap yards, along with container storage areas and car parks. Areas of note include Fairview Park and the Castle Peak Road to San Tin where large areas are allocated to these forms of land-use.

9.5.25 The Study Area incorporates several villages along the Castle Peak Road including Mai Po Tsuen, San Tin, Chau Tau, Pak Shek Au, Kwu Tung, Tsung Pak Long and also the industrial area of western Sheung Shui.

9.5.26 Botanical diversity through these areas is particularly low, with typical amenity and garden planting encountered e.g. *Bauhinia* spp*., Ficus hispida* and *Leucaena leucocephala.* Typical grass and herb species included *Digitara cilaris*, *Eupatorium catarium* and *Rynchelytrum repens*.

Plantation

9.5.27 Trees line much of the proposed cycle track alignment, where they have been planted for amenity and aesthetic value. Much of the plantation habitat within the Study Area is in the form of trees adjacent to major roads used for screening purposes, as opposed to large blocks of planted trees. The route follows existing transport routes, which are often subject to this type of planting regime. Ages of tree specimens vary widely, though there are some well-established mature specimens along sections of Castle Peak Road. A full list of tree species occurs in the tree report (**Appendix 12-1**).

9.5.28 Mitigation planting has taken place alongside channelised watercourses and though many of these trees have not yet reached maturity, they are still a factor to be considered. Indeed, none of these tree species are rare or protected and include

typical species utilised in amenity planting schemes with limited ecological value. In addition, a large stand of bamboo has been planted at the location of the proposed Resting Station R9, as part of the mitigation planting along the Sheung Yue River of which the anticipated benefits included provision of potential roosting habitats for birds (Maunsell 1998). Some of the other areas of mitigation planting along the Sheung Yue River were planted for screening of any visual impacts as part of the Main Drainage Channels for Fanling, Sheung Shui and Hinterland (Maunsell 1998, TDD 1998).

9.5.29 Typical plantation species include *Albizia lebbeck*, *Bambusa vulgaris*, *Bauhinia* spp., *Eucalyptus* spp. *Lophostemon conferta* and *Melaleucca leucadendron*.

Mixed Woodland

9.5.30 Several areas of woodland are located throughout the Study Area, particularly in the vicinity of villages. Much of this is *Fung Shui* woodland though several areas of semi-natural woodlands are also present on the areas of higher ground, generally on the edge of the Study Area.

9.5.31 The *Fung Shui* woodland located at Mai Po Village has been designated as a SSSI as it was formerly used as a breeding site for ardeids though it is no longer used and egrets have moved to adjacent stands of vegetation. Other examples of *Fung Shui* woodland exist along the study corridor in many of the villages and smaller settlements to add aesthetic appeal.

9.5.32 Commonly occurring woodland species included *Aporosa dioica*, *Acronychia pedunculata*, *Bambusa vulgaris*, *Bridelia tomentosa*, *Celtis tetrandra*, *Diospyros eriantha*, *Litsea glutinosa*, *Schefflera octophylla*, *Glochidion ericocarpum*, *Litsea rotundifolia*, *Polygonum chinense* and *Oxalis corniculata*. A full list of tree species can be found in **Appendix 9-1**.

Cultivated Land

9.5.33 Cultivated land occurs in patches throughout the Study Area, with small areas in and around some of the small settlement and also occurs in larger plots such as at Long Valley. Much of the vegetated lowlands in Hong Kong fall into the category of agricultural land and provide valuable resources for a wide range of species groups (Porcupine! 1998).

9.5.34 The areas of cultivated land are made up of many small plots which are in active management, so the status of each plot is constantly changing through ploughing, irrigation and crop growing. There is a mix of wet and dry cultivation; crops typically associated with these areas include *Brassica spp.* and watercress *Nasturtium officinale* sp. At Long Valley there are also bloodworm and lotus ponds. Banana palms and other fruit trees, including *Citrus* spp., *Dimocarpus longan* and *Litchi chinensis*, are interspersed in the farmland, and combined with the networks of paths, bunds and ditches running through the fields, a variety of microhabitats are present. The alignment does not directly impact on any of this area or any of the cultivated land areas within the Study Area.

Mangrove

9.5.35 Areas of mangrove occur along the Kam Tin River, downstream of the confluence

with the Ngau Tam Mei Drainage Channel. Much of this has been planted as compensation following the channelisation of the original river course in 1998 (*Ecosystems Ltd 2000* in ERM 2002) and now appears to have become established forming dense stands. Upstream of this section, there is little vegetation cover along the banks of the river, though some individual plants are gradually becoming established.

9.5.36 Typical species encountered include *Kandelia obovata, Sonneratia caseolaris, Ficus hirta, Avicennia marina, Lumnitzera racemosa* and *Wedelia trilobata.* The alignment does not directly impact on any of this area or any of the mangrove areas within the Study Area.

9.6 Birds

Literature Review

9.6.1 Past surveys and EIAs have provided background information for areas close to or within the Study Area and the data have been collected from these.

Kam Tin River

9.6.2 Following the channelisation of the Kam Tin River several projects have looked at avifauna use of the area. It should be noted that the vegetation cover of the riverbanks varies considerably on either side of the NTMDC confluence. Downstream, the banks are lined with relatively dense mangroves, whereas upstream of the confluence, there is little vegetation cover and much of the riverbank meets with exposed rubble or riprap blocks.

9.6.3 The upstream section of the Kam Tin River along which the proposed cycle track is to run, has been rubble-lined. The downstream section, though partially in the Study Area, is not directly affected by the cycle track route as the track heads north at the confluence to follow the NTMDC.

9.6.4 Though many bird species have been recorded from previous studies along the Kam Tin River, for the upstream length of the river within the Study Area, records are rather limited. The single notable species that has been revealed is the locally rare Intermediate Egret (ERM 2002). Notable records available from the section of the river downstream of the nullah include Avocet, Black-faced Spoonbill and Imperial Eagle (*ibid.*).

9.6.5 The Black-faced Spoonbill has been listed as “Endangered” (Birdlife International 2006a) and is listed as a Class 2 Protected Animal of the PRC. Imperial Eagle has been listed as “Vulnerable” (Birdlife International 2006b).

9.6.6 Earlier studies have revealed that in the upstream rubble-lined section of the river, a total of 19 species were recorded and this avifauna is common and widespread in Hong Kong (*Ecosystems Ltd 2000* in ERM 2002). The mangrove-planted section, downstream, was again confirmed to hold a higher number of avifauna species with a total of 49 species including a maximum count of 13 Black-faced Spoonbills in 2000 (*ibid.*).

9.6.7 Birds recorded during the 29CD works (prior to construction of the NTMDC) totalled 25 different species (ERM 1996). The list consists of species commonly

encountered in such habitat during autumn and winter months, though notable species included Little Egret, Chinese Pond Heron and Black Kite.

San Tin Section

9.6.8 Several studies in the area have been previously carried out in the San Tin area and a total of 11 Species of Conservation Concern were listed in the study for the San Tin Highway (Maunsell 2004). These species were Great Cormorant, Grey Heron, Chinese Pond Heron, Great Egret, Little Egret, Zitting Cisticola, Red-throated Pipit, White-cheeked Starling, Red-billed Starling, Coot and Wood Sandpiper.

9.6.9 Although these were recorded in winter 2002/03, not all of the species may occur within the Study Area for this Project and it is unlikely that any of these species would occur in habitats directly on the cycle track route in this section.

Long Valley Section

9.6.10 A well-known site and popular with birdwatchers, Long Valley is located to the northwest of Sheung Shui on the most westerly section of the cycle track alignment. It is a site well recognised for its abundance and diversity of birds (Woodward 2006) with over 220 bird species recorded here, with notable species including Greater Painted-snipe, Japanese Quail, Schrenck's Bittern, Watercock, Pallas's Grasshopper warbler, Bluethroat and Red-billed Starling (Woodward 2006, HKBWS 2007). This area of cultivation has been well studied as a result of the KCRC Lok Ma Chau Spur Line project.

9.6.11 The area has been recognised as an area important for avifauna and in June 2001, Birdlife International created an extension to the Mai Po and Inner Deep Bay Ramsar site, which is classified as an Important Bird Area (IBA), to include Long Valley.

9.6.12 Greater Painted-snipe have been recorded in the mitigation meanders created by the channelisation of the Sheung Yue River (Lam & Lee 2002). Eight meanders have been retained as mitigation wetlands, though which of these meanders the records occurs from has not been identified from the literature review. Seven of these wetlands are on the opposite side of the Sheung Yue River to the proposed route. This species is locally rare in Hong Kong, a species of freshwater agricultural land and is effectively restricted to two sites, Kam Tin and Long Valley (Carey *et al.* 2001), with breeding occurring at both sites.

Mai Po Village and Mai Po Lung Egretries

9.6.13 Two active egretries have been recorded in the Study Area, Mai Po Village Egretry and Mai Po Lung Egretry. Both egretries are located close to the busy Castle Peak Road. Whilst the general trend for the Mai Po Village Egretry has seen a decline in numbers of nests between 2000 and 2006, the egretry at Mai Po Lung has seen an overall increase in nest numbers. Details can be seen in the following **Table 9-2** and **Table 9-3**.

9.6.14 As previously mentioned, a total of 5 species of ardeid have been recorded using the egretry at Mai Po Village, though in recent years, only 2 species (Little Egret and Chinese Pond Heron) have bred. A small colony of Chinese Pond Herons breed some 200 m northeast of the Mai Po Egretry at Hip Shing Wai, and these

data have been included in the Mai Po Egretry (Anon. 2004, Anon. 2005, Anon. 2006). Data from the Mai Po Egretry, shown in **Table 9-2**, shows a decline in nests in recent years, with a high of 109 nests in 2001 dropping steadily over the years, with a slight increase in 2005, to the most recent count of 85 nests in 2006. Black-crowned Night Heron and Great Egret have not been observed to nest in any Deep Bay colony in 2005. This is partially attributed to the change of prey availability in Deep Bay fishponds, a possible result of industrialised fish farming in the area (Lansdown *et al*. 2000, Anon. 2005).

Table 9-2 Number of Ardeid nests per species in the Mai Po Village Egretry since 1999.

Species	2000[*1]	2001[*2]	2002[*3]	2003[*4]	2004[*5]	2005[*6]	2006[*7]
Black-crowned Night Heron	40	25	9	0	0	0	0
Little Egret	44	50	37	42	28	37	35
Chinese Pond Heron	6	7	14	14	18	51	50
Cattle Egret	10	15	12	3	6	0	0
Great Egret	8	12	15	2	0	0	0
Total	108	109	87	61	52	88	85

*1 Kwok et al. (2000); *2 Wong and Kwok (2001); *3 Wong (2002); *4 Wong and Woo (2003); *5 Anon (2004); *6 Anon (2005); *7 Anon (2006).

9.6.15 Mai Po Lung Egretry is historically a smaller egretry than that of Mai Po Village Egretry and is located a short distance to the east. In recent years nest numbers at the egretry have been increasing, and in 2006 exceeded the total number of nests at Mai Po Village Egretry. The egretries are currently breeding site for two species of Ardeid, Little Egret and Chinese Pond Heron.

Table 9-3 Number of Ardeid nests per species in the Mai Po Lung Egretry since 1999

Species	2000[*1]	2001[*2]	2002[*3]	2003[*4]	2004[*5]	2005[*6]	2006[*7]
Little Egret	1	1	2	1	10	5	12
Chinese Pond Heron	14	43	45	36	35	56	74
Total	15	44	47	37	45	61	86

*1 Kwok et al. (2000); *2 Wong and Kwok (2001); *3 Wong (2002); *4 Wong and Woo (2003); *5 Anon (2004); *6 Anon (2005); *7 Anon (2006).

9.6.16 Village flood protection work in the vicinity of Mai Po Lo Wai and Mai Po San Tsuen has resulted in the recent construction of a pumping house and various improvement works to the west of Mai Po Village itself (Ove Arup 2004). As part of the mitigation work for this project, ecological monitoring of the Mai Po Egretry was required (AUES 2004).

9.6.17 The egretry at Mai Po Village has been subject to recent human disturbance. Notes

from studies in 2004 (AUES 2004, Anon 2005) reveal that the pavement directly adjacent to the egretry was being used as a minibus stop and that no nests were seen in this area. Potential traffic and human disturbance occurs to 13 out of the 19 egretries in Hong Kong (Tsim 2002). The distance to the nearest source of disturbance are measured at 5m and 15m for Mai Po Village egretry and Mai Po Lung egretry respectively (*ibid.*)

9.6.18 Overall, the numbers of egrets nesting at these two sites in 2006 (i.e. 171 nests; 47 Little Egrets 124 Chinese Pond Heron) represented 16.9% of the total ardeid nests in Hong Kong (Anon. 2006).

9.6.19 Inappropriate monitoring of nests has also been cited as affecting breeding success. Tagging of nests suggest that climbing of trees had occurred, a factor that may have caused additional disturbance to the egretry as humans are identified as predators to the ardeids (AUES 2004, Anon 2005).

9.6.20 In conclusion, the monitoring report suggested that no disturbance from the development project occurred in the egretry during 2004 and the drop in nest numbers from 46 in 2003 to 36 in 2004, a result of a high abandonment rate, was attributed to human disturbance and inappropriate monitoring methodology from another study (*ibid.*).

9.6.21 An egretry is also located just outside of the southern end of the Study Area at Tung Shing Lane near Au Tau. In the 2006 season, this egretry was composed of 77 nests including 43 Little Egrets, 2 Cattle Egrets and 32 Chinese Pond Herons (Anon 2006, Lee *et al.* 2007).

9.6.22 Given the distance from the proposed construction work (approximately 500 m), this specific egretry has not been considered in this report as it is unlikely that any direct impacts will occur from the construction and operation of the cycle track. However, it is likely that birds from this egretry will utilise the Kam Tin River and other suitable habitats within the Study Area.

Field Surveys

9.6.23 A total of 98 bird species were observed within the Study Area through a combination of specific surveys (along the Kam Tin and Long Valleys rivers) and other incidental observations made when conducting site visits and other fieldwork. A comprehensive list of species and the relevant scientific names can be seen in **Appendix 9-2**.

9.6.24 The diversity of bird species was greatest in the Kam Tin River Section with a total of 79 species observed during the Study. In addition, the higher numbers of birds were also seen along this section, with largest numbers of ardeids and ducks recorded in the December count. Lower overall numbers and species (50) of birds were seen along the Castle Peak Road Section. This would be expected due to lack of habitat diversity along the Castle Peak Road Section. No specific bird surveys were conducted along this route as it was not identified as an area of particular significance for avifauna.

9.6.25 This list is only a representative of the total number of bird species that have the potential to occur in the Study Area. The types, and diversity, of habitats present along this 14 km stretch of proposed cycle track offer many opportunities for a

variety of bird species. Mai Po Marshes and the Long Valley area are well recognised for the numbers and diversity of avifauna species that occur.

Kam Tin River

9.6.26 Within this Section a total of 79 species were observed, with 22 species of bird directly associated with water seen utilising the river channel i.e. feeding, loafing. Of these 22 species, 17 are listed as species of conservation concern following the criteria set out by Fellowes *et al*. (2002). In addition, the Black-faced Spoonbill is listed as Vulnerable/Endangered by Birdlife International (2006a). These species can be seen in **Table 9-4**, with a maximum count also shown.

9.6.27 Avifauna species and numbers were recorded on each side of the river channel. Birds utilising the nearside bank and channel birds were considered to be more susceptible to disturbance from the Pok Wai South Road than those birds using the western side of the channel.

9.6.28 By far the most regularly recorded ardeid in this section was the Grey Heron (with a maximum total count of 111 birds seen in November). This species also remains in the vicinity of the river at high tide and roost on the embankment of the river close to the bridge of Castle Peak Road. Duck numbers were also at their highest in December composed of Eurasion Widgeon, Common Teal and Northern Shoveler.

9.6.29 In addition to the waterbirds, three species of wagtail (White, Grey and Yellow) were all regularly observed feeding on and around the exposed mud and embankments of the river.

9.6.30 Several species of conservation concern were recorded in the wider Study Area and are shown in more detail in **Table 9-16**.

Table 9-4 Monthly Counts of Waterbirds Utilising the Kam Tin River Channel

Species	Nov	Dec	Jan	Feb	Mar	Max Count for Near Bank/ Channel
Great Cormorant	10	5	-	-	2	10
Grey Heron	86(25)	73 (17)	50 (35)	40 (27+ 2*)	3(16)	86
Great Egret	3	2	1	-	-	3
Little Egret	9	11	2	4 (6+ 30*)	-(3)	11
Chinese Pond Heron	6		1	3 (3)	-	6
Eurasian Spoonbill	1	-	-	-	-	1
Black-faced Spoonbill	1 (10)	- (12)	-	-	-	1
Eurasian Wigeon	-	32 (10)	20 (54)	2 (80)	16(280+)	32
Northern Pintail	-	-	7*	-	-	7*

Species	Nov	Dec	Jan	Feb	Mar	Max Count for Near Bank/ Channel
Garganey	-	-	-	-	-(68)	0
Common Teal	- (30)	19 (73 + 4*)	37 (32 + 3*)	-	-(50+)	37
Northern Shoveler	- (12)	76 (12)	22 (44)	-	1(38)	76
Black-winged Stilt	- (60)	13 (15)	- (45)	-	1(6)	13
Pied Avocet	- (100)	12 (59)	-	-	-	12
Grey-headed Lapwing	-	-	-	3	-	3
Little Ringed Plover	-	7 (2)	-	-	1(1)	7
Green Sandpiper	2	-	-	-	1	2
Common Sandpiper	3	2	-	2	-	3
Wood Sandpiper	-	1	-	-	1	1
Common Snipe	-	2	4	-	-	4
Black-headed Gull	-	-	1	-	-	1
Pied Kingfisher	1		-	-	2	2

Notes: Figures in Parenthesises are birds observed on opposite side of river channel to the alignment (i.e. the western bank) or seen north of the Ngau Tam Mei channel but within the Study Area, OR, when highlighted an asterisk, birds have been seen on meander and/or roosting on trees adjacent to cycle track alignment.

9.6.31 Six species of raptor were observed patrolling the river channel during the wintering waterbird survey and included Black Kite, Greater Spotted Eagle, Bonelli's Eagle, Common Kestrel, Besra and Eastern Marsh Harrier. Black Kites and Common Buzzards were regularly recorded on each site visit. Greater Spotted Eagle, Bonelli's Eagle and Eastern Marsh Harrier were each only observed on single occasions. Greater Spotted Eagle is listed as "Vulnerable" by Birdlife International (2006c).

9.6.32 During times of high tide, the majority of the channel becomes full of water. Grey herons (max count 46) were observed loafing on the stone embankment towards the Castle Peak Road bridge. Many bird species migrate away from the river within the Study Area as the tide rises (e.g. Great Cormorants can be seen in trees on the Nam Sang Wai side of the river and were regularly observed in flight over the site, but rarely recorded on the river section along the alignment).

9.6.33 Other bird species were seen regularly using the adjacent habitats (i.e. wasteland/grassland, fishponds and scrub). This included more common resident species such as Chinese and Red-whiskered Bulbuls, Japanese White-eyes, Spotted Doves, Scaly–breasted Munias and Long-tailed Shrike. Also regularly encountered were winter visitors such as Common Stonechats and Olive-backed Pipits in the grassland, and on the abandoned meander, ducks such as Eurasian

Pintail and Common Teal. Little Egrets and Chinese Pond Herons could be seen day-time roosting on the fishpond bunds, trees and overhead lines particularly during high tide.

9.6.34 Species regularly observed in the Ngau Tam Mei Nullah included Little Ringed Plover, Common Kingfisher, Grey Heron, Little Egret, White Wagtail and Grey Wagtails. These species were most often seen either in the DWF channel of the wet flushes around the outfalls.

9.6.35 On each of the survey visits, bird concentrations appeared to be higher downstream of the confluence of the NTMDC than in the section of river surveyed for this project. These higher bird numbers were seen in habitats that were outside of the Study Area. The density of mangrove is greater in the downstream section and the river is also becomes wider channel which may offer more optimal foraging opportunities for waterbirds.

Long Valley Rivers

9.6.36 A total of 76 species were observed in the Long Valley Section (see **Appendix 9-2**), however from the specific surveys, a total of 12 waterbird species were seen in the nullah channels, which can be seen in **Table 9-5**. Of these 14 species, 10 are listed as species of conservation concern following the criteria set out by Fellowes *et al*. (2002) (See **Table 9-16**). Though numbers of birds seen were low in comparison to those of the Kam Tin River, a high count of any one species was in December when 44 Pied Avocet were seen at the confluence of the two rivers. As the tide rose, covering the exposed mudflats, the Avocet flock was noted moving onto the managed wet cultivation within Long Valley itself.

9.6.37 Grey Herons were the most numerous ardeid species seen in the surveys, usually seen feeding in highest numbers at the confluence of the two rivers. High tide loafing of Grey Herons occurred on the opposite bank of the Shek Sheung River, usually with other ardeid species. Little Egrets and Chinese Pond Herons favoured one particular tree on this bank for high tide roosting.

9.6.38 The smaller wader species (i.e. Little Ringed Plover and three sandpiper species), as well as the three common wagtail species, were regularly observed feeding in the drainage channel of the Sheung Yue River. Little Ringed Plovers occurred in small parties of up to 10 individuals. The ardeids were seen in singles or pairs along the channel; though these would often take flight when human presence along the maintenance road was detected.

Table 9-5 Monthly Counts of Bird Species Utilising the Long Valley River Channels

Species	Nov	Dec	Jan	Feb	Mar	Max Count
Grey Heron	8	14	29	8	1	29
Great Egret	-	-	1	-	1	1
Little Egret	9	23	15	6	8	23
Cattle Egret	2	-	4	-	-	4

Species	Nov	Dec	Jan	Feb	Mar	Max Count
Chinese Pond Heron	3	4	3	2	1	4
Pied Avocet	-	44	-	-	-	44
Little Ringed Plover	16	16	17	6	8	17
Wood Sandpiper		1	8	-	6	8
Green Sandpiper	3	6	2	3	1	6
Common Sandpiper	11	10	3	3	1	11
Common Greenshank	1	-	-	-	-	1
Common Snipe	-	-	1	4	3	4
Common Kingfisher	2	1	1	-	-	2
Pied Kingfisher	-	-	-	-	3	3

9.6.39 Greater Painted-snipe were observed within an abandoned meander (Number 2a) to the east of the Sheung Yue River and according to previous AFCD records, have also been recorded at retained meanders (1 and 8) (AFCD *pers comm.* April, 2008) (see **Figure 9-4**). Though relatively close in distance to the route alignment (approximately 60 m), the mitigation wetland, which was observed as being utilised by Greater Painted-snipe (meander 2a) as well as meander 1, is located on the opposite side of the river to the proposed cycle track. Meander 8 is on the same side of the proposed cycle track. This area is part of the mitigation works for the channelisation projects of the River Beas (Maunsell 1998, TDD 1998). Currently these meanders are managed by AFCD.

9.6.40 The proposed cycle track alignment follows the channel maintenance roads, adjacent habitats include, grassland, scrub, planted trees and an area of planted bamboo. Many common species utilise these areas and regularly recorded species included bulbuls, Japanese White-eyes, Long-tailed Shrike and Common Tailorbird. Also regularly recorded in these terrestrial habitats were common winter visitors including Yellow-browed Warbler, Dusky Warbler and Olive-backed Pipit. Occasional thrushes, i.e. Common Blackbird, Grey-backed Thrush, were observed in the tree-lined farm access road at the bottom of the embankment of the Shek Sheung River.

Mai Po Egretries Update

9.6.41 A site visit was arranged with members of WWF, HKBWS and KFBG on 14 February 2007 to discuss the implications of the alignment and highlight the specific areas of ardeid nesting in recent years. The egretry has now migrated away from original *Fung Shui* woodland site, originally designated as a SSSI to protect the locally breeding ardeids. The vast majority of nests now occur to the south of the SSSI in a small triangle of land sandwiched between Castle Peak Road, the San Tin Highway and San Tam Road, where up to 40 nests of Chinese Pond Heron and Little Egret have been recorded (C. Wong *pers. comm.)* in bamboo and exotic plantation trees.

9.6.42 Further, nesting is occurring to the north of the SSSI, in several locations. The majority of nesting activity (c. 20 nests) in this northern section occurs on land adjacent to the SSSI in bamboos and plantation trees (C. Wong *pers. comm.).* The Mai Po Lung Egretry also occurs on this side of the Castle Peak Road, approximately 200 m further to the east.

9.6.43 Several nests, however, occur within the immediate vicinity of the proposed cycle track along Castle Peak Road as the track leaves Tam Kon Chau Road. Chinese Pond Heron have utilised the trees adjacent to two dried patches of seasonal marsh with open water as a nesting site. These trees and seasonal marsh with open water are directly along the proposed alignment.

9.6.44 A site visit in early April 2007 did not reveal any current nesting activity at any of the known locations for the Mai Po Village Egretry, possibly due to a spell of cold weather prior to the visit. However, two Chinese Pond Herons were observed in the trees above the two patches of seasonal marsh with open water on the Castle Peak Road section to the north of the SSSI and though no breeding activity was noted, old nests had been observed in the trees on previous occasions.

9.7 Other Fauna

9.7.1 Whilst specific surveys were not specifically required for other faunal groups for this study, a series of incidental records were made whilst conducting site visits and specific surveys.

Mammals

Literature Review

9.7.2 Records for larger mammal species such as Eurasian Otter *Lutra lutra*, Small Asian (Javan) Mongoose *Hepestes javanicus* and Leopard Cat *Prionailurus bengalensis* occur at the nearby Mai Po Nature Reserve (Porcupine! 2003, Shek 2006). These species have the range and potential to occasionally utilise the limited opportunities along the river and nullah channels around the Kam Tin River section of the proposed alignment though it is considered unlikely that they would occur along the alignment route itself.

9.7.3 A record exists of Small Asian Mongoose being seen at an island in fishponds at the nearby Shan Pui dates from 2003 (Porcupine! 2003). Older records of the same species have been made at Long Valley (Maunsell 1998, Porcupine! 2001). This species has a fairly widespread in Hong Kong (Shek 2006).

9.7.4 Eurasian Otter has been recorded at fishponds and river channels in the Lok Ma Chau and San Tin area (Binnie Black & Veatch 2002) though the specific location for these records is not known and may therefore be just outside of the Study Area.

9.7.5 Records of Short-nosed Fruit Bat *Cynopterus sphinx* and Lesser Club-footed Bat *Tylonycteris pachypus* (Binnie Black & Veatch 2002) have been recorded from Chau Tau, which although is within the Study Area, is not along the proposed route. These species tend to roost in Chinese fan-palms, forming “tent” roosts, and in the splits at internodes of bamboo respectively (Shek 2006). Bats will occur throughout the Study Area due to the abundance of fishponds and their suitability for providing feeding opportunities.

Field Observations

9.7.6 The alignment does not pass through habitats typically associated with larger mammals, although habitats within the overall Study Area may be favourable to larger mammals as feeding territories.

9.7.7 Small Asian mongoose was seen on two occasions using the former meander along the Kam Tin section. The mixture of tall grasses, water bodies and scrub cover make this area suitable for this species. It is a species that favours open habitat (Shek 2006).

9.7.8 Bat species will utilise the alignment corridor for foraging, particularly around areas of farmland over water (Porcupine! 1999, Shek 2006) and are likely to utilise trees, bamboos, buildings and water culverts as roost sites within the Study Area.

9.7.9 Four domestic water buffalo *Bulbalus bulbalus* were regularly seen in the vegetated channel of the tributary that feeds into the Shek Sheung River.

Herpetofauna

Literature Review

9.7.10 The three species of protected amphibian under WAPO have not been recorded in this Study Area, indeed the habitat requirements for these species, namely clean upland streams, are not present in this area (Chan *et al*. 2005).

9.7.11 A total of eight species of herpetofauna have been previously recorded in the Study Area including spotted narrow-mouth frog *Kalophrynus pleurostigma* (DSD 2007) in the Kam Tin vicinity. Five common and widespread amphibian and reptile species have been observed in the San Tin area, which include Asian Common Toad *Bufo melanostictus,* Paddy Frog *Rana limnocharis (sic.),* Bowring's Gecko *Hemidactylus bowringii,* Chinese Skink *Eumeces chinensis chinensis and* Reeve's Smooth Skink *Scincella reevesii* (Maunsell 2004). Changeable Lizard *Calotes versicolor,* Asian Common Toad *Bufo Melanostictus* and Gunther's Frog *Rana guentheri* have been recorded in the vicinity of the Sheung Yue River regularly during surveys in 1996 and 1997 (Maunsell 1997). All of the species are listed as common and widespread in Hong Kong (Karsen *et al.* 1997, Chan *et al*. 2005) and would be expected to occur in the Study Area.

Field Observations

9.7.12 Two desiccated amphibians were discovered along the maintenance road of the Sheung Yue River. These were Asian Common Toad *Bufo melanostictus* and Asiatic Painted Frog *Kaloula pulchra pulchra*. These species are widespread in Hong Kong favouring abandoned or cultivated fields, shrubby grasslands or wooded areas around villages (Karsen *et al*. 1998, Chan *et al.* 2005).

9.7.13 An Ornate Pigmy Frog *Microhyla ornata* was discovered under wooden boards close to the cycle track alignment along the Kam Tin River stretch. This species is widespread and common throughout the territory and is found in marshes, cultivated fields or under leaf litter in wooded areas (Karsen *et al*. 1998, Chan *et al.* 2005).

Aquatic Fauna

Literature Review

9.7.14 None of the alignment would directly impact on any watercourses along its route. The water quality throughout watercourses in this area of the New Territories is generally poor, particularly the Kam Tin River, which has been subjected to negative impacts by way of sewerage inputs (Over Arup 2004). Records as far back as 1992 report that the Kam Tin River was heavily polluted with domestic and industrial sewerage and the pollution together with its anoxic condition together were responsible for a low species richness and diversity (ERM 2002). In the San Tin area because of pollution, intensive management regimes and vegetation clearance, aquatic communities in the NWNT tend to be species poor (Maunsell 2004).

9.7.15 Studies of the Kam Tin River Section in 2000 and 2001 reveal the dominant species being Tilapia *Oreochromis* spp., with other aquatic fauna including Mud Crab *Scylla serata*, Mullet *Mugil affinis* and Mud carp *Cirrhinus molitorella* (ERM 2002). Further studies of this section in 2003 reconfirmed the abundance of Tilapia (Ove Arup 2004).

Field Observations

9.7.16 Tilapias *Oreochromis* spp. were regularly seen swimming in the DWF channels of the nullahs throughout the Study Area. These fish belong to a group that were introduced to Hong Kong for aquaculture reasons. They have subsequently escaped the aquaculture ponds and have become established in freshwater systems. They are also particularly tolerant of pollution (Dudgeon and Corlett 2004). Several dead specimens were observed along the banks of the Kam Tin River on various occasions.

9.7.17 An eel *Anguilla* sp was observed passing along a ditch close to Mai Po Egretry. *Anguilla* spp. are listed as uncommon fish species in Hong Kong (Lee *et al*. 2004).

9.7.18 Dead catfish, which appeared to be African Leather Catfish *Clarias gariepinus,* were regularly observed on field visits in areas underneath both the Sheung Yue River Weir and along the mudflats of the Shek Sheung River. This species, like the Tilapia, is another introduced species to Hong Kong (Dudgeon & Corlett 2004).

9.8 Ecological Value

9.8.1 In order to assess the ecological importance of the habitats identified within the Study Area, the criteria detailed in *Annex 8* of the EIAO-TM have been implemented for each of the habitat types.

Habitats

Fishponds

9.8.2 The highest density of fishponds occurs in the western limits of the proposed cycle track alignment and around the Mai Po Tsuen and San Tin Tsuen Road areas, with many of the ponds included within the WCA. A few ponds are not located within the WCA and many of these are scattered along the length of Castle Peak Road, with occasional ponds in the Long Valley Area. Individual ponds are located along the alignment though none are directly affected or will be lost as part of the scheme.

Fishponds are well recognised as areas of high biological diversity and ecological value (Porcupine! 1995).

9.8.3 Herons and Egrets were regularly observed using these ponds as feeding and roosting grounds. Four species of Kingfisher were also noted utilising the ponds over the study period. The assessment of ecological importance of fishponds within the Study Area is provided in **Table 9-6**.

Table 9-6 Evaluation of Ecological Importance of Fishponds within Study Area

Criteria	Remark
Naturalness	Man-made habitats
Size	189 ha
Diversity	Potential for high diversity of spp., particularly avifauna
Rarity	Not a rare habitat. Fauna of Conservation Interest are likely to be encountered. e.g. Great Cormorant, Chinese Pond Heron, Little Egret
Re-creatability	Easily recreated
Fragmentation	These ponds are contiguous in WCA, but also there are isolated ponds in urbanised areas. Also there are ponds in the Long Valley area.
Ecological linkage	The ponds form part of the larger wetland area within NWNT, and are linked to the Deep Bay Ramsar site and also the wider Wetland Conservation Area
Potential value	High, if properly managed
Nursery/breeding ground	No significant breeding ground or nursery noted due to seasonality
Age	Not known
Abundance/ Richness of wildlife	Recognised as having high abundance and species richness, particularly with WCA
Overall ecological value	Medium

Managed Wetlands and Marsh

9.8.4 Created as a result of river modification and straightening along the Kam Tin River and also the Sheung Yue River, these oxbow lakes are former meanders in the natural river course. They have now been retained for conservation value as part of the mitigation scheme from the channelisation works and are small in size but support a moderate diversity of bird species, notably wetland dependant species such as Common Kingfisher and Grey Heron. Small Asian Mongoose has been observed at the meander adjacent to the Kam Tin River and areas grazed by domestic cattle offer opportunities for Cattle Egrets along with winter thrushes and pipits.

9.8.5 A 7.8 ha artificial wetland habitat has been created as part of the mitigation for the construction of Yuen Long Bypass Floodway, which includes reedbeds, shallow ponds and marshes (DSD 2007). This wetland is located within the Study Area though is on the opposite side of the Kam Tin River to the proposed alignment. The San Tin Created Wetland includes establishment of 3.7 ha of wetland habitat comprising ponds and reedbed alongside the channel (*ibid.*), though the created wetland is on the boundary of the Study Area some distance away from the

proposed cycle track itself. It should be noted that only small proportions of the created wetlands fall within the Study Area boundary.

9.8.6 The large marsh at Sha Po and a smaller marsh area between Mai Po Tsuen are included in this assessment along with the areas of wet agriculture specifically managed for avifauna at Long Valley. Smaller areas of marsh and mitigation ponds are found on the San Tin Tsuen Road, results of the work for the San Tin WMDC.

9.8.7 Two small patches of seasonal marsh with open water at Hip Shing Wai are also included in this habitat. The assessment of ecological importance of managed wetlands and marsh within the Study Area is provided in **Table 9-7**.

Table 9-7 Evaluation of Ecological Importance of Managed Wetlands and Marsh in Study Area

Criteria	Remark
Naturalness	Semi-natural and man-made. Former natural meanders in rivers and marshes (Sha Po) are semi-natural, though modification of habitats as compensation for river channel modification and managed wetland cultivation ponds are man-made e.g. Yuen Long Bypass Floodway and Habitat Creation Area and San Tin EMDC, managed wet cultivation in Long Valley by HKBWS. There is also a small area of semi-natural marsh near Mai Po Tsuen. Two small patches of seasonal marsh with open water at Hip Shing Wai are also included in this habitat .
Size	35 ha in total, made up of smaller areas with a maximum size of 7.8 ha. The two small patches of seasonal marsh with open water at Hip Shing Wai are approximately 0.14 ha in size overall.
Diversity	Potential for high diversity of spp. particularly avifauna.
Rarity	Not a common habitat. Fauna of Conservation Interest are likely to be encountered. e.g. Grey Heron, Little Egret, Chinese Pond Heron, Greater Painted-snipe.
Re-creatability	Easily recreated for mitigation/managed wet cultivation. Less easy to create semi-natural marshes e.g. Sha Po.
Fragmentation	Isolated within Study Area, due to nature of river modification.
Ecological linkage	Some. Close to modified rivers and medium quality habitats i.e. fishponds, cultivated land, good habitat mosaic particularly for avifauna.
Potential value	High, if properly managed. This is particularly true in the case of the Created Wetlands for the Yuen Long Bypass Floodway and San Tin EMDC.
Nursery/breeding ground	No significant breeding ground or nursery noted due to seasonal surveys. Managed abandoned meanders have been recorded as nursery ground for Greater Painted-snipes. Likely to be utilised by amphibians, dragonflies and fish species.
Age	Variable.
Abundance/ Richness of wildlife	Medium.
Overall ecological value	Low for the two small patches of seasonal marsh with open water at Hip Shing Wai Medium for man made areas High for semi-natural areas

River Channels/ Nullah

9.8.8 The Study Area includes several watercourses, the majority of which have been channelised and appear to be heavily polluted in many cases, with visible pollution and strong foul smells. A large stretch of the lower section of the Kam Tin River and

channelised sections of the Sheung Yue and Shek Sheung Rivers along with the recently constructed drainage channel of Ngau Tam Mei are included in the Study Area, along with many smaller streams that run along artificial courses. This artificial channelling and modification of watercourses is in evidence through much of the surrounding area.

9.8.9 Many smaller concrete ditches and streams cross the Study Area along the length of the alignment.

9.8.10 Significant numbers and diversity of waterbirds have been observed on the larger river channels, of note species like Black-faced Spoonbill, Pied Avocet, Grey Heron and wintering duck. The smaller streams are less diverse with regards to avifauna, but many individual birds were noted over the study period, e.g. White Wagtails and Olive-backed Pipits were observed using these concrete channels. The assessment of ecological importance of river channels and nullahs within the Study Area is provided in **Table 9-8**.

Table 9-8 Evaluation of Ecological Importance of River Channels and Nullahs within the Study Area

Criteria	Remark
Naturalness	Drainage channels and nullahs and most streams are artificial and man-made/modified within the Study Area.
Size	72 ha within Study Area. Kam Tin, NTMDC and the two Long Valley Rivers dominate this habitat within Study Area. Many smaller ditches and channels criss-cross the Area.
Diversity	Potential for high diversity of spp., particularly avifauna on larger channels in tidal areas. Low diversity in smaller ditches.
Rarity	Not a common habitat. Fauna of Conservation Interest were encountered. E.g. variety of wading birds, wintering ducks, large numbers of Ardeids noted, plus Spoonbills.
Re-creatability	Easy to recreate as the features are originally man-made/modified.
Fragmentation	Not Applicable
Ecological linkage	Limited, though the rivers do act as a corridors through the WCA and WBA
Potential value	Low –medium potential value as they have been channelised losing natural features of rivers. Some amelioration work could increase habitat diversity.
Nursery/breeding ground	Not known. Evidence of Tilapia breeding has been observed in the larger channels. Common Amphibian, Dragonfly and Fish species are likely to utilise smaller channels.
Age	Not applicable. Recent developments i.e. within last 10 years
Abundance/ Richness of wildlife	Variable. The stretch of channel at Kam Tin River hold good numbers of wintering birds
Overall ecological value	Medium - In particular those channels at Kam Tin River where a variety of wintering birds feed. Notably the Black-faced Spoonbill. Low- Small ditches and drains along roadsides and crossing Study Area.

Grassland/ Shrubland Mosaic

9.8.11 Grassland / shrubland, a common habitat feature within the Study Area through the majority of this habitat occurs on the southern limits of the Study Area in more

upland locations. This habitat does not occur in any areas close to the alignment of the proposed cycle track. The assessment of ecological importance of grassland / shrubland within the Study Area is provided in **Table 9-9**.

Table 9-9 Evaluation of Ecological Importance of Grassland/ Shrubland within the Study Area

Criteria	Remark
Naturalness	Semi-natural
Size	99 ha
Diversity	Likely to be moderately diverse, dependant of the condition of adjacent fishponds
Rarity	Not a common habitat along the alignment route
Re-creatability	Can be re-created
Fragmentation	Isolated patches throughout the Study Area
Ecological linkage	Predominantly in upland locations
Potential value	Low
Nursery/breeding ground	No evidence seen
Age	Not applicable
Abundance/ Richness of wildlife	Low
Overall ecological value	Low

Developed Areas/ Wasteland

9.8.12 Due to the nature of the proposed alignment following existing road corridors, developed areas cover much of the Study Area. This area of the NWNT has a mixture of residential, light industrial and storage usages, resulting in low ecological value through intensive human activity. The assessment of ecological importance is provided in **Table 9-10**.

Table 9-10 Evaluation of Ecological Importance of Developed Area/ Wasteland within Study Area

Criteria	Remark
Naturalness	Created Habitats. Maintenance road exists alongside both sides of drainage channel. Light/medium industrial units become more apparent towards the end of this section
Size	945 ha
Diversity	Likely to be fairly high due to the amount of planted exotic species associated with this land use
Rarity	Not applicable
Re-creatability	Easily re-creatable
Fragmentation	Continuous throughout the Study Area
Ecological linkage	Linked to areas of higher ecological value
Potential value	Low
Nursery/breeding ground	Not recorded
Age	Not applicable. Variable

Criteria	Remark
Abundance/ Richness of wildlife	Low
Overall ecological value	Low-Negligible

Plantation

9.8.13 Represented by exotic or ornamental planting for aesthetic and screening purposes along roads and drainage channels. Much of the planting is of single rows of trees alongside the Castle Peak Road and alongside drainage channels. The assessment of ecological importance of plantation within the Study Area is provided in **Table 9-11**.

Table 9-11 Evaluation of Ecological Importance of Plantation within Study Area

Criteria	Remark
Naturalness	Man-made
Size	55 ha. Predominantly located alongside roads and some stands of trees around habitation some of which are a result of mitigation planting following the channelisation of former rivers in the area. In particular, the anticipated benefits of the mitigation planting at R9 from this previous project included provision of potential roosting habitats for birds (Maunsell 1998).
Diversity	Low plant species diversity but avifauna diversity is medium.
Rarity	None recorded.
Re-creatability	Easily recreated
Fragmentation	Moderately fragmented, much of the plantation follows existing roads therefore is semi-continuous along the cycle track route
Ecological linkage	Not functionally linked to any other habitats of high value in a significant way
Potential value	Low
Nursery/breeding ground	Mai Po Egretries are located in plantation species of bamboos and trees
Age	Young. Most trees less than 20-30 years old. Some older examples on Castle Peak Road
Abundance/ Richness of wildlife	Low
Overall ecological value	Low – across the majority of the Alignment. Low – Medium – for the small area of plantation located near R9 High – in the Mai Po Tsuen, Hip Shing Wai areas where Egrets breed (see separate assessment in Table 9-15)

Mixed Woodland

9.8.14 Woodlands were comprised of semi-natural secondary woodland and planted *Fung Shui* woodland, which contained a moderate number of tree and herb species. The assessment of ecological importance of mixed woodland within the Study Area is provided in **Table 9-12**.

Table 9-12 Evaluation of Ecological Importance of Mixed Woodland within the Study Area

Criteria	Remarks
Naturalness	Semi-natural secondary woodland. *Fung Shui* woodland planted by man.
Size	Variable in size with pockets of cover scattered through the Study Area. This habitat covers a total of 40 ha across the Study Area
Diversity	Low-medium plant species diversity but avifauna diversity is medium.
Rarity	None recorded
Re-creatability	Can be recreated
Fragmentation	There is significant fragmentation of this habitat type within the Study Area
Ecological linkage	Not functionally linked to any habitat of high value, other than the SSSI woodland close to Mai Po egretries
Potential value	Moderate, if allowed to mature, though given small overall areas, limited potential
Nursery/breeding ground	None seen. Range of fauna species will use these woodlands for breeding, particularly avifauna
Age	Unknown
Abundance/ Richness of wildlife	Moderate
Overall ecological value	Medium

Cultivated Land

9.8.15 The largest area of cultivation within the Study Area occur in the vicinities of Long Valley (approximately 25 ha). However, throughout the Study Area there are numerous, much smaller areas of cultivation associated with small settlements and villages. These smaller areas are more intensively farmed and the combination of small size and fragmentation lowers their ecological value, particularly when compared to a larger site like Long Valley with more of a mosaic of habitats created through more diversely farmed plots.

9.8.16 The cycle track does not directly impact upon any of the land within Long Valley and specific surveys were not deemed appropriate. Instead, as there has been extensive coverage of the Long Valley area in recent years, (BBV 2002, HKBWS 2007), an assessment of the abundance and richness of the site has been made from literature reviews. A high diversity of birds has been recorded at Long Valley and this is recognised by the area being included in the Important Bird Area for Deep Bay by Birdlife International. The assessment of ecological importance of cultivated land within the Study Area is provided in **Table 9-13**.

Table 9-13 Evaluation of Ecological Importance of Cultivated Land within Study Area

Criteria	Remarks
Naturalness	Man-made habitat
Size	103 ha overall through the Study Area Long Valley = approximately 25 ha, with other smaller areas of cultivation scattered throughout the Study Area.
Diversity	High bird diversity at Long Valley. Less diverse in other smaller areas.
Rarity	Many rare species of bird occur in the cultivated land of Long Valley e.g. Greater Painted-snipe. More common species are likely to occur in the smaller areas of cultivation.
Re-creatability	Can be easily recreated
Fragmentation	Fragmented along the route. Though when cultivation occurs, covers fairly extensive areas e.g. Long Valley.
Ecological linkage	Not linked to any habitat of high value. Drainage channels allow localised daily bird migrations between habitats
Potential value	High in some areas of Long Valley where under the management of HKBWS to create wet agriculture to specifically suit avifauna. However, generally the potential value is considered to be Low, as actively farmed sites are constantly changing and are not managed specifically for wildlife.
Nursery/breeding ground	Records of breeding Greater Painted-snipe occur for Long Valley (Carey *et al*. 2001)
Age	Variable, dependant on farming regimes
Abundance/ Richness of wildlife	Avifauna is particularly diverse in Long Valley. Diversity is less in smaller areas of this habitat in other parts of the Study Area.
Overall ecological value	High – Long Valley Medium -Low – for other areas of cultivation in Study Area

Mangrove

9.8.17 The areas of mangrove within the Study Area are very small and local and are primarily located along the Kam Tin River, downstream of the project alignment. Along the section of the alignment, which runs adjacent to the Kam Tin River, there are a few small, colonising stands of mangrove but the larger coverage of this habitat is north of the NTMDC junction on both sides of the river. An important habitat in Hong Kong, it has high ecological value generally but the small areas that occur within the Study Area are of limited ecological value. The assessment of ecological importance of mangrove within the Study Area is provided in **Table 9-14**.

Table 9-14 Evaluation of Ecological Importance of Mangrove within Study Area

Criteria	Remark
Naturalness	Semi-natural. Combination of planted mangrove in the modified channel with new colonisation also occurring
Size	2 ha
Diversity	Low plant species diversity but avifauna diversity is high
Rarity	No rare botanical species observed. Black-faced Spoonbills observed feeding in the adjacent river channel, Red-billed Starlings regularly foraging in mangrove downstream of NTMDC.
Re-creatability	Can be recreated
Fragmentation	Appears to be established and to be connected with other areas of mangrove in Deep Bay area
Ecological linkage	Linked to the Deep Bay Ramsar site and also the wider Wetland Conservation Area
Potential value	Low, as restricted by channel walls. Movement can only be linear
Nursery/breeding ground	Not observed or recorded
Age	Young, planted following the channelisation of the Kam Tin River
Abundance/ Richness of wildlife	Low, but well used by avifauna
Overall ecological value	Low – in the KTMDC close to the alignment (i.e. individual/several plants) Medium - downstream sections where larger stands of mangrove are becoming established.

Mai Po Village and Mai Po Lung Egretries

9.8.18 The two egretries at Mai Po Village and Mai Po Lung provided suitable breeding habitats for over 170 nests, of Little Egrets and Chinese Pond Herons, in 2006. Both of these egretries occur within the Study Area, though they are both subject to potential traffic and human disturbances from with 5-15 m (Tsim 2002). The assessment of ecological importance of egretries within the Study Area is provided in **Table 9-15**.

Table 9-15 Evaluation of Ecological Importance of Egretries within Study Area

Criteria	Remark
Naturalness	Egretry in roadside plantation, exotic trees and stands of bamboo
Size	171 nests in 2006 (47 Little Egret, 124 Chinese Pond Heron) – 16.9% of total ardeid nest in HK 2006
Diversity	Low. Species breeding include Little Egret and Chinese Pond Heron in recent years. Historically up to 5 species breeding
Rarity	Both breeding species commonly occur at other egretries in Hong Kong
Re-creatability	Planting of exotic trees and bamboo is straightforward. Relocation of nesting birds is difficult and dependant on the individual bird's habitat preferences and selection.
Fragmentation	N/a
Ecological linkage	Birds will utilise surrounding wetlands for feeding young

Criteria	Remark
Potential value	High
Nursery/breeding ground	Ardeid breeding site with records of 5 species breeding in recent years. Two species currently nesting at these sites.
Age	Unknown. Though original Mai Po egretry some 100m to the north in SSSI. Has moved south over recent years
Abundance/ Richness of wildlife	In local context, very high as very few egretries in the Deep Bay area
Overall ecological value	High

Species Evaluation

Table 9-16 Avifauna of Conservation Interest Recorded within the Study Area

Common name	IUCN Red List	Protection Status	Conservation Status*1	Distribution/ Rarity in Hong Kong*2	Global Distribution	Potential Disturbance from Proposed Cycle Track
Great Cormorant	-	-	PRC	A WV - Deep Bay	Worldwide	Yes
Grey Heron	-	-	PRC	A WV - Deep Bay	Worldwide	Yes
Great Egret	-	-	PRC	C to A R, small numbers B - NT	Eurasia, Africa	Yes
Little Egret	-	-	PRC	A, R - Widespread, NT	Eastern Hemisphere	Yes
Cattle Egret	-	-	(LC)	U to C all year – NT		Yes
Chinese Pond Heron	-	-	PRC	C R – Widespread	E Asia	Yes
Black-crowned Night Heron	-	-	(LC)	C to A, R and WV – Widespread	Worldwide	Yes
Eurasian Spoonbill	-	Class 2 Protected animal of China, Vulnerable in CRD, Appendix 2 of CITES	LC	S to U WV - Deep Bay	Eurasia, Africa	Yes
Black-faced Spoonbill	EN	Class 2 Protected Animal of PRC, Endangered in CRD, Appendix 2 of CITES	PGC	C WV; S SV - Deep Bay	East Asia	Yes
Eurasian Wigeon	-	-	RC	A WV - Deep Bay	Holarctic, Africa	Yes
Common Teal	-	-	RC	A WV - Deep Bay	Holarctic, Africa	Yes
Northern Pintail	-	-	RC	A WV - Deep Bay	Holarctic, Africa	Yes

Common name	IUCN Red List	Protection Status	Conservation Status*1	Distribution/ Rarity in Hong Kong*2	Global Distribution	Potential Disturbance from Proposed Cycle Track
Northern Shoveler	-	-	RC	A WV - Deep Bay	Holarctic, Africa	Yes
Tufted Duck	-	-	LC	U to C WV - Deep Bay	Eurasia, Africa	Yes
Black Kite	-	-	(RC)	A WV; Sig. NB popn + smaller nos. of B – Widespread		No
Eastern Marsh Harrier	-	-	LC	LC WV + PM - Deep Bay	East Asia	No
Greater Spotted Eagle	VU	-	GC	S WV - Deep Bay	Eurasia, Africa	No
Bonelli's Eagle	-	-	(RC)	S R - Local dist. NT	South Eurasia, Africa	No
Ruddy-breasted Crake	-	-	LC	S WV + PM - N NT	East Asia	No
Greater Painted-snipe	-	-	LC	PM + WV; small B popn. - extremely localised and much declined – NT, Rare	South Asia, Africa, Australasia	Yes
Black-winged Stilt	-	-	RC	C PM, U WV - Deep Bay, NT	Eurasia, Africa	Yes
Pied Avocet	-	-	RC	A WV -Deep Bay, NT	Eurasia, Africa	Yes
Grey-headed Lapwing	-	-	LC	S WV, very small nos. on passage – NT, Rare	East Asia	Yes
Little Ringed Plover	-	-	(LC)	LC WV, PM; S B – NT	Eurasia, Africa	Yes
Common Greenshank	-	-	RC	A PM + WV - Deep Bay	Eurasia	Yes
Wood Sandpiper	-	-	LC	C to A PM + WV - N NT	Eurasia	Yes
Temminck's Stint	-	-	LC	S to U in spring, U to C in autumn and winter - Deep Bay N NT	Breeds Northern Eurasia, Winters SE China	No
Black-headed Gull	-	-	PRC	A WV, S to C PM - Deep Bay	Temperate Eurasia	Yes
Pied Kingfisher	-	-	(LC)	U, localised R - N NT	South Asia, Africa	Yes

Common name	IUCN Red List	Protection Status	Conservation Status*1	Distribution/ Rarity in Hong Kong*2	Global Distribution	Potential Disturbance from Proposed Cycle Track
White-throated Kingfisher	-	-	(LC)	R, LC in autumn and winter – Widespread	South Asia	Yes
Black-capped Kingfisher	-	-	(LC)	LC WV, PM – Widespread	South Asia	Yes
Red-throated Pipit	-	-	LC	C WV + PM – Widespread	Palaearctic	No
Bluethroat	-	-	LC	LC WV + spring PM – N NT	Palaearctic, Alaska	No
Zitting Cisticola	-	-	LC	C WV + PM; rare B sp. – widespread, Deep Bay	Eurasia, Australasia	No
Red-billed Starling	-	-	GC	A localised WV – Widespread	Winters SE China, disperses S to Philippines	No
White-cheeked Starling	-	-	PRC	C localised WV – Deep Bay	Breeds NE China, Disperses S to Philippines	No
White-shouldered Starling	-	-	(LC)	C PM, S localised B SV + WV – Widespread	Oriental	No
Collared Crow	-	-	LC	U localised R - Deep Bay	Eastern China	No

Key:

IUCN Red List

EN = Endangered, VU = Vulnerable

Protection Status

CRD = China Red Data Book, PRC = People's Republic of China

NB. All wild birds are protected under *Wild Animals Protection Ordinance* (Cap. 170) in Hong Kong

*1 taken from Fellowes *et al.* (2002)

GC = Global Concern, RC = Regional Concern, LC = Local Concern, PGC = Potential Global Concern, PRC = Potential Regional Concern

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

*2 = data taken from Carey *et al.* (2002) and Viney *et al.* (2005)

A = Abundant, B = Breeding, C = Common, dist. = distribution, LC = Locally Common, NB = Non-breeding, nos. = numbers, NT = New Territories, N NT = North New Territories, PM = Passage Migrant, popn. = population, R = Resident, S =Scare, sp. = species, SV = Summer Visitor, U = Uncommon, WV = Winter Visitor

9.8.19 Many of the species shown in **Table 9-16** will not be directly affected by the construction of the cycle track. Those species that may be affected indirectly by disturbance from the proposed cycle track have been highlighted and are species that occur along the rivers that were specifically surveyed. The other species in **Table 9-16** that have not been highlighted have also been seen within the wider Study Area and it is considered that they are unlikely to be impacted by the

construction of a cycle track due to distance from the site and scale of construction due to their mobility or distance at which they were observed from the cycle track alignment.

9.8.20 In addition, the nesting sites of Little Egrets and Chinese Pond Herons at Mai Po Village must be considered as the cycle track has potential to impact on the breeding habitats of these species.

9.9 Ecological Impact Assessment

Project Ecological Impacts

9.9.1 A relatively small development footprint is required for the cycle track and associated facilities (i.e. Resting Stations and Information Kiosk) though the length of the track portrays a much larger land-loss impact. However, for much of the alignment of the cycle track route, existing roads are followed through urbanised areas with low ecological value. In view of this localised development project located in a wide larger Study Area, ecological impacts are envisaged to be low.

9.9.2 The nature of construction and the longer-term use of the cycle track (i.e. increased human activity) may result in some minor impacts to local ecology and will need to be mitigated for appropriately. The potential ecological impacts as a result of this Project, based on the alignment shown in **Figure 2-1** are as follows:

Construction Phase

- Direct and indirect disturbance to waterbirds and sensitive wetland habitat;
- Potential deterioration of the water quality in the watercourses within the Study Area, resulting from construction discharge;
- Potential impacts to the existing/proposed ecological mitigation areas of Kam Tin River, NTMDC, San Tin MDC, Sheung Yue River.

Operational Phase

- Indirect impacts to the surrounding habitat and associated wildlife, due to increased human activities.

9.9.3 The following section will address these potential impacts, scale of magnitude and the relevant mitigation to reduce impacts to acceptable levels.

Construction Phase Potential Impacts

9.9.4 The actual footprint of the cycle track alignment and its associated structures, along with any active working area, is very small when comparisons are made to the wider Study Area.

9.9.5 Much of the route follows existing infrastructure and as a result of this alignment, it is considered that the effects of fragmentation during the construction phase will be negligible. In addition the development footprint is very narrow, though there will also be land required to accommodate site compounds for storage of machinery and materials.

Habitat loss

9.9.6 Generally the habitats that will be lost as a result of the cycle track are of low value for the length of the route as it follows existing roads, drainage channels and occasionally footpaths through developed areas of the NWNT (see **Figure 9-5** to **Figure 9-12**). **Table 9-17** summarises the potential habitat loss due to the construction of the Project. Where the cycle track passes through the WCA, it follows the NTMDC access road and will not require the loss of any fishponds. Partial loss (approximately 0.07 ha) of two small patches of seasonal marsh with open water (see **Table 9-19**) at Hip Shing Wai will be required to accommodate the cycle track (see **Figure 9-8** for location). There will also be potential loss of 0.02 ha of the edge of the marsh to the rear of Mai Po Village, an area that is currently a bricked embankment, with no direct loss of the marsh habitat itself. There will be no loss of habitats that are considered to be important habitats in the territory listed in *Annex 8* of the EIAO-TM.

9.9.7 Some areas of land adjacent to the drainage channels have been recently disturbed by excavation work (e.g. length along Kam Tin River and the length alongside the maintenance path of Sheung Yue River) (D. Stanton *pers. obs.*). Other examples of recently disturbed land include the length of the alignment that runs along the NTMDC where recent planting and landscaping has occurred following the construction of the channel.

9.9.8 The construction of the cycle track will inevitably involve the felling of a large number of plantation trees, planted alongside roads and the drainage channels. Many of the trees and associated vegetation along the channels are a result of mitigation planting, following the channelisation of former rivers in the area. None of these tree species are rare or protected and include typical species utilised in amenity planting schemes with limited ecological value.

9.9.9 A total of 5 Resting Stations and an Information Kiosk are to be provided along the alignment. Aside from Resting Station R9, which is to be located close to an area of mitigation planting on the Sheung Yue River, the other four Resting Stations are located in developed areas and in habitats of negligible ecological value. The Resting Station R9 and Information Kiosk are to be sited next to a footbridge across the drainage channel on an area of land within an area of mitigation planting, which consists of young trees and bamboos, a result of the channelisation of the Sheung Yue River (see **Figure 2-9**).

9.9.10 Some smaller drains in the San Tin area are proposed to be decked-over in order to accommodate the cycle track alignment and prevent unnecessary felling of trees. These drains are concrete lined with sparse vegetative cover, are malodorous and offer limited ecological value.

9.9.11 There will be loss of trees through felling. Species lost will be primarily those associated with amenity/roadside planting.

Table 9-17 Potential Habitat Loss as a Result of Cycle Track Construction

Habitat	Area Lost (ha)	Ecological Value
Fishponds	-	Medium
Nullahs/Drainage Channels	0.18	Low-Medium
Grassland/Shrubland Mosaic	-	Low
Developed Areas/Abandoned Ground/Wasteland	6.57	Low-Negligible
Plantation	1.13 (of which approximately 0.78 is mitigation planting along the Sheung Yue and Shek Sheung River)	Low - High*
Mixed Woodland	-	Medium
Cultivated Land	-	Low-High
Managed Wetland/Marsh	0.09#	Low-High
Mangrove	-	High

* Low to Medium for plantation at R9 and High in areas of plantation around Mai Po Egretry though none of the trees used by Ardeids for nesting are to be lost as a result of the proposed cycle track.

\# The two small patches of seasonal marsh with open water near Hip Shing Wai and edge (brick embankment) of marsh at Mai Po Tsuen that are to be affected are of Low Ecological Value.

Disturbance

9.9.12 Indirect impacts through construction activities will cause local disturbances, particularly in the areas where bird numbers are high i.e. Kam Tim River, Long Valley Rivers and Mai Po Egretry. Bird densities for the river sections are higher in the winter months when migratory and winter visitors occur and feed in the channels. The Egretry at Mai Po becomes active in late March and breeding occurs throughout the summer. The proposed cycle route avoids all fishponds on its alignment, as do associated Resting Stations. There will be no direct loss of fishponds as a result of this Project.

9.9.13 The proposed alignment is close to the Mai Po Village Egretry and increased human activity, noise, dust and vibrations will add to the disturbance already existing from the existing Castle Peak Road that runs between the two nesting areas.

Water Quality and Site Run-off

9.9.14 Incorrect storage of construction material and construction site run-off may indirectly impact on surrounding habitats and wildlife. This is particularly relevant in areas close to fishponds in the vicinity of the NTMDC. The alignment passes within 20 m of three fishponds along the Ngau Tam Mei Drainage Channel (NTMDC) (see **Figure 9-13**), close to a small, inactive pond near Mai Po San Tsuen and also close to eight ponds along the San Tin Tsuen Road (see **Figure 9-14**). During the construction phase, there is the potential for site run-off to enter ponds close to the alignment. This impact should be easily avoided by implementing good site practices (see Section 10.4).

Disturbance to Other Mitigation Areas

9.9.15 Indirect impacts to ecological mitigation areas could result from an increase in human disturbance, noise, dust and vibrations from construction activities.

Operational Phase Potential Impacts

9.9.16 No direct operational phase impacts are anticipated. However there may be indirect impacts by way of disturbance to wildlife from an increase in human activity along the length of the cycle track. The main focus of increased activity will be in the Resting Stations and Information Kiosk away from areas of conservation importance. However, increased public use of the roads alongside Kam Tin River and the Long Valley Rivers may lead to disturbance of feeding birds in winter and in the area around Mai Po Egretry.

9.9.17 At R9 and Information Kiosk, it is considered that the impact from increased human activity disturbance from cyclists to the adjacent area of mitigation plantation will be minor as this area of plantation is currently situated next to an access road and a partially enclosed dining area of a soy product factory, where some degree of human disturbance already occurs.

9.10 Evaluation of Impacts

9.10.1 In line with the criteria in Table (1) of Annex 8 in the EIAO-TM the potential direct ecological impacts to the habitats within the Study Area are evaluated and presented in **Table 9-18** to **Table 9-28**.

Table 9-18 Overall Impact Evaluation for Fishponds

Criteria	Remarks
Habitat Quality	Medium
Species	Great Egret, Little Egret, Chinese Pond Heron. Though none of these species seen on the small pond that is to be impacted upon.
Size/Abundance	No Direct loss of fishponds.
Duration	Indirect Impact through occasional disturbance during construction and with increased human activity in operational phase.
Reversibility	No loss of fishponds. Human disturbance would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-19 Overall Impact Evaluation for Managed Wetlands and Marsh

Criteria	Remarks
Habitat Quality	Low, Medium, High – areas to be lost are of Low ecological value
Species	Great Egret, Little Egret, Chinese Pond Heron, Greater Painted-snipe.
Size/ Abundance	There will be the potential loss of 0.02 ha of the edge of the marsh to the rear of Mai Po Village. There has been recent groundwork in this area, as a result of the present footpath, and it is anticipated that the cycle track may only impact on the very edge of the marsh, an area that is currently a bricked embankment. As such, there will be no direct loss to the marsh habitat itself. A small loss of approximately 0.07 ha of the two small patches of seasonal marsh with open water at Hip Shing Wai, close to the northeastern location of Mai Po Egretry. . Larger areas of this habitat type will remain unaffected by any potential land loss.
Duration	Permanent loss of part of the brickwork embankment of the marsh at Mai Po Village. There will be permanent loss of some the two small patches of seasonal marsh with open water at the northern site of the Mai Po Village Egretry. There is no loss of wetlands in terms of function arising from the works. Indirect impact through occasional disturbance during construction and with increased human activity in operational phase.
Reversibility	The human disturbance through cyclists would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-20 Overall Impact Evaluation for River Channels/Nullah

Criteria	Remarks
Habitat Quality	Medium
Species	Black-faced Spoonbill, Eurasian Spoonbill, Great Cormorant, Great Egret, Little Egret, Chinese Pond Heron, Pied Avocet in MDCs. No species of conservation concern observed in the smaller ditches and drains.
Size/Abundance	No habitat loss on main Drainage Channels where spp. of conservation interest are located. There will be the loss of 0.12 ha of concrete ditches as a result of decking-over of the channels in the San Tin area.
Duration	No Direct Impact to MDCs. 1200m of smaller drainage ditches will be lost through decking over to create a cycle track. Indirect impact through occasional disturbance during construction and with increased human activity in operational phase.
Reversibility	The loss of the smaller drainage ditches would be permanent. Occasional human disturbance would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-21 Overall Impact Evaluation for Developed Areas/Wasteland

Criteria	Remarks
Habitat Quality	Low.
Species	No species of conservation concern were recorded during these studies.
Size/Abundance	Direct loss of habitat (6.57ha) would occur to facilitate provision of the cycle track.
Duration	Loss of habitat would be permanent.
Reversibility	Loss of habitat would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-22 Overall Impact Evaluation for Plantation (including Mitigation Planting on Long Valley Rivers)

Criteria	Remarks
Habitat Quality	Low – High*.
Species	No species of conservation concern were recorded during these studies. There is some potential for bats to use plantation trees as roost sites.
Size/Abundance	Direct loss of habitat (1.13 ha of which approximately 0.78 ha is mitigation planting along the Sheung Yue and Shek Sheung River) would occur to facilitate provision of the cycle track including the small area of bamboo at R9 (approx. 360 m^2).
Duration	Loss of habitat would be permanent.
Reversibility	Loss of habitat (the majority of which is of low ecological value) would be permanent. However, replanting/translocation of trees / bamboo will be implemented as appropriate and integrated into final planting scheme of project. At R9 and Information Kiosk, only a small area of mitigation planting shall be lost (approx. 12% of plantation at this location or approx. 0.1% of plantation in whole Study Area) of which is localised to a distinct zone to the edge of the plantation, thus this area will not be fragmented and there should be no change to the nature of the habitat within the remaining area. There is still sufficient area of plantation habitat available to support the common bird species recorded in this area. In situ compensation planting should occur to replace some of the area of plantation to be lost which shall provide continuing function of the bamboo and plantation (as well as the provision of potential roosting habitats for birds, an anticipated benefit of the mitigation planting from a previous project (Maunsell 1998).
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

* Low to Medium for plantation at R9 and High in areas of plantation around Mai Po Egretry though none of the trees used by Ardeids for nesting are to be lost as a result of the proposed cycle track.

Table 9-23 Overall Impact Evaluation for Mixed Woodland

Criteria	Remarks
Habitat Quality	Medium.
Species	None recorded during the study.
Size/Abundance	Temporary disturbance through construction phase. Potential loss of up to 0.02 ha of woodland near to San Tin. Permanent human disturbance in operational phase.
Duration	Permanent loss and human disturbance.
Reversibility	Permanent loss and human disturbance. Replanting/translocation of trees can be implemented if required and integrated into final planting scheme of project.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-24 Overall Impact Evaluation for Grassland / Shrubland

Criteria	Remarks
Habitat Quality	Low
Species	None recorded during the study.
Size/Abundance	No direct loss of habitat.
Duration	Indirect impact through occasional disturbance during construction.
Reversibility	No loss of habitat.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-25 Overall Impact Evaluation for Cultivated Land

Criteria	Remarks
Habitat Quality	Low to High.
Species	Records of breeding Greater Painted-snipe occur for Long Valley (Carey et al. 2001)
Size/Abundance	No direct loss of habitat.
Duration	Indirect impact through occasional disturbance during construction and with increased human activity in operational phase.
Reversibility	No loss of habitat. Human disturbance would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-26 Overall Impact Evaluation for Mangrove

Criteria	Remarks
Habitat Quality	High.
Species	Black-faced Spoonbills, Red-billed Starlings.
Size/Abundance	No direct loss of habitat.
Duration	Indirect impact through occasional disturbance during construction and with increased human activity in operational phase.
Reversibility	No loss of habitat. Human disturbance would be permanent.
Magnitude	The scale of impact is considered to be low.
Overall Impact	Low

Table 9-27 Overall Impact Evaluation for Mai Po Village Egretry

Criteria	Remarks
Habitat Quality	Medium.
Species	Historical records of up to 5 species of breeding Ardeids. Currently 2 species using the site.
Size/Abundance	Temporary disturbance through construction phase. Permanent human disturbance in operational phase.
Duration	Permanent human disturbance.
Reversibility	Permanent human disturbance.
Magnitude	The work required around the northern nesting sites of Mai Po Village egretry (Hip Shing Wai) could cause disturbance to the c.20 breeding pairs of ardeid that have historically used this area. Significant impacts are predicted for the birds using this area of the Egretry if trees are removed or managed along this section. The scale of impact for the majority of the Egretry at the Southern end of Mai Po Village is considered to be low considering that this is a busy area through traffic and people activity. The route has already been realigned to avoid the majority of the nesting sites, though physical presence of further human activity could create additional disturbance pressures. Though numbers have declined at Mai Po Village egretry in recent years, nests at Mai Po Lung egretry have increased.
Overall Impact	Medium-Low

Table 9-28 Overall Impact Evaluation for Greater Painted-snipes at Long Valley

Criteria	Remarks
Habitat Quality	High.
Species	Greater Painted-snipe have been recorded in the mitigation meanders created by the channelisation of the Sheung Yue River (Lam & Lee 2002). Greater Painted-snipe were observed within an abandoned meander (Number 2a) to the east of the Sheung Yue River and according to previous AFCD records, have also been recorded at retained meanders (1 and 8) (AFCD *pers comm*. April, 2008).
Size/Abundance	Temporary disturbance through construction phase. Permanent human disturbance in operational phase at meander 8.
Duration	Permanent human disturbance.
Reversibility	No habitat loss of the Greater Painted-snipes. Permanent human disturbance at meander 8.
Magnitude	The scale of impact for the meanders is considered to be low as the route has already been realigned to avoid the nesting sites (meanders 1 and 2a are located on the opposite side of the Sheung Yue River and proposed cycle track), although physical presence of further human activity could create additional disturbance pressures to meander 8 which is situated on the same side of the proposed cycle track..
Overall Impact	Medium-Low

Direct Impacts

Habitat loss

9.10.2 Areas directly affected by the cycle track are considered to be of low ecological value and as such it is considered that the direct impacts to terrestrial habitats and species will be minor. The majority of habitats affected will be developed areas and plantation trees where no species of conservation interest were recorded during the study period. The Information Kiosk and Resting Station, R9, will require *circa* 1,140 m^2 of land and is to be located at an area where mitigation planting exists (consisting of bamboo with young plantation trees along the roadside) from a previous project (Maunsell 1998, TDD 1998).

9.10.3 The Information Kiosk and R9 will encroach slightly (about 360 m^2) onto this mitigation planting with the area of remaining plantation at *circa* 2,650 m^2. This area of loss represents approximately 12% of the mitigation plantation at this location or approximately 0.1% of plantation habitat in the whole Study Area. Only a small area will be lost of which is localised to a distinct zone to the edge of the plantation, as such, this area will not be fragmented. Thus, there should be no change to the nature of the habitat within the remaining area. Futhermore, there is still sufficient area of plantation habitat available to support the common bird species recorded in this area. The overall impact of the loss of this small area of plantation is therefore considered minor as it is considered that the remaining area is sufficient enough to provide continued function of this habitat (as well as the provision of potential roosting habitats for birds, an anticipated benefit of the mitigation planting from a previous project (Maunsell 1998)).

9.10.4 There will be some 1,200 m across the alignment of overall loss of smaller ditches as a result of decking over. These concrete drains are of poor water quality with little vegetative cover and although they offer limited opportunities to more common

bird species and invertebrates, the overall impacts as to the loss of this habitat type are considered to be minor.

9.10.5 There may be a requirement to remove some smaller specimens of *Macaranga tanarius* along the section of the cycle track that is adjacent to the northern breeding birds of Mai Po Village egretry at Hip Shing Wai. Though observations of these trees have not revealed any breeding birds, they do form part of the overall vegetative cover in the vicinity of breeding birds. Removal of these trees would result in the reduction of overall vegetation cover in the area and may lead to temporary disturbance to the egretry. This impact is considered to be of low ecological impact.

9.10.6 The cycle track is proposed to be a permanent track across two small patches of seasonal marsh with open water at Hip Shing Wai (see **Figure 9-8**). These patches of seasonal marsh with open water currently display low ecological value, water levels were non-existent at the time of survey and they appear to be subject to vegetative succession, siltation and dumping. They are significantly fragmented from other suitable adjacent habitats, water quality appears poor and there was extensive shading from the roadside trees and planters. The northern edges were dry at the time of survey as was the extent of the potential seasonal marsh area. Construction of the cycle track through this area would involve deposition and compaction of fill materials by backhoes, rollers and compactors. Removal of the soft material in the ground near the seasonal marsh with open water may also be required depending on the ground investigation results.

Indirect Impacts

Disturbance

9.10.7 During the operational phase, it is considered that the overall impact to wintering birds would be minor considering the routes alongside the Kam Tin River and Long Valley Rivers are already regularly utilised by cyclists. These observations were made during the field studies. The location of the cycle track on the opposite side of the access road to the river channel further helps to reduce disturbance to birds using the channels. In addition, drainage works were being completed along the Kam Tin River at the time of the bird surveys.

9.10.8 With respects to Mai Po Village Egretry, the result in the increase in human activity once the cycle track is operational is considered to be a minor impact. The egretry is already subject to both traffic and human disturbances in a 5 m proximity (Tsim 2002, Anon 2006, Lee et al. 2007) and by re-routing of the cycle track down Mai Po Road, the increase in human activity in the immediate vicinity of the nesting birds has been reduced.

9.10.9 Chinese Pond Herons nesting in single trees by the two patches of seasonal marsh with open water on Castle Peak Road, at Hip Shing Wai, may be affected by an increase in human activity. Currently they are nesting above a busy pedestrian sidewalk and the Castle Peak Road. It is anticipated that the increase in human disturbance by way of cyclists will be minor.

9.10.10 It is anticipated that the increase in human disturbance by way of cyclists will be of medium impact to these roadside breeding birds.

9.10.11 The egretry at Mai Po Lung is situated some 15 m from a vehicle maintenance workshop and subsequently further away from the proposed cycle track. It is considered that the effects of the construction and operational phase of this project will have negligible effects on this egretry.

9.10.12 There may be indirect impacts by way of disturbance to wildlife from an increase in human activity disturbance during the operational phase, particularly at the Resting Stations and Information Kiosk. However, Resting Stations R5, R6, R7 and R8 are located in developed areas and in habitats of negligible value, away from areas of conservation importance. Therefore impacts are considered to minor.

9.10.13 At R9 and Information Kiosk, it is considered that the increased human activity could lead to visual and noise disturbance to birds at the adjacent area of mitigation plantation. This area of mitigation plantation is currently of low - medium ecological value with common bird species noted. Without R9 and Information Kiosk, disturbance would occur due to the location of a partially enclosed dining area of a soy product factory and access road within the proximity. However, it is likely that the disturbance from the existing activities would be less frequent than from the operation of the proposed R9 and Information Kiosk.

9.10.14 Noise and visual disturbance at R9 and Information Kiosk will not be continuous and only short-term in nature. If disturbance occurred, it is likely that birds would settle in adjacent areas or resettle within the plantation area very quickly. In addition, it is likely that bird species would adapt to the conditions. If the zone of disturbance is considered as the area immediately adjacent to R9 and Information Kiosk, then only a small area would be affected. If the whole area is deemed to be impacted, this would only constitute *circa* 2,650 m^2 of available similar habitat across the Study Area. Furthermore, the transplantation of trees at the perimeter of R9 and Information Kiosk will provide some screening of R9 and Information Kiosk. Therefore, although impacts would occur across the whole lifetime of the Project, disturbance would be very short-term and localised. Given species present, available similar habitat elsewhere and the potential for adaptability, impacts would only be of low magnitude. Impacts are therefore considered to be of minor significance.

9.10.15 The alignment passes close to some fishponds within the WCA along the San Tin Tsuen Road (see **Figure 9-14**). During the operational phase, it is considered that the overall impact from human activity to any wintering birds in this region would be minor considering the existing disturbance from traffic on San Tin Tsuen Road.

Cumulative Impacts

9.10.16 The Study Area covers a large portion of the NWNT where several major development projects have been completed or are in various stages of implementation. Included in these projects are the Main Drainage Channels and Poldered Village Protection Schemes for San Tin, NWNT with additional projects involving the construction of the KCRC Sheung Shui to Lok Ma Chau Spur Line, Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 1 (construction of these projects are generally completed, currently under operational phase monitoring).

9.10.17 Potential cumulative projects that may be constructed concurrently include the YLKTSSD2, CDWSW and NWNTSWS as described in earlier sections. It is

considered that the additional impacts of the cycle track will have a negligible effect overall on the cumulative impacts of development across the Study Area. The scale of construction for the project is small at local level and the route is integrated with existing infrastructure in the area.

9.10.18 The Mitigation Wetland Areas created as a result of some of these other projects will not be impacted upon by the cycle track, although there will be the loss of some amenity and landscape planting that has been completed to accommodate the track along sections of the NTMDC and Sheung Yue Rivers. None of the mitigation wetlands will be directly impacted.

9.10.19 Upon development and implementation of the recommended mitigation measures discussed in Section 9.11, no negative cumulative impacts are anticipated.

9.11 Ecological Impact Mitigation Measures

9.11.1 Throughout the study period, amendments were made where necessary to avoid any impacts to ecological sensitive receivers that could occur along the alignment. Where appropriate, changes to the alignment and the siting of associated facilities have been adjusted, to either avoid or reduce impacts. This follows the guidance in Annex 16 of the EIAO-TM, which states the general policy for mitigation of ecological impacts is to pursue avoidance, minimisation, on-site and off-site compensation. Some examples of avoidance work employed during the course of this Study, includes:

Avoidance

- Avoidance of bridge construction of Ngau Tam Mei Drainage Channel;
- Avoidance of bridge construction at Sheung Yue River;
- River Beas – route retained on western side of river to avoid unnecessary disturbance to mitigation meanders and associated sensitive species e.g. Greater Painted-snipe;
- Re-routing of alignment at Mai Po Village to reduce potential disturbance to egretry;
- Re-routing of alignment at Hip Shing Wai to avoid felling of trees used by nesting ardeids (part of Mai Po Egretry);
- Re-positioning of Resting Station (R7) to reduce potential disturbance to Mai Po egretry; and
- Re-positioning of Resting Station (R9) and cycle track to reduce potential disturbance to areas of mitigation planting along Sheung Yue River.

Habitat loss

9.11.2 Habitat loss only involves that of low ecological value. In some cases, notably along the Kam Tin River and also the Sheung Yue River, there has been recent disturbance to the adjacent amenity grassland habitat of low conservation value through drainage replacement works and other construction activities.

9.11.3 Where concrete drains are required to be covered with decking to accommodate

the cycle track, it is recommended that where possible, complete cover is avoided to maintain local wildlife access.

9.11.4 A very small area (approximately 0.07 ha) of the two small patches of seasonal marsh with open water at Hip Shing Wai (see **Figure 9-8**) will be lost due to the cycle track and will be infilled for the construction of the cycle track. These are shallow depressions which are partially in water during the wet season. The ecological value of these small patches of seasonal marsh with open water is considered low, thus no mitigation is required. Adequate drainage design will be provided to avoid any seasonal flooding in this area. In addition, there will be the potential loss of 0.02 ha of the edge of the marsh to the rear of Mai Po Village, an area that is currently a bricked embankment. There will be no direct loss to the marsh habitat itself with no mitigation required.

9.11.5 Care will also need to be employed in these areas to the adjacent trees that are utilised as nest sites to avoid any negative impact on the associated roots or branches and for the condition of the trees to deteriorate and result in the loss of Ardeid breeding habitat.

9.11.6 Four of the Resting Stations (R5, R6, R7, R8) have been located either on recently disturbed ground or areas of hard standing to reduce the overall loss of habitat. It is considered that these areas are of negligible ecological value and as such, no mitigation is required, though appropriate planting in these areas has been recommended in Section 12 to maximise opportunities for locally occurring species.

9.11.7 At R9 and Information Kiosk, approximately 12% (*circa* 360 m^2) of the mitigation plantation at this location (with remaining plantation at *circa* 2,650 m^2) or approximately 0.1% of plantation habitat in the whole Study Area shall be lost. The overall impact is considered minor as only a small area will be lost of which is localised to a distinct zone to the edge of the plantation, and as such, this area will not be fragmented. Thus, there should be no change to the nature of the habitat within the remaining area. Futhermore, there is still sufficient area of plantation habitat available to support the common bird species recorded in this area. In order to reduce such minor impacts, *in situ* compensation planting should occur to replace some of the area of plantation to be lost. This shall provide continuing function of the bamboo and plantation (as well as the provision of potential roosting habitats for birds, an anticipated benefit of the mitigation planting from a previous project (Maunsell 1998)) (see **Figure 9-15**). In addition, compensation planting shall also be provided along the Sheung Yue River and Shek Sheung River (and whole Study Area) as appropriate. It is also recommended that the Information Kiosk and Resting Station R9 should be designed sympathetically to the natural surroundings.

9.11.8 In any situation where vegetation is to be removed, it would be prudent to cut down vegetation in stages before groundwork takes place to disperse any wildlife that is sheltering in the immediate areas. Careful cutting and removal of arisings to an off-site area will prevent secretive species, such as amphibians or reptiles, returning to the work area. Though it is most unlikely for protected species to occur in any of these areas, this precautionary work will follow ecological best practice and to prevent any unnecessary injury to wildlife.

9.11.9 In addition, during the construction phase, areas of existing hard standing should be employed for the site compounds and material storage yards to further reduce habitat loss. Many such areas exist along the route and should be easily located for

this Project.

Tree felling

9.11.10 There will be some inevitable felling of trees as there are many plantation trees that will obstruct the route, though the actual amount of felling has been reduced significantly by route realignments and proposed transplantations, particularly of smaller diameter specimens. Significant areas of compensation planting have been proposed in Section 12 where trees cannot feasibly be transplanted. Many of the trees affected by the cycle track are landscape species; these are often introduced exotic species, with little ecological value and have been planted for aesthetic appeal.

9.11.11 Where possible, avoidance of tree felling will be implemented by the decking of small, concrete drainage ditches. This will allow trees to remain *in situ* and avoid any unnecessary loss.

9.11.12 Compensation planting will be required to replace lost trees and the small amount of bamboo at the Information Kiosk. This planting should be avoided in wetland areas and where possible as close to the original location of felled trees as feasibly possible. For instance, for trees felled along the Sheung Yue River and Shek Sheung River, mitigation planting, transplantation of existing trees, roadside and amenity planting is proposed (see Section 12) to provide continued screening to these areas.

9.11.13 Where trees have been historically used for nesting by breeding ardeids, these should be retained and alternative methods used for carrying the alignment past these sections. This may result in narrow pinch points of the cycle track, however this is a more appropriate result than the loss of any suitable breeding habitat for egrets.

9.11.14 Prior to any trees showing signs of significant aging or displaying features such as splits, cracks, crevices, etc. being felled, it is recommended that survey inspections should be made for their suitability for roosting bats. Once these trees have been highlighted, then appropriate checks of each tree for bats should be made prior to removal as a precautionary measure. The status of trees as possible roosts is dynamic, with weathering and damage occurring over time. It is therefore more realistic to further assess the trees with potential for bat roosting at a later stage in the project, programmed at such a time that a survey can be completed in a reasonable timescale prior to felling.

Construction Programming

9.11.15 The major ecological impact in this project is the potential for disturbance for the winter bird populations on the main river channels and at Mai Po Village Egretry. In these ecological sensitive areas, the work should be programmed to reduce the impact to avifauna.

Kam Tin, San Tin and Long Valley Sections

9.11.16 The short section of the Kam Tin River by which the proposed cycle track passes is used by migratory and winter visiting birds, but in significantly lower numbers than the downstream section in the vicinity and beyond of the pumping station and

NTMDC confluence. Combined with the location of the proposed track (opposite side of the Pok Wai South Road to the channel) and the nature of the work, it is thus considered that work carried out in the dry season along this section would not significantly impact upon birds utilising this section. This section of the river (upstream) is not so well used as that section further downstream, so any long-term human disturbance through use of the cycle track will be minor.

9.11.17 Construction work including excavation, soil stripping and vegetation clearance has been observed on both sides of the Kam Tin River this winter as part of independent projects. Casual observations during other surveys perceived that this work was not having an overall negative effect on wintering waterbirds. It is considered that for this Project, the nature of the work required for the construction of the cycle track would not have significant impacts on the winter bird use of this section and to prevent any site run-off to adjacent water channels and fishponds, work should preferably be carried during the dry season (October to March), if practicable, and if not, additional protection measures shall be provided by the Contractor to demonstrate site runoff would not affect sensitive receivers.

9.11.18 For the short section of the proposed cycle track that passes close to some fishponds within the WCA along San Tin Tsuen Road (see **Figure 9-14**), it is also recommended that work be carried out in the dry season (October to March) to prevent site run-off into ponds, if practicable. It is considered that the overall impact from construction to any wintering birds in this region would be minor considering the existing disturbance from traffic on San Tin Tsuen Road.

9.11.19 The same approach should be adopted for the Long Valley section of the Project, though wintering birds do utilise these river channels, it is considered that carrying out the construction work during the dry season (October to March) would have no significant impact to wildlife. In addition, work carried out during the dry season would avoid the breeding season of Greater Painted-snipes along this section to prevent any potential disturbance to breeding and nesting birds.

Mai Po Village Egretry

9.11.20 Careful consideration has taken place to the effects of human disturbance to breeding ardeids at Mai Po Egretry. It has been shown that this egretry has been subject to human disturbances in recent years by way of unofficial minibus stops and inappropriate surveys (AUES 2004, Anon. 2005) and the possibility of additional impacts by way of cyclists passing the main breeding area was noted.

9.11.21 The original alignment followed the course of Castle Peak Road, which would increase human activity in the vicinity of the main nesting area. It was then proposed to realign the route, to take the cycle track around the back of Mai Po villages, using the routes of the newly constructed Mai Po Road and footpath around the pumping stations and ponds in this area. The cycle track would then return to Castle Peak Road via the Tam Kon Chau Road. The southern side of Mai Po Road should be utilised if possible to allow a greater distance between the cycle track and the breeding site.

9.11.22 Though it is apparent that these birds nesting in the proximity of the road are tolerant of a high level of disturbance (Lee *et al.* 2007), care must be exercised in this area as there will still be additional physical human disturbance, which will have different impacts on breeding ardeids than traffic. The 2006 Egretry Report (Anon.

2006) highlights that special attention should be given to such roadside colonies that may be subject to disturbance due to maintenance work of roadside government and public utilities.

9.11.23 Construction of the section of the cycle track in the vicinity of Mai Po Egretry would need to be completed outside of the recognised breeding season for Ardeids in Hong Kong to prevent any disturbance to the nesting birds. This breeding season is from March to August inclusive; therefore as a precautionary approach and to prevent any potential disturbances to breeding birds, construction should, if possible, take place between the months of September to February to avoid any disturbance to breeding and nesting birds.

9.11.24 In addition, the alignment has been moved to avoid the major nesting area of the Mai Po egretry, taking the route around the back of Mai Po villages, via the pumping station access road. Additionally, where the cycle track leaves Castle Peak Road the track has been narrowed to avoid the felling of any trees used as nest sites.

9.11.25 Planting of tall bamboo or other vegetation could also be implemented at the corner of Mai Po Road and Castle Peak Road on the northern side to act as a screen between the cycle track and egretry. This may help to reduce any potential disturbance to breeding ardeids.

Human Disturbance

9.11.26 There may be indirect impacts by way of disturbance to wildlife from an increase in human activity, in particular at the Resting Stations and Information Kiosk. The use of signage at the Resting Stations to indicate that wildlife may be present and that noise levels and activities should be kept to a minimum could be implemented. This may help to reduce any potential disturbance to wildlife. At Long Valley, to mitigate against potential indirect human disturbance to Greater Painted-snipe, planting could be undertaken as appropriate along the proposed cycle track at meander 8 to act as screening (see **Figure 9-15**).

Good Work Practices

9.11.27 To further demonstrate ecological and environmental awareness, a series of mitigation measures should be implemented throughout the construction and future maintenance of the cycle tracks. These are as follows:

- Avoid soil storage against trees;
- Fence off any potentially ecologically sensitive areas;
- Delineation of works area to prevent encroachment onto adjacent habitats;
- Reinstatement of habitat after works;
- No on-site burning of waste;
- Waste and refuse in appropriate receptacles;
- Staff training/toolbox talks for site work near Long Valley and WCA – important areas for birds, therefore staff should reduce amount of noise whilst working and during breaks where possible;
- Regular ecological checks; and
- Silt/ Sediment/ Oil traps for drainage to prevent site run-off.

Summary

9.11.28 In summary, the following mitigation measures are proposed:

- Care should be employed during the works near the two small patches of seasonal marsh at Hip Shing Wai to avoid any negative impacts on the adjacent trees.
- Survey inspections on trees being felled should be made to check for roosting bats prior to felling as a precautionary measure.
- Construction works at the section of cycle track near Kam Tin River and Long Valley should be carried out during the dry season (between October and March), if possible; and if not, additional measures shall be provided by the contractor to demonstrate that site run off will not affect sensitive receivers. In addition, work carried out during the dry season would avoid the breeding season of Greater Painted-snipes along this section to prevent any potential disturbance to breeding and nesting birds.
- Construction of the cycle track section in the vicinity of Mai Po Egretry should take place between the months of September to February to avoid any disturbance to breeding and nesting birds, if possible.
- Planting of tall bamboo or other vegetation could be implemented at the corner of Mai Po Road and Castle Peak Road on the northern side to act as a screen between the cycle track and the Mai Po Egretry.
- Compensation planting along the Sheung Yue River and Shek Sheung River as appropriate including at R9 and Information Kiosk (see Section 12).
- The use of signage at the Resting Stations to indicate that wildlife may be present and that noise levels and activities should be kept to a minimum could be implemented to help to reduce any potential disturbance to wildlife. In addition, at Long Valley, to mitigate against potential indirect human disturbance to Greater Painted-snipe, planting could be undertaken as appropriate along the proposed cycle track at meander 8 to act as screening.
- Good work practices as detailed in Section 9.11.27 should be implemented.

9.12 Residual Impacts

9.12.1 No adverse residual impact (direct or indirect) is expected due to the construction and operation of the cycle track and supporting facilities after the implementation of the proposed mitigation measures.

9.13 Environmental Monitoring and Audit Requirements

9.13.1 Since construction works within the Kam Tin and Long Valley Sections of the Project are recommended during the dry season (October to March), and for the section in the vicinity of Mai Po Egretry are recommended during the non-breeding season (September to February), regular inspections (at least twice a month) should be carried out to ensure proper implementation of such requirements.

9.13.2 The implementation of the terrestrial ecological mitigation measures stated in Section 9.11 should be checked as part of the environmental monitoring and audit procedures during the construction period as presented in the EM&A Manual. There will be no significant overall loss of valuable ecological habitat and it is

considered any impacts to surrounding habitats and species that will arise from the construction and operation of the cycle track will be minor. No other ecology-specific measures are considered necessary.

9.14 Conclusions

9.14.1 Most of the Study Area to be affected by the construction of a cycle track is developed land in highly urbanised areas. Though the track runs through the Wetland Conservation Area there will be no net loss of wetland as a result, as the route follows existing highways/ roads alongside the drainage channels.

9.14.2 Ecological enhancement work should be undertaken in the detailed design stage with respects to the Resting Stations and Information Kiosk. Precautionary bat surveys of suitable mature trees should also be implemented prior to any felling or surgery to avoid any negative impact to any potential roost sites.

9.14.3 By implementing appropriate mitigation measures, in particular the timing of the construction phase close to sensitive receivers, and adoption of good work practices, it is considered that this Project can be completed with minimal impacts to the local ecology along the route of the cycle track.

9.14.4 There will be no significant overall loss of valuable ecological habitat and it is considered any impacts to surrounding habitats and species that will arise from the construction and operation of the cycle track will be minor.

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10. FISHERIES

10.1 Introduction

10.1.1 This section addresses the fisheries and impacts to fisheries as a result of constructing the proposed cycle tracks and the associated supporting facilities. Much of the route follows built alignments of main roads and service roads for drainage channels. Part of the proposed route passes through the Wetland Conservation Area (see **Figure 2-1**), an area with a high density of fishponds. A desktop review of fisheries within the Study Area was made complemented with field visits throughout the study period.

10.1.2 This fisheries impact assessment has been based on the criteria and guidelines for evaluation and assessment of fisheries impact stated in Annexes 9 and 17 of the EIAO-TM and covered in the scope outlined in Section 3.4.8 of the EIA Study Brief.

10.2 Environmental Legislation, Standards & Guidelines

10.2.1 The evaluation of the impact to fisheries was conducted following the guidelines set out in the Technical Memorandum for Environmental Impact Assessment Ordinance (EIAO-TM). Annex 9 details the criteria for evaluating impacts to fisheries and Annex 17 details the methodology that needs to be implemented to make such an assessment.

10.2.2 The *Fisheries Protection Ordinance* (Cap. 171) provides for the conservation of fish and other aquatic organisms and regulates fishing practices.

10.2.3 Other guidelines that need to be considered are the *Town Planning Ordinance* (Cap. 131) particularly the Town Planning Board Guidelines for application of development within Deep Bay and also the Hong Kong Planning Standards & Guidelines (HKPSG) *Chapter 10: Conservation; Part 3: Conservation of Natural Landscape & Habitats.*

10.2.4 To protect the ecological integrity of the nearby Ramsar site from incompatible development, the Town Planning Board, in accordance with the *Town Planning Ordinance* (Cap. 131) has designated a Wetland Conservation Area (WCA) and a Wetland Buffer Area (WBA) for the Deep Bay area and provided guidelines to guide and control developments within the area. Much of the WCA is composed of fishponds, both active and inactive, and is considered to be an area of high ecological value.

10.3 Study Area and Sensitive Receivers

Study Area

10.3.1 A literature review was conducted to assess the current fishery activities and resources within the Study Area. The Study Area is defined as the area within 500 m on either side of the alignment for the proposed cycle track. Aerial photographs (2005) combined with ground truthing were used to produce habitat maps (see **Figure 9-1** to **Figure 9-4** and also **Figure 6-1**). Relevant literature was also used to gather more information of fisheries within the Study Area.

10.3.2 Field visits were conducted throughout the period (November 2006 - April 2007) in order to complete a ground truthing exercise and assess whether ponds were still active or had been filled in and developed.

Baseline Conditions and Fisheries Sensitive Receivers

10.3.3 Within the Study Area, it is estimated that there is 94.3 ha of fishponds, comprising of over 190 individual ponds. The majority of these ponds appear to be actively managed and were in water for the duration of the study period. Several ponds showed signs of neglect and abandonment, with an obvious lack of vegetation management at the bunds.

10.3.4 The fishponds occur in the highest density to the west of the alignment in areas around the Kam Tin River, towards Mai Po and north of San Tin. A smaller collection of ponds are found in the Long Valley area, with occasional ponds found in developed areas along the length of the route.

10.3.5 Data provided by the AFCD (2008) details the total inland ponds cover an area of approximately 1,160 ha and produced 1,927 tonnes of freshwater fish amounting to HK$28 million. The vast majority of farms (approximately 87%) are engaged in polyculture with species farmed composed of Bighead Carp *Aristichthys nobilis*, Grass Carp *Ctenopharyngodon idellus,* Common Carp *Cyprinus carpio* and Silver Carp *Hypophthalmichthys molitrix* in combination with *Tilapia spp*. or Mullet *Mugil spp.* (*ibid*.).

10.3.6 The remaining 13% of farms practise monoculture of carnivorous species in brackish fish ponds near to the coastline (AFCD 2008) and outside of the Study Area. The majority of the fry and fingerlings are imported from the Mainland and Taiwan, where some of the grey mullet fry may also be caught in local coastal waters. Traditionally, fry are stocked in early spring and most fish species reach marketable size in 8 to 12 months. (*ibid*.)

Wetland Conservation Area and Wetland Buffer Zone

10.3.7 To protect the ecological integrity of the nearby Ramsar site from incompatible development, the Town Planning Board, in accordance with the *Town Planning Ordinance* (Cap. 131) has designated a Wetland Conservation Area (WCA) and a Wetland Buffer Area (WBA) for the Deep Bay area under Town Planning Board Guidelines for “Application for Developments within Deep Bay Area” (TPB PG-No.12B) to provide guidelines to guide and control developments within the area. (See **Figure 2-1**)

10.3.8 The WCA covers and affords some protection to the landward part of the Ramsar site. The Guidelines stipulate that new development within WCA should not be allowed unless it is required to support the conservation of the area's natural features and scenic qualities. New development within WBA would not be considered unless the applicant demonstrates that the proposed development would have insignificant impact on the environment, ecology, drainage, sewerage and traffic in the area including the Ramsar site.

10.3.9 The proposed cycle track alignment does pass through an area of the WCA close to the Kam Tin River and Ngau Tam Mei Drainage Channel. Several active fishponds are close to the alignment of the proposed cycle track, though the route does pass

a significant distance away from these ponds.

10.4 Environmental Impacts to Fisheries

Construction Phase

10.4.1 The potential impacts to fishponds from the construction phase of the cycle track may include direct loss of fishponds or part of the edge of the ponds. Indirect impacts may arise from site run-off or poor construction practices leading to the pollution and negative impact to the environmental conditions of the pond.

10.4.2 There may be some temporary access issues during construction of the cycle track in sections of the Pok Wai South Road and the San Tin Tsuen Road, by way of construction traffic however, these are anticipated to be very minor impacts and will be extremely short term.

10.4.3 In addition, surrounding watercourses are also a source of water for the fishponds and as such, may have an effect on the fishponds themselves. An assessment of the potential water quality impact arising from the project has been completed on such watercourses (see Section 6). It is envisaged that the best practicable pollution control measures recommended for the construction phases should be effective to control the potential water quality impacts resulting from stormwater runoff into receiving waters.

10.4.4 On-site environmental audit is recommended to be undertaken to visually inspect working practices to ensure proper implementation of water pollution control measures during the construction phase. The section of the proposed cycle tracks near Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River and fishponds at Mai Po shall receive particular attention in the environmental audit to avoid pollution of immediate and downstream waters.

Operational Phase

10.4.5 It is considered that no direct or indirect impacts to fishponds would arise from the operational use of the cycle track. No negative impacts to fishponds are anticipated from the recreational activities and other associated activities along the cycle track.

10.4.6 The constructed cycle track will not block any access to fishponds due to the operation of the Project as the alignment of the track follows existing footpaths and boundaries.

Cumulative impacts

10.4.7 Based on the current information, there are three projects that may have the potential to result in cumulative impacts to the area. These include the YLKTSSD2 and CDWSW projects (EIA Application No. EIA-094/2004 and EIA Application No. EIA-144/2008, respectively) and the NWNTSWS project. The construction period for the YLKTSSD2 project is from 2009 to 2014, for the CDWSW project this is from 2008 to 2012 and for the NWNTSWS project, from 2007 to 2013. The cumulative impact due to suspended solids-loaded site runoff, if any, will be controlled by mitigation measures for each project and are expected to be insignificant given the limited scale of civil works envisaged for cycle tracks and the associated facilities (see Section 6.5 for further details).

Evaluation of Impacts

10.4.8 The proposed cycle route avoids all fishponds on its alignment, as do associated Resting Stations. There will be no direct loss of fishponds as a result of this Project.

10.4.9 The alignment however passes within 20 m of three fishponds along the Ngau Tam Mei Drainage Channel (NTMDC) (see **Figure 9-13**), close to a small, inactive pond near Mai Po San Tsuen adjacent to the Castle Peak Road and also close to eight ponds along the San Tin Tsuen Road (see **Figure 9-14**).

10.4.10 During the construction phase, there is the potential for site run-off to enter ponds close to the alignment. This site run-off has the potential to affect the water quality of these ponds and subsequently affect the fisheries resources in each system. The control of potential water quality impact arising from the construction works will be controlled by the following proposals:

- Minimisation of runoff;
- Prevention or minimisation of the likelihood of the identified pollutants to be in contact with rainfall or runoff; and
- Measures to abate pollutants in the stormwater runoff.

10.4.11 It is considered that any potential site runoff is only likely to indirectly affect a small number of ponds and as such, the impact would be ranked as minor. This impact should be easily avoided by implementing good site practices.

10.4.12 The table below shows the criteria for evaluating fisheries impacts in line with Annex 9 of the EIAO-TM.

Table 10-1 Evaluation of Fisheries Impacts during Construction Phase

Impacts	Criteria					
	Nature of Impact	Size of affected area	Loss of fisheries resources/ production	Destruction & disturbance of nursery and spawning grounds	Impact on Fishing Activity	Impact on aquaculture activity
Cycle Track	Site runoff would be a temporary impact and is controllable. No direct impacts would result.	11 active fishponds, 1 inactive fishpond could potentially be indirectly affected.	It is considered that any temporary impact would not be significant.	No impact to nursing or spawning grounds.	N/A	There may be some water quality impacts to ponds but this can be reduced through mitigation.

10.5 Mitigation Measures

Construction Phase

10.5.1 For the whole length of the alignment, the direct loss of active fishponds has been avoided and the track follows existing main and service roads. Local narrowing of the cycle track (from the standard 4m to 3m) shall be implemented to avoid the impact of the cycle track on the single, inactive fishpond edge just outside Mai Po

Village (see **Figure 10-1**).

10.5.2 To prevent any negative impact to water quality as a result of site run-off, good site practice must be employed at all times, particularly in the areas close to fishponds. Silt traps should be employed where appropriate in order to prevent any negative impact to any fishponds, in particular those identified in **Table 10-1**. Construction run-off will be managed as per the Practice Note for Professional Persons ProPECC PN1/94 – Construction Site Drainage. More details on the mitigation procedures to control run-off from work sites and avoid and potential water pollution of fishponds is provided in Section 6.6.

10.5.3 During wet seasons, surface run-off from the construction sites will be directed into storm drains via adequately designed wastewater treatment facilities such as sand traps, silt traps and sediment settling basins. Works adjacent to the fishponds near NTMDC inside the Wetland Conservation Area (WCA) and Mai Po San Tsuen should be avoided, as far as practicable, during the wet season to avoid runoff into the fishponds.

10.5.4 Along Pok Wai South Road and San Tin Tsuen Roads, once the final construction sequencing is known, liaison with local residents and aquaculturists should be implemented in order to minimize temporary road blockages and to identify the best timing for works along this area.

Operational Phase

10.5.5 There are no predicted operational phase impacts on fisheries as a result of the Project.

10.6 Residual Environmental Impacts

10.6.1 No direct impacts are expected to occur and with the implementation of the above mitigation measures residual impacts from indirect impacts are expected to be within acceptable levels.

10.7 Environmental Monitoring and Audit

10.7.1 There will be no overall loss of fishponds and it is considered that no significant negative impacts to aquaculture or water quality will arise from the construction and operation of the cycle track. No specific monitoring is recommended, though environmental audits during the construction stage will be required to ensure proper implementation of suspended solids runoff control measures.

10.8 Conclusion

10.8.1 Construction workers when working on sections in proximity to fishponds should employ good site practice and runoff shall be controlled to reduce indirect impacts. No significant negative impacts are predicted to any fishponds or fisheries operations during the construction or operation stage of this Project.

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11. CULTURAL HERITAGE

11.1 Introduction

11.1.1 This assessment has been based on the criteria and guidelines for evaluation and assessment of cultural heritage impact stated in Annexes 10 and 19 of the EIAO-TM and covered in the scope outlined in Section 3.4.9 of the EIA Study Brief.

11.2 Relevant Legislation, Standards & Guidelines

11.2.1 The *Antiquities and Monuments Ordinance* (A&MO) (Cap. 53) provides the protection of important sites of archaeological or historical interest by declaration as monuments; it grants to Government the ownership of all artefacts made prior to 1800 found in Hong Kong after the enactment of the A&MO; and it provides control over the excavation and search for relics through a licensing system.

11.2.2 The *Environmental Impact Assessment Ordinance* (EIAO) (Cap. 499) lists out cultural heritage sites among the "sensitive receivers" that should be considered in carrying out an EIA for any project. Annexes 10 and 19 of EIAO-TM issued under Section 16 of the EIAO specify that sites of cultural heritage shall be given a general presumption in favour of protection and conservation, that adverse impacts on such sites shall be kept to a minimum, and that total or partial destruction must be taken as a last resort after all alternatives have been considered and all possibilities have been exhausted.

11.2.3 Apart from above mentioned Ordinances, there are also administrative mechanisms intended to provide some additional protection to buildings and sites of historical or archaeological interest. Most known archaeological sites are listed as "Special Sites of Archaeological Interest" (SSAIs), a number of important buildings are listed as "Deemed Monuments", and many other buildings are graded according to their perceived heritage value, ranging from the most valued buildings at Grade I down to Grade III.

11.2.4 Although there are no statutory provisions for the protection of SSAI's, Deemed Monuments and graded historical buildings, the Government has administrative procedures by requiring consideration to be given to the preservation of these sites or structures.

11.2.5 Chapter 10 of Hong Kong Planning Standards and Guidelines (HKPSG), which was issued by the Planning Department in January 2006, requires conservation of cultural heritage in all sorts of land planning works. Besides, the Antiquities and Monuments Office (AMO) has developed the Criteria for Heritage Impact Assessment along with a series of internal guidelines and manuals for the survey, evaluation and assessment of cultural heritage sites in Hong Kong.

11.3 Study Area and Sensitive Receivers

11.3.1 Section 3.4.9 of the Study Brief did not specify the assessment area for cultural heritage impact assessment. Following Appendix B of the Study Brief, the study scope will include the areas within the proposed Project area, but an area within 500 m envelope of the Project has been selected.

11.3.2 A desk-top study and field survey have been conducted to collect and analyse existing data, including published and unpublished information on declared, deemed and protected monuments, on the identified archaeological sites and previous archaeological works.

11.3.3 The following information available from the AMO has been reviewed to identify sensitve sites.

- List of Graded Historic Buildings in Hong Kong (as at 16 May 2008) issued by AMO for consultation
- List of Declared Monument as at 11 July 2008

11.3.4 **Table 11-1** provides an inventory of identified sites of both built heritage and archaeological interest that has been searched as a result of literature review. The location of these sites are shown in **Figure 11-1** to **Figure 11-4** within 500 m of the project.

Table 11-1 An Inventory of Sites of Cultural Heritage within the 500 m Envelope of the Project

Site of Cultural Heritage	Classification	Near Chainage	Distance from Cycle Track
Mai Po Archaeological Site	Archaeological Site	CH-MP5+100m (see Figure 11-1)	Over 70 m across Castle Peak Road – Mai Po and San Tin Highway
Man San Ye Ancestral Hall	Grade II Historical Building	CH-MP8+400m (see Figure 11-2)	Over 300 m southeast of cycle track
Man Ancestral Hall	Grade I Historical Building	CH-MP8+400m (see Figure 11-2)	Over 300 m southeast of cycle track
Man Lun Fung Ancestral Hall (San Tin)	Declared Monument	CH-MP8+450m (see Figure 11-2)	Over 250 m southeast of cycle track
Ming Tak Tong Ancestral Hall	Grade III Historical Building	CH-MP8+500m (see Figure 11-2)	Over 300 m southeast of cycle tack
Ming Yuen Tong Ancestral Hall	Grade II Historical Building	CH-MP8+400m (see Figure 11-2)	Over 240 m southeast of cycle track
Tai Fu Tai Mansion	Declared Monument	CH-MP8+700m (see Figure 11-2)	Over 350 m southeast of cycle track
Tung Shan Temple	Grade II Historical Building	CH-MP9+400m (see Figure 11-2)	Over 350 m southwest of cycle track
Lady Ho Tung Welfare Centre	Grade III Historical Building	CH-KW0+600m (see Figure 11-3)	Over 120 m across Fanling Highway
Hung Shing Temple and Pai Fung Temple	Grade II Historical Building	CH-KW2+000m (see Figure 11-3)	Over 200 m northwest of cycle track
Hau Kui Shek Ancestral Hall, Ho Sheung Heung	Declared Monument	CH-KW2+250m (see Figure 11-3)	Over 160 m northwest of cycle track
Bok Man School	Grade III Historical Building	CH-KW3+850m (see Figure 11-4)	Over 120 m southwest of cycle track

Notes:

Grade I Buildings of outstanding merit, which every effort should be made to preserve if possible.

Grade II Buildings of special merit; efforts should be made to selectively preserve.

Grade III Buildings of some merit, but not yet qualified for consideration as possible monuments. These are to be recorded and used as a

pool for future selection.

Definitions of grading are internal guidelines adopted by the Antiquities Advisory Board and the Antiquities and Monuments Office for the preservation of historic buildings.

11.4 Assessment of Potential Impacts

Mai Po Archaeological Site

11.4.1 According to information available from the AMO, the Mai Po Archaeological Site is dated to the Qin, Han and Six Dynasties, Sui, Tang and Five Dynasties, and Song and Yuan Dynasties. It was discovered in February 1985 with feature caches of Chinese bronze coins, and a number of green glazed stoneware shards.

11.4.2 The proposed cycle track is located over 70 m to the west of the Mai Po Archaeological Site and across San Tin Highway and Castle Peak Road – Mai Po. This section of the cycle track will be constructed alongside the existing Castle Peak Road – Mai Po, where the surrounding areas have already been developed. Therefore, no direct and indirect impacts are envisaged due to the large separation distance and the current status.

Other Sites of Cultural Heritage

11.4.3 Other sites of cultural heritage given in **Table 11-1** are located at a sufficient distance (120–350 m) from the proposed cycle track alignment. No works will be carried out near these buildings. No impacts on these sites of cultural heritage are therefore anticipated due to the large separation distance.

11.4.4 Yeung Hau Temple located near to the junction between Castle Peak Road (Mai Po) and Tam Kon Chau Road has been identified within the Study Area. This temple is not a declared monument nor a graded historical building. It is located at a sufficient distance from the proposed cycle track alignment. Adverse impacts on this site are not expected to occur.

11.4.5 In general, the proposed cycle track alignment is located within developed / disturbed areas. **Figure 11-5** describes the general existing conditions of the project surroundings. **Figure 11-6** to **Figure 11-10** present the proposed cycle track alignment on aerial photos (year 2005). Findings show that along the proposed cycle track works areas, land use consists mostly of road networks, paved areas and built land. This proves that the Project area has already been subject to previous disturbance during the construction of these infrastructures. The archaeological potential is therefore considered to be low. There are no known / or expected potential archaeological sites within the works area of the proposed cycle track and its supporting facilities. As a result, no direct or indirect impacts are expected on archaeology as a result of the proposed works and no mitigation measures are required.

11.5 Mitigation Measures

11.5.1 As no impacts will result, no specific mitigation measures are required. As a precautionary measure however, it is recommended that care should be taken during the construction stage to report any signs of possible discovery of artefacts.

11.6 Residual Environmental Impacts

11.6.1 As no impacts are predicted, residual impacts will not occur.

11.7 Environmental Monitoring and Audit

11.7.1 There are no environmental monitoring and audit requirements proposal for cultural heritage.

11.8 Conclusion

11.8.1 The cycle track alignment and its supporting facilities will not encroach upon any known / potential archaeological site, and will not have any direct and indirect impacts on any declared monuments, graded historical buildings. No specific EM&A requirement is considered necessary.

12. LANDSCAPE & VISUAL IMPACT

12.1 Introduction

12.1.1 This section describes legislation and guidelines that will be reviewed in the Landscape and Visual Impact Assessment (LVIA). The landscape baseline reviews the condition of existing landscape resources (LRs) and landscape character areas (LCAs), planning and development control framework, and the visual amenity and visually sensitive receivers (VSRs).

12.1.2 The assessment has been based on the criteria and guidelines stated in Annexes 10 and 18 of the EIAO-TM and covered in the scope outlined in Section 3.4.10 of the EIA Study Brief. The assessment identifies potential landscape and visual impacts that would occur during the construction and operational phases of the cycle tracks and associated supporting facilities, recommends landscape mitigation measures to alleviate the impacts; and identifies residual effects apparent after mitigation.

12.2 Relevant Legislations, Standards & Guidelines

12.2.1 Legislation, Standards, Guidelines and Criteria relevant to the consideration of landscape and visual impacts in this report include the following:

- *Environmental Impact Assessment Ordinance* (Cap. 499) and the Technical Memorandum on EIA Process (EIAO-TM), particularly Annexes 3, 11, 10, 18, 20 and 21;
- EIAO Guidance Note 8/2002 on Preparation of Landscape and Visual Impact Assessment under the EIAO;
- ETWB TCW No. 03/2006 on Tree Preservation;
- ETWB TCW No. 2/2004 on Maintenance of Vegetation and Hard Landscape Features;
- ETWB TCW No. 29/2004 on Registration of Old and Valuable Trees, and Guidelines for their Preservation;
- Highways Department Technical Circulars, HyDTC No. 10/2001 on Visibility of Directional Signs;
- Highways Department Technical Circulars, HyDTC No. 7/2006 on Independent Vetting of Tree Works under the Maintenance of Highways Department;
- WBTC No. 7/2002 – on Tree Planting in Public Works;
- *Forests and Countryside Ordinance* (Cap. 96) and its subsidiary legislations;
- *Protection of Endangered Species of Animals and Plants Ordinance* (Cap. 586); and
- GEO Publication No. 1/2000 "Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes and Retaining Walls"

Environmental Impact Assessment Ordinance

12.2.2 The Environmental Impact Assessment Ordinance (EIAO) was implemented on 1 April 1998. Its purpose is to avoid, minimize and control the adverse impact on the environment of designated projects, through the application of the EIA process and the Environmental Permit (EP) system.

12.2.3 The landscape and visual impact assessments have been carried out in accordance with the guidelines contained in Annexes 10 and 18 of the Technical Memorandum on EIA Process.

EIAO Guidance Notes 8/2002 on Preparation of Landscape and Visual Impact Assessment under the EIAO

12.2.4 The guidance note (GN) advises on the requirements in vetting Landscape and Visual Impact Assessment (LVIA) of designated projects (DPs) under the Technical Memorandum on EIA Process (EIAO-TM) for the EIAO. The main aim is to facilitate practitioners to prepare LVIA and to satisfy their own Quality Management System prior to making submissions under the EIAO.

ETWB TCW No. 3/2006 on Tree Preservation

12.2.5 This Circular sets out the policy on tree preservation, and the procedures for control of tree felling, transplanting and pruning in Government projects and covers the reporting of unauthorized tree removal (i.e. felling or transplanting), on both private and unleased Government land.

ETWB TCW No. 2/2004 Maintenance of Vegetation and Hard Landscape Features

12.2.6 This Circular sets out the departmental responsibilities for maintenance of vegetation and hard landscape features. It should be read in conjunction with ETWB TCW No. 3/2006 on Tree Preservation

ETWB TCW No. 29/2004 on Registration of Old and Valuable Trees, and Guidelines for their Preservation;

12.2.7 This Circular sets out the procedures for registration of old and valuable trees on unleased Government land within built-up areas and tourist attraction spots in village areas and the guidelines for preservation and maintenance of the registered trees.

HyDTC No. 7/2006 on Independent Vetting of Tree Works under the Maintenance of Highways Department;

12.2.8 Technical Circular promulgates the establishment of the Tree Works Vetting Committee (TWVC). It should be read in conjunction with Environmental, Transport and Works Bureau Technical Circular (Works) (ETWB TCW) No. 3/2006 which sets out the policy on tree preservation, and the procedures for control of tree felling, transplanting and pruning in Government projects. It also stipulates that Highways Department (HyD) will provide advice to Lands Department (LandsD) for vetting of tree removal applications relating to land within the boundary of expressways and SIMAR slopes maintained by HyD through the setting up of the independent internal vetting body TWVC.

HyDTC No. 10/2001 on Visibility of Directional Signs

12.2.9 This guidance from the Highways Department highlights the importance of maintaining clear visibility of directional signs and provides guidance to Highways Department staff on appropriate actions.

WBTC No. 7/2002 on Tree Planting in Public Works

12.2.10 This Circular affirms the advocated policy on tree planting, which adopts a flexible and balanced approach in the planning and design of public works.

Forests and Countryside Ordinance (Cap. 96) and its subsidiary legislations

12.2.11 The Forests and Countryside Ordinance (Cap. 96) prohibits the felling, cutting, burning or destroying of trees and growing plants in forests and plantations on Government land. The subsidiary Forestry Regulations prohibit the picking, felling or possession of listed rare 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.

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

12.2.12 The Protection of Endangered Species of Animals and Plants Ordinance (Cap. 586) restricts the import and export of species listed in CITES Appendices so as to protect wildlife from overexploitation or extinction. The Ordinance is primarily related to controlling trade in threatened and endangered species and restricting the local possession of them.

Cycle Tracks Connecting North West New Territories – Investigation, Design and Construction Study – Initial Layout Plan and Master Landscape Plan Report (Agreement No. CE 22/2006 (HY), CEDD, April 2007

12.2.13 This Study aims to design and construct a series of cycle tracks connecting existing cycle track networks at Yuen Long and Sheung Shui with provision of supporting and recreation facilities. The cycle track is intended primarily for recreational use and is thus considered as a recreational development. The initial layout plans and master landscape plans recommended the alignment of the proposed cycle tracks, the location of the supporting facilities and set out their landscape design concept. The information including a preliminary tree survey contained in the captioned report forms the basis of the EIA.

GEO Publication No. 1/2000 "Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes and Retaining Walls"

12.2.14 The Technical Guidelines are written for use by engineers engaged in slope works. It is intended that they will form a platform for the future research into and development of new techniques, especially of bio-engineering, in order to achieve visually and environmentally appropriate slopes.

12.3 Landscape and Visual Impact Assessment Methodology

Landscape Impact Assessment Methodology

12.3.1 Preparation of LVIA is based on the EIAO GN No. 8/2002 "Preparation of Landscape and Visual Impact Assessment under the EIAO" for evaluation of the proposed cycle track and associated facilities. Section 2 describes the details of the Project and this LVIA section also provides a summary. The methodology for the LVIA and the selection of preferred development options is described in the following sections.

Review of Cycle Track Alignment and Location of Its Associated Supporting Facilities

12.3.2 The review of the proposed cycle track alignment and location of supporting facilities further to the design development regarding to spatial, land resumption, landscape and other environmental constraints was examined. These constraints inform the latest cycle track alignment and location of supporting facilities contained in the Agreement No. CE 22/2006 (HY) - Cycle Tracks Connecting North West New Territories – Investigation, Design and Construction (IDC) Study – General Layout Plan and Master Landscape Plan Report (hereafter the CTCNWNT Study) which is undertaken by the IDC consultants. The proposals contained in this Study also formed the basis for this EIA.

Landscape Planning Review

12.3.3 A review of the existing planning studies and documents has been undertaken as part of the baseline study to gain an insight into the planned role of the site, its surrounding areas, its landscape context and to help to determine if the project fits into the wider existing and future landscape context. This review considered Outline Zoning Plan numbers including S/FSS/12, Fanling and Sheung Shui, S/NE-KTN/8 Kwu Tung North, S/YL-MP/6 Mai Po and Fairview Park, S/YL-NSW/8 Nam Sang Wai, and S/YL-ST/8 San Tin. Compatibility of the proposed cycle track and associated supporting facilities to the planned developments either within or adjacent to the Study Area are also considered in terms of landscape and visual impacts.

Landscape Baseline Review and Impact Assessment

12.3.4 The assessment of the potential impacts of a proposed scheme on the existing landscape comprises two distinct sections namely the baseline survey and the landscape impact assessment. Landscape Impact Assessment (LIA) Study Area has been undertaken to include all areas within 500 m of the site boundary.

12.3.5 A baseline survey of the existing landscape resources and landscape character has been undertaken based on a combination of desktop studies and site surveys. The landscape elements which contribute to the landscape character include:

- Local topography;
- Woodland extent and type;
- Other vegetation types;
- Built form;

- Patterns of settlement;
- Land use;
- Scenic spots;
- Details of local materials, styles, streetscapes, etc.;
- Prominent watercourses; and
- Cultural and religious identity

12.3.6 The process of landscape characterisation draws on the information gathered in the desktop and site survey and provides an analysis of the way in which the elements including the identified landscape resources (LRs) interact to create the character of the landscape. The Study Area is then divided into broadly homogenous units of similar character, which are called Landscape Character Areas (LCAs).

12.3.7 The sensitivity of the individual LRs and LCAs to change is rated using low, medium or high depending on the following factors:

- Condition, quality and maturity of the LRs / LCAs ;
- Importance and rarity of special landscape elements (rarity being of either local, regional, national or global importance);
- Ability of the LRs / LCAs to accommodate change; and
- Statutory or regulatory requirements relating to the landscape including its resources.

12.3.8 The next stage of the assessment process is the identification of the assessment of the magnitude of change (rated as negligible, small, intermediate or large) arising from the implementation of the proposals and the principal sources of impact based on the following factors:

- Scale of the cycle track and the associated supporting facilities;
- Compatibility of the project with the surrounding landscape;
- Duration of impacts (temporary or permanent) under construction and operational phases; and,
- Reversibility of change.

12.3.9 The degree of significance of landscape impact is derived from the magnitude of change which the proposals will cause to the existing landscape context and its ability to tolerate the change, i.e. its condition / quality and sensitivity. This makes a comparison between the landscapes, which would have existed in the absence of the proposals with that predicted as a result of the implementation of the proposals. The significance threshold for impacts to LRs and LCAs is rated as significant, moderate, slight or negligible. The impacts may be beneficial or adverse.

12.3.10 The significance threshold is derived from the following matrix:

Magnitude of Change caused by Proposals	Large	Moderate Impact	Moderate / Significant Impact	Significant Impact
	Intermediate	Slight / Moderate Impact	Moderate Impact	Moderate / Significant Impact
	Small	Slight Impact	Slight / Moderate Impact	Moderate Impact
	Negligible	Negligible	Negligible	Negligible
		Low	Medium	High
		Sensitivity of Landscape to Change		

12.3.11 The above matrix will apply in the assessment of the majority of situations, however, in certain cases a deviation from this may occur, e.g. the impact may be so major that a significant impact may occur to a LCA or LR with a low sensitivity to change.

Tree Survey Methodology

12.3.12 To minimize conflicts with existing vegetation a preliminary tree survey in accordance with ETWB TCW No. 3/2006, 'Tree Preservation' has been undertaken by the IDC Consultants. This survey informs the potential tree impact assessed in this LVIA as a result of the proposed works. This tree survey involves the identification of individual trees within the proposed works area, which is 2 m offset from either sides of the proposed cycle track alignment and site boundary of the associated facilities. The survey includes individual tree species, sizes, health condition, form, and amenity value and their treatment as a result of the implementation of proposed works.

12.3.13 This existing tree data allows the fine tuning of the detailed design for the proposed works and ensures that any significant trees including potential old and valuable trees or rare or protected tree species, where possible, be protected during both the construction and operational phases of the Project.

Visual Baseline Review and Impact Assessment

12.3.14 The assessment of the potential visual impact of the scheme comprises two distinct parts:

- Baseline survey; and
- Visual impact assessment which includes the identification of the sources of visual impact, and their magnitude, that would be generated during construction and operational phases of the proposed works; and identification of the principal visual impacts primarily in consideration of the degree of change to the baseline conditions.

12.3.15 The assessment area for the Visual Impact Assessment (VIA) is defined by an Visual Envelope (VE) which includes all areas from which the proposed works can be seen, or the area forms the view shed formed by natural / manmade features such as existing ridgelines, built development and for example areas of woodland / large trees. Within the VE, Zone of Visual Influence (ZVI) is identified to demonstrate the visibility of the proposed works. This is achieved through a combination of detailed walkover surveys, and desk-top study of topographic maps

and photographs, and preparation of cross-sections to determine visibility of the improvement works from various locations.

12.3.16 The baseline survey of all views towards the proposals is undertaken by identifying:

- The VE and ZVI as have been described above and may contain either wholly or partially within views. This must also include indirect effects such as offsite construction activities; and,
- The visually sensitive receivers (VSRs) within the visual envelope whose views will be affected by the scheme.

12.3.17 The potential receivers are considered as four groups:

- Views from residences – the most sensitive of receivers due to the high potential of intrusion on the visual amenity and quality of life;
- View from workplaces – less sensitive than above due to visual amenity being less important within the work environment;
- Views from recreational landscapes – including all areas apart from the above, e.g., public parks, recreation grounds, footpaths, cultural sites etc. Sensitivity of this group depends on the length of stay and nature of activity, e.g. sitting in a park as opposed to an active sporting pursuit; and
- Views from riverside access, public roads and railways – including vehicle travellers with transitory views.

12.3.18 The assessment of sensitivity has also been based on the quality and extent of the existing view. Therefore a view from a residential property, which would normally be considered the most sensitive view, may be less so if for example it is degraded by existing development or partially screened by intervening visual obstacles such as existing vegetation. Factors affecting the sensitivity of receivers for evaluation of visual impacts:

- Value and quality of existing views;
- Availability and amenity of alternative views;
- Type and estimated number of receiver population;
- Duration or frequency of view; and,
- Degree of visibility.

12.3.19 Views available to the identified VSRs are rated according to their sensitivity to change using low, medium or high.

12.3.20 The location and direction of its view relative to the scheme also influences the sensitivity of each group. Typical viewpoints from within each of the visually sensitive groups are identified and their views described. Both present and future (planned) visually sensitive receivers (PVSRs), if any, are considered.

12.3.21 The factors affecting the magnitude of change for assessing the visual impacts include the following:

- Scale of the cycle track and the associated supporting facilities;

- Compatibility of the project with the surrounding landscape forming the view; extent of visibility (level of potential blockage of the view);
- Viewing distance;
- Duration of impacts under construction and operational phases;
- Reversibility of change ; and
- Night glare effect.

12.3.22 The magnitude of change to the views will be classified as follows:

- Large: e.g. Large project works extent/ Extensively blocked the views of VSRs/ Project nature is not compatible to existing visual context/ Works area located in the foreground of the visual context / Permanent impacts/ irreversible of change;
- Intermediate: e.g. Intermediate project works extent/ Partially blocked the views of VSRs/ Project nature is fairly compatible to existing visual context/ Works area located in the middleground of the visual context and not immediately adjacent to VSRs or their views are already partially screened by existing topography, built structures or vegetation/ Permanent impacts/ Irreversible of change;
- Small: e.g. Small project works extent/ No blockage of views/ Project nature is compatible to existing visual context/ Works area located in distant to VSRs/ Permanent impacts and duration of construction impacts is short/ Irreversible change or temporary change of view; and
- Negligible: e.g. no discernible change in visual context.

12.3.23 The significance threshold for visual impact is rated in a similar fashion to the landscape impact, i.e. significant, moderate, slight and negligible. The impacts may be beneficial or adverse.

12.3.24 Therefore the impact is derived from the magnitude of change, which the proposals will cause, to the existing landscape context and its ability to tolerate the change, i.e. its quality and sensitivity. The significance threshold is derived from the following matrix:

Magnitude of Change caused by Proposals				
	Large	Moderate Impact	Moderate / Significant Impact	Significant Impact
	Intermediate	Slight / Moderate Impact	Moderate Impact	Moderate / Significant Impact
	Small	Slight Impact	Slight / Moderate Impact	Moderate Impact
	Negligible	Negligible	Negligible	Negligible
		Low	Medium	High
		Sensitivity of View to Change		

12.3.25 The above matrix will apply in the assessment of the majority of situations, however, in certain cases a deviation from this may occur, e.g. the impact may be so major that a significant impact may occur to a view with a low sensitivity to change.

12.3.26 **Table 12-1** provides an explanation of the degree of impact for both landscape and visual aspects of the project.

Table 12-1 Degree of Impact

Impact	Description
Significant	Adverse / beneficial impact where the proposal would cause significant deterioration or improvement in existing landscape quality or visual amenity.
Moderate	Adverse / beneficial impact where the proposal would cause a noticeable deterioration or improvement in existing landscape quality or visual amenity.
Slight	Adverse / beneficial impact where the proposal would cause a barely perceptible deterioration or improvement in the existing landscape quality or visual amenity.
Negligible	No discernible change in the existing landscape quality or visual amenity.

Landscape Mitigation Measures

12.3.27 The purpose of mitigation is to avoid, reduce, and where possible remedy or offset any adverse effects on the environment arising from the proposed works. The ideal strategy for identifiable adverse impacts is one of avoidance. If this is not possible, alternative strategies of reduction, remediation and compensation should be explored.

12.3.28 Mitigation measures may be considered under two categories:

- Primary mitigation measures that intrinsically comprise part of the identification of proposed cycle track alignment and the location and design of supporting facilities through an iterative process. This form of mitigation is generally the most effective; and
- Secondary mitigation measures designed to specifically address the remaining (residual) adverse effects of the proposed works.

12.3.29 Primary mitigation measures form integrated mainstream components of the proposed works focusing on the adoption of alternative alignment of the cycle track and location of supporting facilities, or revisions to the basic engineering and architectural design including layout, built structures etc to prevent and/or minimize adverse impacts. The design philosophy can also describe the benefits to the design of alternative solutions, introduced to reduce potential adverse impacts, and indicate how these have been addressed.

12.3.30 Secondary mitigation measures are specifically designed to mitigate the adverse impacts of the proposed works and are considered in the assessment of the landscape and visual impacts. These may take the form of remedial measures such as colour and textural treatment of built structure; and compensatory measures such as the implementation of landscape design measures (e.g. tree planting, creation of new amenity area etc) to compensate for unavoidable adverse impacts and to attempt to generate potentially beneficial long-term impacts.

Residual Impacts

12.3.31 The residual impacts are those, which remain after the proposed mitigation measures, have been implemented. This has been assessed both during the construction period and during the design year, which is often taken to be 10 to 15

years after the proposed scheme has been opened to normal operation when the soft landscape mitigation measures are deemed to have reached a level of maturity, which allows them to perform their original design objectives.

12.3.32 The level of impact is derived from the magnitude of change, which the proposals will cause to the view, which would have existed during this period if the proposed scheme had not been constructed, and its ability to tolerate change, i.e. its quality and sensitivity taking into account the beneficial effects of the proposed mitigation. The significance threshold is derived from the matrices described separately above for the landscape and visual impacts.

12.3.33 In accordance with Annex 10 of the EIAO-TM a final conclusion is also made of the residual landscape and visual impacts attributable to the proposed scheme. The degree of residual impact is considered in accordance with the Residual Impact Significance Threshold Matrix in **Table 12-2** below.

Table 12-2 Residual Impact Significance Threshold Matrix

Residual Impact	Description
Beneficial	The project will complement the landscape and visual character of its setting, will follow the relevant planning objectives and will improve overall and visual quality
Acceptable	There will be no significant effects on the landscape, no significant visual effects caused by the appearance of the project, or no interference with key views.
Acceptable with mitigation measures	There will be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures.
Unacceptable	The adverse effects are considered too excessive and are unable to be mitigated practically.
Undetermined	Significant adverse effects are likely, but the extent to which they may occur or may be mitigated cannot be determined from the study. Further detailed study will be required for the specific effects in question.

Graphic Presentation of Mitigation Measures

12.3.34 In order to illustrate these landscape and visual impacts and to demonstrate the effectiveness of the proposed landscape and visual mitigation measures, photomontages at selected representative viewpoints have been prepared to illustrate:

- Existing conditions
- Day 1 of Operation Phase without Landscape Mitigation Measures
- Day 1 of Operation Phase with Landscape Mitigation Measures; and
- Year 10 of Operation Phase with Landscape Mitigation Measures

12.4 Project Summary

12.4.1 The proposed cycle track will form part of the continuous cycle track network at northwest New Territories. It connects the existing cycle tracks at Hung Mo Kiu adjacent to Kam Tin River and Sheung Shui Industrial Area adjacent to Shek

Sheung River. Supporting facilities including five Resting Stations and Information Kiosk are proposed along the cycle track to provide enough supporting facilities for the enjoyment of cyclists

12.4.2 During the design development, the original cycle track alignment and location of supporting facilities shown on the project brief was reviewed to incorporate government and public comments regarding to reduction of the potential impacts on drainage channel, private land, air quality, significant ecological and landscape resources etc.. The following major changes have been made in the current proposals:

- Realign the proposed cycle track to run alongside of Kam Pok Road to minimize the potential drainage impact as a result of constructing a bridge connecting Pok Wai South Road and Yau Pok Road, this realignment also reduced the tree impact along Yau Pok Road;
- Realign the track to run along the existing dam located to the west of Mai Po San Tsuen to minimize the disturbance to the Mai Po Village SSSI and an egretry at Castle Peak Road- Mai Po Section, this realignment also reduced the tree impact along Castle Peak Road;
- Realign the section of track at Shek Wu Wai Road to run on covered drainage channel to the west of existing footpath to minimize the tree impact if it aligns to the east of the road;
- Relocation of Resting Stations to ensure that a reserve of 5-20 m buffer zone between the proposed Resting Stations and major roads such as Castle Peak Road and Fanling Highway is provided to minimize the air quality impact on the proposed stations. This relocation also provides a better visual integration between proposed facilities and their neighbourhood in the rural fringe landscape character; and
- Review the works limit along the cycle track alignment and the site area of the proposed Resting Stations and Information Kiosk to maximise the preservation of existing trees and ensure that sufficient space is reserved within the works limit for transplanted trees, compensatory planting and other landscape works;

12.4.3 After the above design review, the current proposed works are summarised as follows:

- Construction of approximate 15 km long new cycle track with a track width in 3.5 m to 4 m and associated with 2 m wide footpath at selected sections. The proposed alignment runs along areas adjacent to Kam Tin River, Ngau Tam Mei Main Drainage Channel, Castle Peak Road, San Tin Tsuen Road, Sheung Yue River and Shek Sheung River;
- Provision of 2 to 4 m wide new planting areas alongside the track and landscape areas associated with the supporting facilities, where space allows and technically feasible, for transplanted trees and to compensate the potential loss of existing trees and provide better integration of the proposed track and facilities to the existing rural fringe and roadside landscapes;
- Modification of existing sloping areas or embankment adjacent to existing roads, tracks within village settlement, footpath and maintenance access along rivers and channels to accommodate the level differences between the existing ground level and proposed cycle track level;

- Construction of retaining structures along the proposed alignment at where minor slope cutting is required to accommodate the new track;
- Provision of new road and stream crossing at intervals along the alignment. New road crossing is designed in accordance with the TPDM and HyD standards providing facilities to ensure the road safety at the interface between the road users and the cyclist. Stream crossing is designed in form of a bridge accommodated a 4 m wide cycle track and 2 m wide footpath on either sides of the track, proposed length of bridge crossing the river or drainage channel vary from 9 m to 25 m;
- Modification of existing footbridge across Shek Sheung River a cycle bridge accommodating a 4 m wide cycle track and 2 m wide footpath connecting Tai Tau Leng to existing cycle track at Choi Yuen Road.
- Reduce the numbers of cycle parking spaces and increase the open space/seating areas within resting stations.
- Refine the layout of Resting Station R9 Information Kiosk to maintain existing AFCD mitigation planting and minimize the potential ecological, visual and landscape impacts to Long Valley.
- Provision of five Resting Stations with Information Kiosks at intervals along the alignment to ensure that enough supporting facilities, including various combinations of cycle parking spaces, cycle rental/return kiosk, information or food kiosks, first aid station, public toilet, pavilion and sitting out area, and attractions including food kiosk for the enjoyment of cyclists are provided within the cycle track network, individual proposals are listed in **Table 12-3** below:

Table 12-3 Summary of Supporting Facilities

Criteria	Location	Approximate Works Area Required (m^2)
R5	"O" zoned area under OZP adjacent to Kam Tin River at the junction of Castle Peak Road-Tam Mei Section and Pok Wai South Road	280 m^2
R6	"OU" zoned area under OZP adjacent to Ngau Tam Mei Drainage Channel and southern end of Kam Pok Road.	630 m^2
R7	"V" zoned area under OZP adjacent to Ngau Tam Mei Drainage Channel and northern end of Kam Pok Road.	220 m^2
R8	"Road" zoned area under OZP at Castle Peak Road – San Tin Section near Shek Wu Wai Road.	300 m^2
R9 integrated with Information Kiosk	"AGR" zoned area under OZP at the river bank opposite to Sheung Shui Sewerage Treatment Works at Long Valley.	1,140 m^2

Note:

(1) The above information are summarised from the Final Initial Layout Plan and Master Landscape Plan Report under the Cycle Tracks Connecting North West New Territories – Investigation, Design and Construction Study (Agreement No. CE 22/2006 (HY) which prepared by IDC consultants formed the basis of the LVIA.

(2) Approximate Works Area includes extent of site formation works to accommodate all proposed facilities, circulation spaces and planting areas. It is subject to review at detailed design stage

12.4.4 With regard to the spatial constraints along Mai Po and Kwu Tung corridors, the

current scheme described above is in balance with all site and environmental constraints, however, there is some unavoidable landscape and visual impacts as a result of the proposed works. These impacts are assessed in this LVIA and landscape mitigation measures are recommended to further alleviate these impacts.

12.5 Review of Planning and Development Control Framework

12.5.1 A review of the existing planning studies and documents has been undertaken to gain an insight into the planned role of the site, its context and to help to determine if the project fits into the wider landscape context. The assessment does not consider all of the areas zoned on the OZP but focuses on only those affected by the proposed works. The locations of these areas are shown on **Figure 12-1A** and **Figure 12-1B**. This review considered the following aspects of the identified planning designations:

- Zoning areas which would be physically affected by the proposals, that is where the implementation of the proposal works would lead to the actual loss of an area;
- The potential degradation of the landscape setting of an area which might affect the viability of it's landscape planning designation but not result in a loss of zoning area;
- The visual amenity enjoyed by future residents or users; and
- The general fit of the proposals into this future landscape.

12.5.2 The assessment covers areas shown on the following Outline Zoning Plans:

- S/FSS/12 Fanling and Sheung Shui;
- S/NE-KTN/8 Kwu Tung North;
- S/YL-MP/6 Mai Po and Fairview Park;
- S/YL-NSW/8 Nam Sang Wai; and
- S/YL-ST/8 San Tin.

12.5.3 This review has found the following impacts on identified planning designations:

- Areas that would be physically affected by the implementation of the proposed cycle track, Resting Stations and Information Kiosk are located adjacent to the roadside areas along Castle Peak Road, Pok Wai South Road, Yau Pok Road, San Tin Tsuen Road, San Sham Road, roadside drainage channel and maintenance access along Kam Tin River, Sheung Yue River, Shek Sheung River, Ngau Tam Mei Drainage and where there is encroachment to individual zoning boundaries. The majority of the proposed works will not directly affect the existing land uses, with exception of the following:

- Agriculture (AGR) zone at Kwu Tung North - some agricultural fields located at the peripheries of the zoning boundary adjacent to Ho Sheung Heung and Kwu Tung;
- Industrial (Group D) (I(D)) and Open Storage (OS) zones at Kwu Tung North - some temporary structures or open storages located at the peripheries of the zoning boundary adjacent to Castle Peak Road;
- Residential (Group D) (R(D)) zone at San Tin - some temporary structures or open storages located at the periphery of the zoning boundary adjacent to Castle Peak Road;
- Undetermined (U) zone reserved for the planned KCR Lok Ma Chau Spur Line and existing Cross Boundary Shuttle Bus San Tin Terminus- some preserved land areas currently occupied by car parking facilities adjacent to Castle Peak Road and existing drainage channels located to the south of the Terminus, and
- Some roadside vegetated areas encroaching the Green Belt (GB) zoning boundary at San Tin and Kwu Tung North.

- Although there are some impacts to zoned areas, the proposed works would not degrade the landscape setting of the area or affect its viability or existing character. New tree planting alongside of the proposed cycle track and within the Resting Stations and Information Kiosk will also enhance the landscape value along existing road corridors as well as the interface encroaching to individual zoning areas.

12.5.4 Given the above summary and detailed review in **Table 12-4**, the proposed cycle track largely fits into the planning and development control framework and integrates with the future outlook of the rural landscape context. The proposed cycle track will be gazetted under Roads (Works, Use and Compensation) Ordinance (Cap. 370) and hence some zoning boundaries affected by the works should be revised.

12.5.5 In addition, after the implementation of proposed Resting Stations and Information Kiosk along the cycle track, the original planning designation might not be enough to reflect their new uses, planning permission from the Town Planning Board would need to be submitted in due course.

Table 12-4 Review of Existing Planning and Development Control Framework

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
Outline Zoning Plan number S/FSS/12 - Fanling and Sheung Shui			
1. Village Type Development (V)	This zone encompasses Hak Ka Wai and Tsung Pak Long village settlements. The planning intention of this zone is to reflect existing recognised and other villages, and to provide land considered suitable for village expansion and reprovisioning of village houses affected by Government project.	The proposed cycle track and footpath and runs alongside of the maintenance access of Shek Sheung River within this "V" zone which requires only modification of adjacent sloping areas and footpath to the access, no village development will be affected. 240 m^2/9.9 ha (<1%)	Given that the proposed cycle track only occupies a small portion of this zone at roadside area, the track is designed to integrate with the existing built structure, it is planned for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this rural landscape.
Outline Zoning Plan number S/NE-KTN/8 Kwu Tung North			
2. Agriculture (AGR)	This zone encompasses the active agriculture fields at Kwu Tung, Ho Sheung Heung and Long Valley adjacent to Sheung Yue River. This zone is intended primarily to retain and safeguard good quality agricultural land/farm/fishponds for agricultural purposes. It is also intended to retain fallow arable land with good potential for rehabilitation for cultivation and other agricultural purposes.	The proposed cycle track runs alongside the footpath to the north of Castle Peak Road, encroaching the southern periphery of this " AGR" zone and another section of the track; and Resting Station R9 cum Information Kiosk along DSD maintenance access of Sheung Yue River will encroach this zone. The proposed works requires some modification of roadside area adjacent to Castle Peak Road and maintenance access along Sheung Yue River - some agricultural fields will be affected. 3 ha/15.6 ha(19%).	Given that the proposed cycle track and Information kiosk only occupy a small portion of this zone adjacent to the existing roads, and that the track is designed for the enjoyment of both local residents and general public; the proposed works are thus compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this rural and riverside landscape.
3. Comprehensive Development Area (CDA)	This zone encompasses areas to the west of Dills Corner Garden and to the north of Castle Peak Road – Chau Tau Section. This zone is intended for comprehensive development/redevelopment of the area for residential use with the provision of open space and other supporting facilities.	The proposed cycle track runs alongside the footpath to the north of Castle Peak Road at the southern periphery of this " CDA" zone which requires modification of roadside areas adjacent to Castle Peak Road and planting areas along the periphery of CDA site. 0.2 ha/10.5 ha(2%)	Given that the proposed cycle track only occupies a small portion of this zone and that the track is designed for the enjoyment of both local residents and general public; this planned track will not be a development constraint to future CDA development, hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this rural landscape.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
4. Industrial (Group D) (I(D))	This zone encompasses industrial areas and warehouses at Kwu Tung and Shek Tsai Leng to the north of Castle Peak Road – Kwu Tung Section. This zone is intended primarily for industrial uses that cannot be accommodated in conventional flatted factories due to extensive lands and/or high ceiling requirement. It is also intended for the redevelopment of existing informal industrial uses, which are operated in workshop premises in rural area, to properly designed permanent industrial buildings.	The proposed cycle track runs alongside the footpath to north of Castle Peak Road at the southern periphery of this " I(D)" zone which requires modification of roadside areas adjacent to Castle Peak Road and some existing open storage areas. 0.3 ha/5.8 ha(5%)	Given that the proposed cycle track occupies only a small portion of this zone, the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track will enhance existing industrial landscape.
5. Green Belt (GB)	This zone encompasses the existing vegetated knoll at Pak Shek Au. The planning intention of this zone is to define the limits of urban and suburban development areas by natural features, to contain urban sprawl as well as to provide passive recreational outlets.	The proposed cycle track runs alongside the footpath to the north of Castle Peak Road at the southern periphery of this "GB" zone which requires only modification of roadside sloping areas. 0.14 ha/2.1 ha (6%)	Given that the proposed cycle track only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public, and that the vegetated sloping area affected will be reinstated, the proposed works are thus considered compatible to the planning intention. The proposed new tree planting alongside of the track makes a better integration to the Green Belt.
Outline Zoning Plan number S/YL-MP/6 Mai Po and Fairview Park			
6. Commercial / Residential (C/R)	This zone encompasses Fairview Park Boulevard and adjacent low-rise residential developments including Villa Camellia and Royal Camellia. This zone is intended primarily for commercial and/or residential development. A selected range of commercial uses always permitted to serve the local community.	The proposed cycle track runs alongside footpath to the north of Kam Pok Road at the western periphery of this "C/R" zone which requires only modification of roadside areas adjacent to Kam Pok Road, no residential/commercial development area will be affected. 0.13 ha/5.8 ha (2%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to the low-density developed landscapes.
7. Residential (Group C) (R(C))	This zone encompasses Fairview Park low-rise residential development and its associated access roads and recreation areas to the development. This zone is intended primarily for low-rise, low-density residential developments where commercial uses serving the residential neighbourhood may be permitted on application to TPB.	The proposed cycle track runs alongside footpath to the west of Yau Pok Road at the eastern periphery of this " R(C)" zone which requires only modification of roadside areas adjacent to Yau Pok Road, no residential development area will be affected.. 900 m^2/113.5 ha (<1%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, and that the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this low-rise developed landscape.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
8. Recreation (REC)	This zone encompasses Fairway Golf Centre and adjacent fishpond areas to the north. This zone is intended primarily for recreational developments for the use of the general public. It encourages the development of active and/or passive recreation and tourism/eco-tourism.	The proposed cycle track runs alongside footpath to the west of Yau Pok Road at the eastern periphery of this " REC" zone which requires only modification of roadside areas adjacent to Yau Pok Road, no existing or planned recreation development areas will be affected. 0.2 ha/ 22 ha (<1%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, and that the track is designed for the enjoyment of both local residents and general public; the proposed works are thus considered compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this recreation landscapes.
9. Other Specified Uses - Comprehensive Development and Wetland Protection Area (OU)	This zone encompasses fishpond areas to the north of Fairview Park. The planning intention of this zone is to allow the consideration of comprehensive low-density residential development or redevelopment provided that all the existing continuous and contiguous fishponds within the zone are protected and conserved.	The proposed cycle track runs alongside the footpath to the west of Yau Pok Road at the eastern periphery of this "OU" zone which requires only modification of roadside areas adjacent to Yau Pok Road, no fishpond area will be affected. 0.25 ha/8.3 ha (3%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, and that the track is designed for the enjoyment of both local residents and general public; the proposed works are thus considered compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to existing wetland and planned residential landscapes.
10. Open Storage (OS)	This zone encompasses areas occupied by open storage between Castle Peak Road – Mai Po Section and San Tin Highway. This zone is intended primarily for the provision of land for appropriate open storage uses and to regularise the already haphazard proliferation of open storage uses.	The proposed cycle track runs through the remaining areas between existing open storage site within this "OS" zone which requires modification of some vegetated areas, no existing open storages will be affected. 0.3 ha/3.1 ha (10%)	Given that the proposed cycle track is designed for the enjoyment of both local residents and general public; hence the proposed works are not totally compatible to the planning intention for this area. The interface between the vehicular traffic to the open storage and the cycle track should be carefully separated to ensure the safety of the cyclists. Introduction of barrier planting areas at the interface areas could serve as safety barrier as well as provide screen buffer to the unpleasant open storage character.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
11. Open Space (O)	This zone encompasses the area to the east of Royal Palms low-rise residential development and to the west of Castle Peak Road – Mai Po Section. The planning intention of this zone is to designate areas for the provision of outdoor open-air public space for active/passive recreational uses serving the need of local residents as well as general public.	The proposed cycle track and footpath runs alongside the footpath to the north of Castle Peak Road at the eastern periphery of this " O" zone, which requires only modification of roadside areas adjacent to Castle Peak Road. 0.65 ha/4 ha (16%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, and that the track is designed for the enjoyment of both local residents and general public; the proposed works are thus considered compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to future recreation landscapes.
12. Village Type Development (V)	This zone encompasses Chuk Yuen Tsuen village settlement and village settlement at Mai Po including Mai Po San Tsuen and Mai Po Lo Wai etc.. The planning intention of this zone is to reflect existing recognised and other villages, and to provide land considered suitable for village expansion and reprovisioning of village houses affected by Government project.	The proposed R7 Resting Station is located adjacent to Ngau Tam Mei Drainage Channel at the north periphery of this "V" zone where drainage improvement works is undertaken currently; and the proposed cycle track runs alongside the footpath to north of Castle Peak Road and along the western periphery of this " V" zone which requires only modification of roadside area adjacent to Castle Peak Road and informal tracks within the villages - no village area will be affected. 0.35 ha/ 35.4 ha (<1%)	Given that the proposed cycle track and Resting Station only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track and within the Resting Station makes a better integration to this rural landscape.
Outline Zoning Plan number S/YL-NSW/8 Nam Sang Wai			
13. Open Space (O)	This zone encompasses the area bounded by Kam Tin River and Castle Peak Road – Tam Mi Section. The planning intention of this zone is to designate areas for the provision of outdoor open-air public space for active/passive recreational uses serving the need of local residents as well as general public.	The proposed cycle track runs across the southern portion of the "O" zone adjacent to Pok Wai South Road, which requires some modifications of existing sloping areas to accommodate the track. The proposed R5 Resting Station is located on existing roadside plantation area hence there is some impact on existing trees. 0.75 ha/6.9 ha (11%)	Given that the proposed cycle track and R5 Resting Station only occupy a small portion of this zone, the track and associated facilities are designed for the enjoyment of both local residents and public, new tree planting is proposed on affected areas to restore the existing landscape character, and that the cycle track and Resting Station will form part of the future open space design, the proposed works would therefore be considered compatible to the planned use and fit into future recreational landscape context with this zone.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
14. Other Specified Uses Comprehensive Development to Include Wetland Restoration Area (OU)	This zone encompasses the area bounded by Kam Tim River, Castle Peak Road – Tam Mi Section, Wing Kei Tsuen, Pok Wai and Man Yuen Chuen. This zone is intended to provide incentive for the restoration of degraded wetlands adjoining existing fish ponds through comprehensive residential and/or recreational development to include wetland restoration area. It is also intended to phase out existing sporadic open storage and port back-up uses on degraded wetlands.	The proposed cycle track runs alongside footpath to the south of Pak Wai South Road and to the north of Kam Pok Road at the western and northern periphery of this "OU" zone which requires only modification of existing footpath or informal track. R6 Resting Station is located within this zone. 0.2 ha/4.8 ha 4%)	Given that the proposed cycle track and Resting Station only occupy a small portion of this zone, the track is designed for the enjoyment of both local residents and general public,and that it will not be a development constraint to the planned CDA development and wetland restoration works, the proposed works are thus considered compatible to the planning intention. The proposed new tree planting alongside of the track and within the Resting Station makes a better integration to the future CDA development.
15. Conservation Area (CA)	This zone encompasses the fishpond areas to the east of Kam Tim River and to the west Wing Kei Tsuen. The planning intention of this zone is to conserve the ecological value of wetland and fishponds, which form an integral part of the wetland ecosystem in the Deep Bay Area. The "no-net -loss in wetland" principle is adopted for any change in use within this zone. The primary intention is to discourage new development unless it is required to support the conservation of the ecological integrity of the wetland ecosystem or the development is an essential infrastructure project with overriding public interest.	The proposed cycle track runs alongside the footpath to the south of Pak Wai South Road at the western periphery of this "CA" zone which requires only modification of sloping areas adjacent to Pak Wai South Road and existing informal track, no fishpond or wetland area will be affected. 0.8 ha/32 ha.(2%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, the track is designed for the enjoyment of both local residents and general public; hence the proposed works will not violate the conservation intention for this area. The proposed new tree planting alongside of the track makes a better integration to the fishpond and wetland landscapes.
16. Residential (Group D) (R(D))	This area encompasses Man Yuen Chuen low-rise village development. This zone is intended preliminary for improvement and upgrading of existing temporary structures within the rural areas through redevelopment of existing temporary structures into permanent buildings. It is also intended for low-rise, low-density residential developments subject to planning permission from TPB.	The proposed cycle track and footpath runs alongside existing channel maintenance access to the north of Kam Pok Road at the western periphery of this "R(D)" zone which requires only modification of roadside areas adjacent to Kam Pok Road, no residential development area will be affected. 0.13 ha/3 ha (4%)	Given that the proposed cycle track only occupies a small portion of this zone adjacent to the existing road, and that the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to the rural and low density developed landscapes.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
Outline Zoning Plan number S/YL-ST/8 San Tin			
17. Residential (Group D) (R(D))	This zone encompasses existing open storage areas to the south of Castle Peak Road – San Tin Section. This zone is intended preliminary for improvement and upgrading of existing temporary structures within the rural areas through redevelopment of existing temporary structures into permanent buildings. It is also intended for low-rise, low density residential developments subject to planning permission from TPB.	The proposed cycle track runs alongside footpath to the north and south of Castle Peak Road at the northern periphery of this " R(D)" zone which requires modification of roadside areas adjacent to road. R8 Resting Station is also located within this zone, some open storage areas will be affected. 1 ha/21.6 ha (5%)	Given that the proposed cycle track and Resting Station only occupies a small portion of this zone adjacent to the existing road, the tack is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to the rural and low density developed landscapes.
18. Village Type Development (V)	This zone encompasses village settlement at San Tin. The planning intention of this zone is to reflect existing recognised and other villages, and to provide land considered suitable for village expansion and reprovisioning of village houses affected by Government project.	The proposed cycle track and footpath runs along existing drainage channel to east of San Tin Tsuen Road at the western periphery of this " V" zone which requires only modification of roadside areas, no existing village area will be affected. 0.8 ha/52.4 ha (2%)	Given that the proposed cycle track only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public; hence the proposed works are compatible to the planning intention for this area. The proposed new tree planting alongside of the track makes a better integration to this rural landscape.
19. Other Specified Uses (COMPREHENSIVE DEVELOPMENT AND WETLAND ENHANCEMENT AREA)	This zone encompasses the fish pond areas at San Tin and Sam Po Shue to the north of San Tin Village Settlement. This zone is intended for conservation and enhancement of ecological value and functions of the existing fish ponds or wetland through consideration of application for development or redevelopment under the "private-public partnership approach" for committed long term conservation and management of the remaining fish ponds or wetland within the development site.	The proposed cycle track and footpath runs along northern side of San Tan Tsuen Road at southern periphery of this "OU" zone which requires only modification of existing drainage channel, informal track and road embankment, no existing fish ponds will be affected. 0.5 ha/171.95 ha (<1%)	Given that the proposed cycle track only occupy a small portion of this zone, the track is designed for the enjoyment of both local residents and general public, it will not be a development constraint to the planned CDA development and wetland restoration works, hence the proposed works are compatible to the planning intention. The proposed new tree planting alongside of the track and within the Resting Station makes a better integration to the future CDA development.

Land Use Zonings	Landscape Planning, Design and Conservation Intention of Zoning	Potential Impacts/Approx. Area Affected by the Proposed Works / Total Zoning Area	Mitigation Measures and Future Outlook of the Area with the Proposed Works
20. Other Specified Uses – Service Station (OU)	This zone encompasses the area adjacent to Lok Ma Chau cross-border custom. This zone intended primarily to provide supporting service facilities such as eating places, petrol filling stations, etc. for the cross-boundary traffic and container related facilities nearby.	The proposed cycle track and footpath runs alongside of San Tin Tsuen Road and San Sham Road through the middle portion of this "OU" zone which requires only modification of roadside areas, no existing facilities will be affected. 1.2 5ha/17.5 ha (7%)	Given that the proposed cycle track only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public, it will not be a development constraint to the planned development, and hence the proposed works are compatible to the planning intention. The proposed new tree planting alongside of the track makes a better integration to the existing and planned development.
21. Undetermined – Reserved for the planned KCR Spur Line and Northern Link (U)	This zone encompasses the area reserved for the planned KCR Lok Ma Chau Spur Line, which currently occupied by car parking facilities and Cross Boundary Shuttle Bus San Tin Terminus.	The proposed cycle track runs along the existing drainage channel to the south of San Tin Terminus to the north at the southern periphery of this "U" zone which requires only modification of existing drainage channel and roadside areas, reserved area will be slightly affected. 0.8 ha/25.5 ha (3%)	Given that the proposed cycle track only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public, it will not be a development constraint to the planned railway development, and hence the proposed works are compatible to the planning intention. The proposed new tree planting alongside of the track makes a better integration to the future railway development.
22. Green Belt (GB)	This zone encompasses the existing roadside greening area at Chau Tau. The planning intention of this zone is to define the limits of urban and suburban development areas by natural features, to contain urban sprawl as well as to provide passive recreational outlets.	The proposed cycle track runs alongside footpath to the north of Castle Peak Road and existing nullah at the southern periphery of this "GB" zone which requires some modification of roadside planting areas. 0.8 ha/179.6 ha (<1%)	Given that the proposed cycle track only occupies a small portion of this zone, the track is designed for the enjoyment of both local residents and general public, and hence the proposed works are compatible to the planning intention. The proposed new tree planting alongside of the track makes a better integration to the Green Belt.

12.6 Existing Landscape Baseline

Baseline Conditions

12.6.1 The baseline review of the existing landscape establishes the broad characteristics, identifies landscape resources, and then provides a characterisation and evaluation of the identified Landscape Character Areas (LCAs).

12.6.2 **Figure 12-2A** and **Figure 12-2B** show the existing LRs found within the 500 m Study Area. **Figure 12-3A** to **Figure 12-3F** illustrate existing trees located with the works area. **Figure 12-4A** to **Figure 12-4K** show the extent of identified LCAs and **Figure 12-5A** and **Figure 12-5B** demonstrate the quality of LCAs with site photographs.

Topography

12.6.3 The topography of the Study Area is characterised by a highway, river and drainage channel corridors leading the flat coastal plain landscapes of Nam Sang Wai and Mai Po and rural fringe landscapes of Sha Po, Ngau Tam Mei, San Tin, Kwu Tung, Long Valley and Ho Sheung Heung on either sides of the corridors. The highway corridors of Castle Peak Road, Yuen Long, Tsing Lung, San Tin and Fanling Highways are characterised by mature plantation on either sides of carriageway and in the central medians, probably have been established over 10 years associated with the construction of these highway structures. The coastal plain and rural fringe landscapes are interspersed with partially engineered rivers and drainage channels including Kam Tin, Sheung Yue and Shek Sheung Rivers and Ngau Tam Mei Drainage Channel. The majority of these riverside landscapes is dominated by maintenance access and stepped engineered structures in combination with some edge planting along the outer sides of maintenance access. However, some narrow meandering stream courses extending from the main courses adjacent to village areas are restored to their naturalistic appearance after the implementation of current drainage improvement works for the whole NWNT.

12.6.4 The coastal plain landscapes of Nam Sang Wai and Mai Po are characterised by extensive fish pond areas extending to Deep Bay and scattered village settlements to the east adjacent to the road and highway corridors, the area compiles of scattered villages, low-rise residential developments, open storages, agricultural fields and is occasionally punctuated by drainage structure, vegetated knolls and strands of woodland.

12.6.5 The rural fringe landscapes of Sha Po, Ngau Tam Mei, San Tin and Kwu Tung located on either side of the highway corridors are largely dominated by open storages and warehouses, where the sites were formed by reclaiming the abandoned fishponds or agricultural fields. Scattered villages, remaining agricultural fields and strands of woodland intersperses this unpleasant industrial landscape. With exception of Long Valley and Ho Sheung Heung alongside of Sheung Yue River, some fishponds and agricultural fields within these areas are still active with nearly no evidence of site filling activities. Given these reasons, the original rural landscape is hence to be preserved.

12.6.6 Extending further to the southeast, the uplands of the Lam Tsuen Country Park rising to the summits of Kai Kung Leng at 585 mPD and Ki Lun Shan at 222 mPD encloses the rural fringe landscapes of Ngau Tam Mei, Mai Po and Shek Wu Wai at the lowlands. To the north, the uplands separate Lok Ma Chau and Kwu Tung rising to the summits of Ma Tso Lung at 108 mPD and Tai Shek Mo at 183mPD which forms the green backdrop to rural fringe landscapes of Chau Tau, Kwu Tung and Ho Sheung Heung in view from the south.

Vegetation

12.6.7 The vegetation contained within the Study Area has for the large part been considerably modified by human activity and so the existing pattern of vegetation represents a variation from the natural regime or climax vegetation, which would naturally occur in this area. This reflects the historical development of the area particularly for agricultural practices including the extensive fishponds and agricultural field areas, village development, open storage and more recently the infrastructure development such as Yuen Long, Tsing Lung, Fanling and San Tin Highways and KCR Lok Ma Chau Spur Line. The main vegetation pattern is characterised by four main vegetation types associated with road corridors, the traditional fishpond areas, agricultural fields and wooded hill slopes which punctuate the coastal plain and rural fringe area. The main vegetation types are described in greater detail as part of the landscape resources section below.

12.6.8 **Figure 12-2A** and **Figure 12-2B** give a broad indication of the existing vegetation cover within the Study Area.

Land Use

12.6.9 The Study Area is characterised by a combination of the following land uses:

- Natural and undeveloped areas, particularly the upland areas including the Lam Tsuen Country Park, Ki Lun Shan, Ma Tso Lung and Tai Shek Mo, although these areas are crossed in a number of places by walking trails;
- Scattered village settlements alongside of Castle Peak Road, San Tin and Fanling Highways such as Sha Po Tsuen, Pok Waim Chuk Yuen Tsuen, Ngau Tam Mei Tsuen, Mai Po Tsuen, Shek Wu Wai, San Tin, Kwu Tung and Ho Sheung Heung;
- Extensive low-rise residential developments to the west of San Tin Highway including Fairview Park, Royal Palms and Palm Springs;
- Agricultural landscapes, both active and abandoned located largely at the coastal plain and the base of the surrounding uplands punctuated by low-rise traditional village settlements in areas such as Chuk Yuen Chuen, Sha Po Tsuen, Mai Po Tsuen, Ho Sheung Heung and Long Valley;
- Extensive open container storage sites alongside of Castle Peak Road, San Tin and Fanling Hignways;
- Large scale cross-border infrastructure development such as KCR Lok Ma Chau Spur Line and interchange of Cross Boundary Shuttle Bus Terminus at San Tin; and
- Medium-rise industrial developments to the west of Shek Wu Hui at Sheung Shui.

12.7 Landscape Impact Assessment

Landscape Resources

12.7.1 The important determinants of the landscape character within the Study Area includes a combination of fishponds, agricultural fields, village settlements and open storage intersected by road corridors and remnants of natural upland landscapes. These landscape resources (LRs) are shown on **Figure 12-2A** and **Figure 12-2B**. The following LRs are identified within the Study Area:

- *LR1 Major Road and Highway* – It is a major infrastructure component in NWNT and bisects original village settlements, a significant urban intrusion in coastal plain and rural landscapes. Major highway and road contained within the Study Area including Castle Peak Road, Fanling Highway, San Tin Highway, Pok Wai Road, San Tin Tsuen Road, and maintenance access alongside of Kam Tin River, Ngau Tam Mei Channel, Shek Sheung River and Sheung Yue River. This resource has relatively low landscape and amenity value which is able to accommodate extensive change, hence, is considered to have a *low* sensitivity to change.
- *LR2.1 Settlement* – Village settlements are scattered alongside of the major road corridors in coastal plain and adjacent to lowland rural landscapes. The majority are village settlements comprised of 3-storey town houses. Extensive low-rise residential developments are found to the northwest of Ngau Tam Mei Drainage Channel including Fairview Park, Royal Palms and Palm Springs. This resource is man-made landscape able to accommodate change, hence, is considered to have a *medium* sensitivity to change.
- *LR2.2 Settlement* –Open storage is one of major urban intrusion in NWNT, regarding to the rapid development of transportation and trading between Hong Kong and China, there is an increasing demand on container storage areas since 1980s. New storage place in urban area is very limited, hence, some abandoned agricultural fields adjacent to village settlements in NT were reclaimed into a concrete platform for open container storage regarding to their location proximity to cross-boarder road corridors. This urban intrusion is unpleasant and visually not compatible to the rural landscapes and these open storage developments in NT are being controlled since 1990s. This resource is able to accommodate extensive change, hence, is considered to have a *low* sensitivity to change.
- *LR3 Mixed Woodland* – patches of mixed woodland strands or vegetated knolls are interspersed with village settlements, particularly to the east of Mai Po Tsuen and to the west of Ho Sheung Heung. It forms green islands in the lowland rural landscape. It is well established before the urban components such as open storage and infrastructure being appeared in NWNT. Majority of this resource remains untouched in the development of NWNT, hence becomes locally significant in the landscape context, and susceptible to small changes. Sensitivity of LR3 to change is considered to be *high*.
- *LR4 Plantation* – It appears in form of roadside, riverside or channelside planting served as buffer planting between village settlements and major corridors such as Castle Peak Road, San Tin and Fanling Highways or formed part of mitigation measures to drainage works at Ngau Tam Mei Drainage Channel, Kam Tin River and Sheung Yue River. Those plantations located along road corridors are more established than those along watercourses due to the early infrastructure development in the area since

1980s whilst the drainage improvement works was started in mid-90s. It contributes to the local landscape context in form a group not as individual trees due to majority of them are fast growing non-native species, commonly found in roadside planting areas in Hong Kong and has high tolerant to pollution being planted adjacent to busy road traffic. It is also usually planted in a close planting distance to create an instant effect along the corridors. This resource has less ecological and landscape value than the mixed woodland and reasonably tolerate to changes, hence it is considered to have a *medium* sensitivity to change.

- *LR5 Grassland/Shrubland Mosaic* – Grassland area is a disturbed area formed by reclamation of abundant agricultural fields, majority of it is found to the east of Fairview Park and to the north of Mai Po Tsuen. Mixture of grassland and shrubland is found at the lower hill-side Kei Kung Leng and Ki Lun Shan, it is common landscape feature at the lower hill-sides approaching to village settlements in NT. This resource has relatively low significance in the landscape context and reasonably tolerant to changes regarding to their immature nature, hence it is considered to have a *medium* sensitivity to change.
- *LR6 Agricultural Field* – Fields are scattered within the village settlement for agricultural purposes. Based on the habitat maps (**Figure 9-1** to **Figure 9-4**), all fields categorised under LR6 are active, particularly of those within the Long Valley and Ho Sheung Heung. Its coverage within the Study Area is getting smaller as a result of the decline of agricultural activities in Hong Kong. Regarding to its nature, landscape is original formed for agricultural purposes, it has relatively low landscape value and able to accommodate extensive changes. It is considered to have a *low* sensitivity to change.
- *LR7 Fishpond* – Majority of fishponds is extending from the Deep Bay coastal plain and invades into the rural landscape to the further west of Kam Tin River, Castle Peak Road and San Tin Highways. Most of them are abandoned and naturalised and becoming regionally significant landscape resource and distinctive in NWNT. It is susceptible to small change, hence is considered to have a *high* sensitivity to change.
- *LR8 Modified Watercourse*- Section of Kam Tin River, Sheung Yue River and Shek Sheung River within the Study Area are widened or modified in phases for drainage improvement of coastal plain and lowland areas in NWNT since 1990s to resolve the flooding problem in these areas. Ngau Tam Mei Drainage Channel is a completely man-made channel in context. Although these watercourses largely disturbed by engineering works, they are still scenic elements in the local landscape context. They are reasonably tolerant to changes, hence it is considered to have a *medium* sensitivity to change.
- *LR9 Wetland* – Majority of them are natural marshland located on the north of Long Valley, to the west of Sha Po Tsuen and scattered along Sheung Yue River whilst the other are currently regenerated marshland located on the riverbank to the north of Kam Tin River. Although it is not very mature and found in piecemeal pattern, it is regionally important and distinctive landscape resource in Hong Kong. It is susceptible to small change, hence is considered to have a *high* sensitivity to change.

12.7.2 For the purposes of this assessment the landscape resources are represented by the existing land coverage. The condition of these landscape resources is also important in determining the landscape quality of the Study Area and its sensitivity

to change as described above. Therefore the preservation and enhancement of the existing landscape resources is important to the successful integration of the proposals into the landscape context of the Study Area. The following describes the impact on landscape resources due to the proposed works.

Existing Trees

12.7.3 A preliminary tree survey in accordance with ETWB TCW No. 3/2006, 'Tree Preservation' has been undertaken by IDC consultants formed part of the landscape resources assessment in this LVIA. This tree survey involves the identification of individual trees within or adjacent to the works area, which is 2 to 6 m offset from either sides of the proposed cycle track alignment and site boundary of associated supporting facilities and temporary works area. Although there are other existing trees located within the 500 m LVIA study boundary, they are not in conflict with the proposed works, and hence the tree survey is limited to the works area and not the whole LIA Study Area.

12.7.4 The survey includes individual tree species, sizes, health condition, form, and amenity value and their treatment as a result of the implementation of proposed works. Preliminary Tree Survey Plans are presented in **Figure 12-3A** to **Figure 12-3H**, Tree Schedule is enclosed in **Appendix 12-1**.

12.7.5 The assessment found an approximate total number of 1,626 trees (plus 15 dead trees) within the tree survey boundary, with 1,580 trees within the proposed cycle track works area, 18 trees within the proposed Resting Station R5 area and 28 trees within Resting Station R9 Information Kiosk area. No trees were found within the proposed Resting Stations R6, R7 and R8 areas.

12.7.6 Tree species mainly are non-native originating in Australia, India, Indonesia and Malaysia. Majority of them are roadside trees along Castle Peak Road and plantation alongside of modified watercourses or drainage channel which were planted associated with the infrastructure or drainage works. The main species within the tree survey boundary include *Acacia auriculiformis, Acacia confuse, Albizia lebbek, Casaurina equisetifolia, Eucalyptus camaldulensis, Eucalyptus citriodora, Hibiscus tiliaceus, Leucaena leucocephala, and Melaleuca leucadendron.* There are also some native species found associated with roadside plantation, on the edge of village settlements, on vegetated knolls and agricultural fields. They are originally planted associated with the village development or naturally generated, such as *Celtis sinensis, Ficus microcarpa, Ficus hispida and Macaranga tanarius.*

12.7.7 No Registered Old and Valuable Trees (OVTs) were found within the works area. However the survey identified five potential Old and Valuable Trees (OVTs) within the works area including *2-T074 Ficus microcarpa, 2-T119 Chrysalidocarpus lutescens, 2-T176 Ficus superba var. japonica, 4-T267 Ficus elastica, and 4-T300 Ficus elastica*. They have a DBH over 1000 mm and exhibit a medium to good form and condition and have a high amenity value making great contribution to the roadside landscape context, therefore they meet the criteria for identification of OVT in accordance with ETWB TCW No, 29/2004 Registration of Old and Valuable Trees, and Guidelines for their Preservation.

12.7.8 No rare or protected tree species were found in accordance with the Forests and Countryside Ordinance (Cap. 96).

Tree Retention

12.7.9 As mentioned in the Project description in the previous section, the alignment of the cycle track and the location of Resting Stations and Information Kiosk have been reviewed to maintain as far as possible the existing individual or group of trees which have great contribution to the local landscape context. Based on the findings of the preliminary tree survey it is estimated that approximately 113 trees (7%) can be retained in their current locations including four potential OVTs, *2-T074 Ficus microcarpa, 2-T176 Ficus superba var. japonica, 4-T267 Ficus elastica,* and *4-T300 Ficus elastica,* within the works area.

Tree Transplantation Proposals

12.7.10 In terms of assessing the feasibility of transplanting the existing trees a number of factors have been considered including their form, health and amenity value. Also considered was the existence of rare and native species, the accessibility for machinery required for transplantation; age; and the availability and technical feasibility of providing recipient sites for the transplanted trees have been considered.

12.7.11 Based on the preliminary tree survey and with consideration for the factors described above it is recommended that 792 (49%) of the existing trees are suitable for transplantation including the potential OVT, *2-T119 Chrysalidocarpus lutescens*. This transplantation will be required due to the implementation of the proposed works. The trees identified for transplantation include those of fair to good form and health condition having contribution to the local landscape context, relatively younger and accessible to machinery. Tree species, such as *Bombax ceiba* and *Roystonea regia* also have a higher survival rate after transplantation, and where possible native species such as *Ficus spp.* which have high ecological and landscape value and good tolerant in changing growing condition, are recommended to be transplanted. These suitable candidates will be transplanted to the future amenity areas along the cycle track adjacent to their current locations. Potential recipient location of these transplanted trees are shown in **Figure 12-9I** to **Figure 12-9P** Conceptual Landscape Master Plan.

Tree Felling Proposals

12.7.12 As a result of construction it was found that it would not be feasible to retain or transplant approximately 721 (44%) of the existing trees for the following reasons:

- In some locations the scope of the proposed works precludes any opportunities to retain existing trees, regarding to spatial constraint, particularly in the works areas between existing village settlement, roads and highways, watercourses and drainage channels. However for a large part these trees are non-native roadside trees having lower individual ecological and amenity value, including approximately 479 *Acacia auriculiformis, Acacia confuse, Acacia mangium, Casaurina equisetifolia, Eucalyptus camaldulensis, Eucalyptus citriordora, Eucalyptus robusta, Leucaena leucocephala*, this equates to 68% of the total number of felled trees.
- A minimum width of 4 m cycle track and associated 2 m wide footpath at selected locations is required to ensure safety for future cyclists in accordance with the TPDM. In fact some cycle track sections at Castle Peak Road – San Tin section and Chau Tau section are designed with a non-

standard width of 3.5 m to minimize the impact on roadside tree. Hence it is technically unfeasible to retain the trees within the works area.

- The trees are of poor health, condition and form.

Tree Survey Summary

12.7.13 Tree findings and recommendation of their treatment are summarised in the following table.

Table 12-5 Summary of Tree Survey

Works Area	Total No. of Trees	Tree Retained	Tree Transplanted	Tree Felled	Dead Trees to be removed
Cycle Track Alignment Approx.15 km long cycle track (track 3.5 m to 4 m in width associated with 2 m wide footpath at selected sections and 2 to 4 m wide works corridor along either sides of the track)	1,580	110	762	708	Plus 15
R5 (280 $m^{2)}$	18	3	13	2	-
R6 (630m^2)	0	-	-	-	-
R7 (220 m^2)	0	-	-	-	-
R8 (300 m^2)	0	-	-	-	-
R9 cum Information Kiosk (1,140 m^2)	28	0	17	11	-
Total	1,626	113 (7%)	792 (49%)	721 (44%)	Plus 15

Notes: The above tree recommendation is based on the tree survey report prepared by IDC consultants under Agreement No. CE22/2006(HY). This tree report has been circulated to relevant departments for comment, hence subject to be reviewed, and a formal tree felling, transplanting and compensatory proposals will be submitted to departments for approval during the detailed design stage.

12.7.14 The finding and recommendation of the preliminary tree survey report is subject to the completion of a detailed tree survey and felling application in accordance with ETWB TCW No. 3/2006, Tree Preservation. This will be conducted during the detailed design stage of the project by IDC consultants. The methodology and scope including the programme for the tree survey and felling application would be subject to the approval of the relevant authorities namely DSD, HyD, LCSD and AFCD separately under Agreement No. CE22/2006(HY).

Impact on Existing Landscape Resources

12.7.15 **Table 12-6** presents the predicted unmitigated and mitigated (residual) impacts on the existing landscape resources resulting from the proposed works during the construction and operational phases of the project. These impacts also are mapped on **Figure 12-3A** to **Figure 12-3H** and **Figure 12-6A** to **Figure 12-6H**. The mitigated (residual) impacts are assessed during the design year for the purpose of this study and is taken as being between 10 and 15 years after the schemes

opening when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives.

12.7.16 The scale of the proposed works are relatively small and are fairly compatible to the landscape context. Hence, there will be no significant adverse impacts to all existing LRs.

Moderate

12.7.17 The temporary removal of 8% existing roadside plantation (LR4), including tree and shrub planting, alongside of existing footpath, drainage channel, on roadside embankment is relatively small with respect to the total area of these resources within the Study Area. Given that the scale of the Project is relatively small along the entire alignment (approximately 15 km long), the magnitude of change to LR4 is relatively small. Besides, it is also noted that majority plantation in the affected areas are immature which is planted associated with recent road and drainage improvement works particularly at Kam Tin River, Nagu Tam Mei Channel, San Tin Tsuen Road and Sheung Yue River. Hence the implementation of this Project will lead to only a moderate adverse impact to the roadside plantation. This loss of LR will be mitigated through new ornamental tree and large feature tree planting alongside of the track and within the Resting Stations.

Slight

12.7.18 The scale of the project will lead to a relatively small loss of existing footpath of the Major Road and highway (LR1) (3%) and the Settlement (LR2.1) (1%). The reprovision of footpath and new amenity areas alongside the track will upgrade these existing resources, and the nature of the cycle track is highly compatible with the roadside, village and industrial landscape resources. Hence the magnitude of change to these resources is relatively small during both the construction and operation phase. Given the low to medium sensitivity to change of these LRs and the relatively small change to these resources, there will be slight impact on the Major Road and Highway (LR1) during construction and operation phase. Similar to LR1,the Settlement (LR2.1) will also subject to a slight adverse impact during both construction and operation phase as the impact only limits to the change at the interface areas between existing footpath and edge of village settlements or open storage areas. There is no evidence that any village house will be affected. Furthermore the reprovision of footpath and amenity areas alongside the track will upgrade these resources through fully establishment of new roadside and amenity planting.

12.7.19 The implementation of the project will lead to some minor loss of 3% of Grassland and Scrubland Mosaic (LR5) and 4% of Agricultural Field (LR6) and Modified Watercourse (LR8). The scale of the project is locally restricted to the roadside or riverside areas. The loss of Grassland and Scrubland Mosaic (LR5) and Agricultural Field (LR6) located on existing roadside embankment or amenity areas along the channelside maintenance access is temporary in nature. These affected areas will be reinstated through new tree and shrub planting along the track and within Resting Station. Minor modification of drainage channels along Castle Peak Road, Fanling Highway and San Tin Highway and adjacent to maintenance access to Mai Po flood water pumping station, Shek Sheung River channel embankment and modification of existing footbridge to cycle bridge across the River at Sheung Shui will temporarily disturb the Modified Watercourse (LR8). However these resources will be reinstated upon the completion of the Project. Given the scale,

nature and compatibility of the project, the magnitude of change to the above resources is small and the impact to these LRs will be slight adverse during construction and operation phase.

Negligible

12.7.20 Given that there is no or perceptible change (equal or less than 1%) on the Open Storage (LR2.2), Mixed Woodland (LR3), Fishpond (LR7) and Wetland (LR9), therefore there is negligible impact on these resources.

12.7.21 The assessment contained in **Table 12-6** concluded that even though there is slight/moderate to slight impact on some of LRs, the majority of the works areas will be reinstated to their original status or provided with new planting areas along the track. In combination with tree preservation proposals, these will mitigate the loss with ecological and landscape incentives. The proposal achieves a net gain of plantation in the existing landscape context as shown in **Figure 12-9I** to **Figure 12-9P** Conceptual Landscape Master Plan that will upgrade the unpleasant interface between roadside and village settlement and abandoned agriculture fields; hence a beneficial impact is expected with landscape mitigation measures fully established. The recommended landscape mitigation measures and residual impact on these LRs is further discussed in Sections 12.10 and 12.12.

Table 12-6 Existing Landscape Resources and Predicted Impacts

Landscape Resource	Sensitivity	Total Area of Resource (Ha) / Loss (Ha) / % Loss	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LR 1 Major Road and Highway	Low	60/ 2 3%	High	Very Small	Medium	Small/ Small	Slight Adverse	Slight Adverse	CP3, OP1 and OP4.	Slight Adverse	Slight Beneficial (Upgrade existing informal track and footpath)
LR 2.1 Settlement	Medium	821/ 5 1%	Medium	Very Small	Medium	Small/ Small	Slight Adverse	Slight Adverse	CP3, OP1 and OP4.	Slight Adverse	Slight Beneficial (Extensive new tree planting along track)
LR 2.2 Open Storage	Low	64/ 0.6 1%	High	Very Small	Medium	Small/ Small	Negligible	Slight Beneficial	CP3, OP1 and OP4.	Negligible	Slight Beneficial (Extensive new tree planting along track)
LR 3 Mixed Woodland	High	41.5 / 0.15 <1%	Medium	Very Small	Medium	Negligible/ Negligible	Negligible	Negligible	CP1 to CP5 and OP 1 to OP5	Negligible	Negligible (Extensive new tree planting along track)

Landscape Resource	Sensitivity	Total Area of Resource (Ha) / Loss (Ha) / % Loss	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LR 4 Plantation	Medium	60 / 5 9%	Medium	Very Small	Medium	Small/ Small	Moderate Adverse	Moderate Adverse	CP1 to CP5 and OP 1 to OP6	Moderate Adverse	Slight Adverse (Extensive new tree planting along track)
LR 5 Grassland/ Scrubland Mosaic	Medium	156/ 3.5 3%	High	Very Small	Medium	Small/ Small	Slight Adverse	Slight Adverse	CP1 to CP5 and OP 1 to OP6	Slight Adverse	Slight Beneficial (Extensive new tree and shrub planting along track)
LR 6 Agricultural Field	Low	112/ 4 4%	Medium	Very Small	Medium	Small/ Small	Slight Adverse	Slight Adverse	CP1 to CP5 and OP 1 to OP5	Slight Adverse	Slight Beneficial (Extensive new tree and shrub planting along track)
LR 7 Fishpond	High	161 / 0 0%	Low	Very Small	Medium	Negligible/ Negligible	Negligible	Negligible	CP1 to CP4, OP 1, OP2 and OP4	Negligible	Negligible

Landscape Resource	Sensitivity	Total Area of Resource (Ha) / Loss (Ha) / % Loss	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LR 8 Modified Watercourse	Medium	58 / 2.5 5%	Medium	Very Small	Medium	Small/ Small	Slight Adverse	Slight Adverse	CP1 to CP4, OP 1, OP2 and OP4	Slight Adverse	Slight Beneficial (Reinstate the drainage channel and Extensive new tree and shrub planting along track)
LR 9 Wetland	High	119 / 0 0%	Low	Very Small	Medium	Negligible/ Negligible	Negligible	Negligible	CP1 to CP4, OP 1, OP2 and OP4	Negligible	Negligible

Key:

Sensitivity of Resource / Magnitude of Change: Low, Medium or High / Negligible, Small, Intermediate or Large

Significance Threshold: Negligible, Slight, Moderate and Significant (adverse or beneficial)

Residual Impacts: Refer to matrix in Section 12.3.24.

Landscape Character

12.7.22 The landscape character of the Study Area adjacent to the Nam San Wai and Mai Po in the northwest New Territories is strongly influenced by the traditional fishponds which characterise the low lying coastal plain extending to Deep Bay bisecting by Kam Tin River and Ngau Tam Mei Drainage Channel. The lowland rural landscape alongside of major roads and highways, including Castle Peak Road, Yuen Long, Tsing Long, San Tin and Fanling Highways, is another dominant character in NWNT.

12.7.23 The rural landscape is disturbed by busy road traffic along road corridors as well as extensive open container storage areas originally reclaimed from abandoned fishponds and agricultural fields. With exception of areas within Ho Sheung Heung and Long Valley alongside of Sheung Yue River and Shek Sheung River, where the majority of fishponds and agricultural fields remains active with very limited urban intrusion, these areas have a distinctive different character to the areas adjacent to major road corridors. The relationship between urban components, such as road corridors, open container storage and cross-border facilities, and rural components, including fishpond, agricultural fields, scattered village settlements, wooded knolls and roadside plantation, is important to the landscape character of the Study Area. **Figure 12-4A** to **Figure 12-4K** show the location of the LCAs, which form the Study Area, and **Figure 12-5A** and **Figure 15-5B** contain photographic records of these LCAs.

12.7.24 **Table 12-7** below determines the sensibility of the following LCAs to accommodate changes. **Table 12-8** identifies the magnitude of change and the potential impacts on these LCAs and the residual impact with recommended landscape mitigation measures fully established.

- *LCA1 Yuen Long and Tsing Lung Infrastructure Landscape* – The area is dominated by infrastructure components such as modified Kam Tin River, Tsing Long Highway and Castle Peak Road bisecting Kam Tin and Yuen Long lowlands. Section of Tsing Long Highway in the area was built in form of viaduct over Kam Tin River and section of Kam Tin River underneath the viaduct was recently modified in form of concrete base drainage channel. Given this urbanised character, the sensitivity to change of this LCA is low.
- *LCA2 Sha Po Tsuen Lowland Rural Landscape* – it refers to the lowland plain and village settlement located to the east of Castle Peak Road. The area is characterised by open storage, agriculture fields and fish ponds which the majority of them is abandoned, and 3-storey village houses. Given this rural character is typical throughout NWNT and majority area is degraded by the occupation of open storage and warehouse, the sensitivity of this LCA is medium.
- *LCA3 Kam Tin Riverside Landscape* – The area is dominated by a combination of abandoned and active fish ponds at Nam San Wai and Tai San Wai extending the wetland landscape character from Deep Bay estuary across the plain to Mai Po at further northeast in distance. The fish pond area is bisected by Kam Tin River and Ngau Tam Mei Channel with a few industrial intrusions such as open storage and warehouse located to the eastern edge of the area approaching to San Tin Highway. Given the majority of the area has no evidence of urban intrusion, it has high regional landscape and ecology significance, the sensitivity of this LCA is high.

- *LCA4 Fairview Park Extensive Low-rise Residential Landscape* – The area is dominated by 3-storey low-rise development alongside of Ngau Tam Mei Drainage Channel including Fairview Park, Man Yuen Chuen and Royal Camelia interspersed with open storage and warehouse along main access roads. These low-rise residential developments are usually fenced by 2m high boundary wall with only some direct access to the Ngau Tam Mei Drainage Channel. This channel is extensively engineered with maintenance access and alongside planting strip. The main access roads in the area such as Pok Wai South Road, Yau Pok Road and Fairview Park Boulevard are usually full of container vehicles and other heavy duty vehicles travelling across the border to the local storage areas. Given the majority of area is built environment with heavy vehicular traffic travelling through the area, the sensitivity to change of this LCA is medium.
- *LCA5 Tam Mei Lowland Rural Landscape* – The area is dominated by open storage interspersed with abandoned agriculture fields and fishponds alongside of Ngau Tam Mei Drainage Channel and scattered 3-storey village developments alongside of Castle Peak Road and San Tin Highways including Chuk Yuen Tsuen and Yau Mei San Tsuen. This rural lowland character is typical in NWNT. Plantation is immature along channelside but more established along San Tin Highway. Given that majority of area is built environment for open storage and warehouse, the sensitivity to change of this LCA is medium.
- *LCA6 Mai Po Fringe Extensive Low-rise Residential Landscape* – The area is located to the south of Mai Po San Tsuen and to the north of Fairview Park alongside of Castle Peak Road and San Tin Highway. It is characterised by 3-storey low-rise residential developments, usually fenced with 2m high boundary wall, and interspersed with open storage, abandoned agriculture fields and fishponds. Major developments are Royal Palms, Casa Paradizo, Maple Garden, Rolling Hills etc. The area is bisected by multi-lane road and highway with mature roadside buffer planting. Given the majority of area is built environment, the sensitivity to change of this LCA is medium.
- *LCA7 Mai Po Lowland Rural Landscape* – This area is dominated by nature reserve buffer zone extending from Mai Po Nature Reserve and open stage and village settlement alongside of Castle Peak Road and San Tin Highway. The northwest portion of this LCA remains very natural composed of abandoned agricultural fields and fishponds in the reserve buffer zone. Some plantation remains in the fields whilst very few plantations are found in the fishpond area. On the contrary, further to the southeast outside the buffer zone, extensive open storage, warehouse and scattered village settlement such as Mai Po San Tsuen, Mai Po Lo Wai and Shek Wu Wai are setting around vegetated knolls in the area. Vegetation in the context includes plantation along road and highway. A few of them established within the village settlement and secondary woodland on the knolls remain untouched during the previous village and infrastructure developments. There is a contrast of natural and industrial landscapes in this LCA. Given the significance of this LCA located adjacent to nature reserve buffer zone and the maturity of mixed woodland in the context, its sensitivity to change is high.
- *LCA8 San Tin Lowland Rural Landscape* –Similar to LCA7, contrasting landscapes, between natural and industrial, are also found in this LCA. Reserved fishponds are located to the northwest portion whilst extensive open storage, warehouse and scattered village settlement such as San Tin

Village are located alongside Castle Peak Road and San Tin Highway. Vegetated lowland extending from Kei Lung Shan dominated to the southeast edge of this LCA. Other plantation is found in roadside amenity area. Given the contrasting landscape character in the context and this LCA is located adjacent to extensive cross border infrastructure to Lok Ma Chau, its sensitivity to change is medium.

- *LCA9 San Tin Cross-border Infrastructure and Facilities Landscape* – As mentioned above, cross-border infrastructure and associated facilities to Lok Ma Chau dominate the area. Roadside vegetation is found recently established associated with the infrastructure development. Other than that majority of the area is hard paved to the north of San Tin Highway. To the south of Fanling Highway is characterised by vegetated lowland extending from Kei Lung Shan. Given the dominant industrial landscape character in the context, its sensitivity to change is low.
- *LCA10 Kwu Tung Lowland Rural Landscape* – The area is characterised by extensive open storage, warehouse and scattered Kwu Tung village settlement alongside Castle Peak Road and Fanling Highway. These road and highway are major artery for heavy vehicles travelling to and from the border. To the south of Fanling Highway, lowland vegetated area extending from Kei Lung Shan interspersed with scattered village settlement dominates the context. Given the combination of industrial and village landscape character in the context, its sensitivity to change is medium.
- *LCA11 Long Valley and Ho Sheung Heung Lowland Rural Landscape* – Long Valley has both ecology and landscape significance in the region regarding to the natural regeneration of wetland habitat in the abandoned agriculture fields and fishponds alongside of Sheung Yue River and Shek Sheung River. These two rivers were extensively modified to serve as major drainage channel for this lowland area. The area is characterised by Long Valley in the centre with Ho Sheung Heung village settlement located to the north near the border, Yin Kong, Kam Tsin and Hak Ka Wai village settlement to the south alongside of Castle Peak Road and Fanling Highway. Mature vegetation is found alongside of Castle Peak Road and Fanling Highway whilst immature plantation is found along riverside which recently established upon to the completion of NWNT drainage improvement works. Given the regional significance of the area, the sensitivity to change of this LCA is high.
- *LCA12 Sheung Shui West Industrial Landscape* – The area is characterised by industrial landscape composed of medium-rise industrial buildings to the east of Shek Sheung River at the urban fringe of Sheung Shui Town. The local context is highly urbanised and in contrast with Long Valley lowland rural landscape located at the opposite side of Shek Sheung River. Vegetation is only found along the major roads and riverside areas. Given the above reason the sensitivity to change of this LCA is low.

Table 12-7 Sensitivity of LCAs

	LCA1	LCA2	LCA3	LCA4	LCA5	LCA6
Quality	Low	Medium	High	Medium	Medium	Medium
Important/ Rarity	Low	Low	High	Medium	Medium	Medium
Ability to accommodate change	Medium	Medium	Low	Medium	Medium	Medium
Significance	Low	Low	High	Medium	Low	Medium
Maturity	Low	Medium	High	Medium	Medium	Medium
Sensitivity	Low	Medium	High	Medium	Medium	Medium
	LCA7	LCA8	LCA9	LCA10	LCA11	LCA12
Quality	High	Medium	Low	Medium	High	Low
Important/ Rarity	High	Medium	Low	Medium	High	Low
Ability to accommodate change	Low	Medium	High	Medium	Low	High
Significance	High	Medium	Low	Medium	High	Low
Maturity	High	Medium	Low	Medium	High	Low
Sensitivity	High	Medium	Low	Medium	High	Low

Impact on Existing Landscape Characters

12.7.25 Regarding to the scale of the proposed works extent is relatively small, majority of works area utilised roadside area of existing roads, drainage channel or maintenance access along rivers and drainage channels, and no massive or high profile built structures are proposed within the Resting Stations, hence the proposed works are fairly integrated with the local landscape characters. There is no significant adverse impact to all existing LCAs. Impacts on LCAs are mapped on **Figure 12-4A** to **Figure 12-4K**.

Moderate

12.7.26 The proposed works running along Pok Wai Nam Road and for Resting Station R5 at the southern periphery of LCA3 Kam Tin Riverside Landscape will utilise existing roadside areas far away from Nam San Wai and Tai San Wai fishpond areas. There will be no direct impact to the fishpond and the affected roadside plantation will be reinstated upon the completion of the works. The built structures along cycle track and within Resting Station are designed with low building height profile and relatively small in scale, therefore the cycle track and its supporting facilities will form a minor component in such a large extended context. Given the above reasons the magnitude of change to LCA3 is small and hence a moderate impact is

predicted during construction and operation phase.

12.7.27 Similar to LCA3, another section of proposed cycle track running on existing dam and maintenance access of Mai Po Floodwater Pumping Station and Resting Station R8 located to the east of Shek Wu Wai Road within LCA7 Mai Po Lowland Rural Landscape will also form a small component in the landscape context through planning the alignment on existing road and open channel and Resting Station on vacant government land and reinstate majority works area to their original status or new amenity area. Given that the magnitude of change on this LCA is small, a moderate impact is predicted during construction and operation phase.

12.7.28 Similar to the above LCAs, proposed works along the maintenance access of Sheung Yue River and Shek Sheung River is relatively small in the context, and there will be no direct impact to the high significant area. The magnitude of change to LCA11 Long Valley and Ho Sheung Heung Lowland Rural Landscape is small and hence a moderate impact is predicted during construction and operation phase.

Slight

12.7.29 Given the combination of residential and industrial setting dominated in the rural landscape context typical in NWNT, the works, including cycle track and Resting Station R6, R7 and R8, is limited to roadside and open channel areas within LCA4 Fairview Park Extensive Low-rise Residential Landscape, LCA5 Tam Mei Lowland Rural Landscape, LCA6 Mai Po Fringe Extensive Low-rise Residential Landscape, LCA8 San Tin Lowland Rural Landscape, LCA9 San Tin Cross-border Infrastructure and Facilities Landscape and LCA10 Kwu Tung Lowland Rural Landscape. Trees will be preserved through retention in their current location or transplanting to new amenity area along the track and majority works area will be reinstated to its original status or new amenity area. The magnitude of change to these LCAs is small and hence a slight impact is predicted to the landscape context during construction and operation phase.

Negligible

12.7.30 Regarding the nature and scale of the proposed works, there is no perceptible change on the quality of LCA1 Yuen Long and Tsing Lung Infrastructure Landscape, LCA2 Sha Po Tsuen Lowland Rural Landscape and LCA12 Sheung Shui West Industrial Landscape. The proposed works will be largely integrated with the existing infrastructure and industrial landscape context. Hence a negligible impact is predicted to these LCAs.

12.7.31 **Table 12-8** presents the unmitigated and mitigated (residual) impacts arising from the proposed works during the construction and operational phases of the Project. The mitigated (residual) impacts are assessed during the design year which for the purpose of this study is taken as being between 10 and 15 years after the cycle track open to public when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives.

Table 12-8 Existing Landscape Character and Predicted Impacts

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA1 Yuen Long and Tsing Lung Infrastructure Landscape	Low	70 ha/ 0.2 ha Construction of 4m wide cycle track on channelside embankment of Kam Tin River and roadside embankment of Castle Peak Road – Tam Mei Section.	High	Very small	Medium	Negligible/ Negligible Project scale is very small and temporary works areas will be reinstated to their original status or replaced by new amenity area. Changes on it urbanised character is not perceptible.	Negligible Due to scale of proposed works and the works are integrated with existing infrastructure landscape, the cycle track will be a minor component in the context.	Negligible	CP1 to CP5 and OP1 to OP4.	Negligible	Negligible
LCA2 Sha Po Tsuen Lowland Rural Landscape	Medium	38 ha/ 0 ha Construction of 4m wide cycle track and Resting Station R5 along Pok Wai South Road.	High	Very small	Medium	Negligible/ Negligible No construction work physically encroached to this LCA and the works will not be visible regarding to its low topography and distance to the works.	Negligible/ Negligible	Negligible	CP1 to CP3, OP1, OP2, OP3 and OP4.	Negligible	Negligible

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA3 Kam Tin Riverside Landscape	High	95 ha/ 1.7 ha Construction of 4m wide cycle track and Resting Station R5 along Pok Wai South Road adjacent to Kam Tin River.	Low	Small	Medium	Small/Small Construction works is limited to the roadside area along Pok Wai South Road with no direct disturbance to the existing fishponds. Resting Station R5 is planned away from the fishponds and no high profile building structures is involved.	Moderate Adverse Given the scale of the works is small and built associated with existing built structures, the project will be a minor component in the context.	Moderate Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Negligible Proposed works will be screened by established tree planting along the track and within Resting Station R5.
LCA4 Fairview Park Extensive Low-rise Residential Landscape	Medium	134 ha/ 1.5 ha Construction of 4m wide cycle track along Pok Wai South Road adjacent to Ngau Tam Mei Drainage Channel and Resting Station R6 at the junction of Pok Wai South Road and Yau Pok Road.	High	Small	Medium	Small/Small Construction works is limited to the roadside area along Pok Wai South Road, some recently established channelside vegetation will be temporary removed but will be reinstated upon the completion of the works. Resting Station R6 is located on a vacant land originally occupied by temporary works area for drainage improvement works.	Slight Adverse Given the scale of the works is small and built associated with existing built environment, the works are only visible at the edge of the existing developments and along the channel, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track and within Resting Station R6)

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA5 Tam Mei Lowland Rural Landscape	Medium	87 ha/ 1 ha Construction of 4m wide cycle track along Yau Pok Road adjacent to Ngau Tam Mei Drainage Channel connecting to Castle Peak Road Tam Mei Section and Resting Station R7 at the junction of Yau Pok Wai Road and Castle Peak Road.	Medium	Small	Medium	Small/Small Similar to other LCAs along Ngau Tam Mei Channel, construction works is limited to the roadside area, some recently established channelside vegetation will be temporary removed but will be reinstated upon the completion of the works. Resting Station R7 is located on a vacant land originally occupied by other construction works.	Slight Adverse Given the scale of the works is small and associated with existing built environment, the works are only visible at the edge of the settlement, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track and within Resting Station R7 and upgrade the open storage environment.
LCA6 Mai Po Fringe Extensive Low-rise Residential Landscape	Medium	88 ha/ 0.85 ha Construction of 4m wide cycle track with 2m wide footpath alongside of Castle Peak Road Mai Po Section.	Medium	Small	Medium	Small/Small Construction works is limited to the roadside area and open drainage channel, some roadside vegetation will be temporary removed but will be reinstated upon the completion of the works.	Slight Adverse Given the scale of the works is small and built associated with existing infrastructure, the works are only visible at the edge of adjacent settlement, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track.)

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA7 Mai Po Lowland Rural Landscape	High	202 ha/ 2 ha Construction of 4m wide cycle track on existing dam and maintenance access to Mai Po Floodwater Pumping Station and on modified drainage channel and roadside area alongside of Castle Peak Road San Tin Section. Resting Station R8 is located on vacant government land near Shek Wu Wai Road.	Low	Small	Medium	Small/Small Construction works are limited to the roadside area and open drainage channel and maintenance access to pumping station and the works planned to have local narrowing of cycle track to avoid disturbance to this LCA , some roadside vegetation and small portion of an isolated fishpond at Hip Hing Wai which surrounding by open storage will be temporary removed but will be reinstated upon the completion of the works.	Moderate Adverse Given the scale of the work is small and built associated with existing infrastructure, the works are only visible as part of existing built structures, the project will be a minor component in the context.	Slight/ Moderate Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Negligible (proposed works will be screened by established tree planting along the track and within Resting Station R8.)
LCA8 San Tin Lowland Rural Landscape	Medium	132 ha/ 1.6 ha Construction of 4m wide cycle track associated with 2m wide footpath at selected locations on existing roadside and drainage area along San Tin Tsuen Road. The alignment is diverted to San Tin Tsuen Road to avoid conflict with San Tin interchange and Castle Peak Road Improvement Works.	Medium	Small	Medium	Small/Small Construction works are limited to the roadside area and open drainage channel to avoid disturbance to this LCA , particularly the fishpond area at the northwest portion, some roadside plantation will be temporary removed but will be reinstated upon the completion of the works.	Slight Adverse Given the scale of the work is small and built associated with existing infrastructure, the works are only visible as part of existing built structures, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track.)

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA9 San Tin Cross-border Infrastructure and Facilities Landscape	Low	93 ha/ 0.75 ha Construction of 4m wide cycle track associated with 2m wide footpath at selected location on existing roadside and drainage area along Castle peak Road Chau Tau Section and to the south of Cross Boundary Shuttle Bus San Tin Terminus.	High	Small	Medium	Small/Small Construction work is limited to the roadside area and open drainage channel to avoid disturbance to this LCA , particularly the vegetated area to the south of Fanling Highway, some roadside plantation will be temporary removed but will be reinstated upon the completion of the works.	Slight Adverse Given the scale of the work is small and built associated with existing infrastructure, the works are only visible as part of existing built structures, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track.)
LCA10 Kwu Tung Lowland Rural Landscape	Medium	239 ha/ 2.1 ha Construction of 4m wide cycle track on existing roadside area and drainage channel along Castle Peak Road KwuTung Section and to the west of maintenance access along Sheung Yue River.	Medium	Small	Medium	Small/Small Construction works is limited to the roadside area and open drainage channel to avoid disturbance to this LCA , particularly the vegetated area to the south of Fanling Highway, some roadside plantation will be temporary removed but will be reinstated upon the completion of the works.	Slight Adverse Given the scale of the works is small and built associated with existing built structures, the works are only visible as part of existing built structures, the project will be a minor component in the context.	Slight Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Slight Beneficial (proposed works will be screened by established tree planting along the track.)

Landscape Resource	Sensitivity	Total Area of LCA (Ha) / Affected Area (Ha) / Source of Impact	Determinants for Magnitude of Change			Magnitude of Change (Construction / Operation Phase)	Significance Threshold (Unmitigated)		Mitigation Measures	Significance Threshold (Mitigated)	
			Compatibility	Scale	Reversibility		Construction	Operation		Construction	Operation
LCA11 Long Valley and Ho Sheung Heung Lowland Rural Landscape	High	151 ha/ 1.7 ha Construction of 4m wide cycle track associated with 2m wide footpath along the northern and eastern side of existing channel maintenance access along Sheung Yue and Shek Sheung Rivers. Resting station R9 cum information kiosk is located at riverside of Sheung Yue River.	Low	Small	Medium	Small/Small Construction work is limited to the roadside area and engineered river embankment to avoid disturbance to this sensitive LCA , particularly the wetland area in Long Valley, some roadside plantation will be temporary removed but will be reinstated upon the completion of the works.	Moderate Adverse Given the scale of the works is small and built associated with existing road and engineered channel , the works are only visible as part of existing built structures, the location and built profile of Resting Station R9 is adjusted to avoid visual intrusion to the context, the project will be a minor component in the context.	Moderate Adverse	CP1 to CP5 and OP1 to OP4.	Slight Adverse	Negligible (proposed works will be screened by established tree planting along the track and within R9 cum information kiosk)
LCA12 Sheung Shui West Industrial Landscape	Low	62 ha/ 0.05 ha Construction of a new cycle bridge on Shek Sheung River replaced the existing footbridge to accommodate cycle track and footpath. The new bridge will be connected to the existing cycle track at Choi Yuen Road.	High	Small	Medium	Negligible/ Negligible Construction works is limited to replace the existing footbridge with a new cycle bridge. No vegetation will be affected.	Negligible Given the scale of the work is small and built associated with existing engineered structures, the new bridge replace the existing one, the project will be a minor component in the context.	Negligible	CP1 to CP5 and OP1 to OP4.	Negligible	Negligible

Key to Table 12-8:

Sensitivity of Resource / Magnitude of Change:	Low, Medium or High / Negligible, Small, Intermediate or Large
Significance Threshold:	Negligible, Slight, Moderate and Significant (adverse or beneficial)
Residual Impacts:	Refer to matrix in Section 12.7.24

12.8 Existing Visual Context and Visual Impacts

Existing Visual Context

Visual Envelope and Zones of Visual Influence

12.8.1 The Visual Envelope (VE) for the proposed work is limited along existing road, river or drainage channel corridors regarding to the nature and scale of proposed works and majority of the built structures will be screened by adjacent infrastructure, development or vegetation in the views of VSRs. Majority views are contained within Castle Peak Road, San Tin Tsuen Road, San Tin Highway and Fanling Highway, Ngau Tam Mei Drainage Channel, Kam Tin, Sheung Yue River and Shek Sheung River. In terms of the available viewing distances, typical views extend not more than 50 m within road corridors and 100 m within river and channel corridors. Within this VE the extent of the existing views is determined by factors such as the presence of intervening visual obstacles. The VE and Zone of Influence (ZVI) are mapped on **Figure 12-7A** and **Figure 12-7B**.

Existing Visually Detracting Elements

12.8.2 A number of the existing elements within the landscape of the Study Area may be considered as visually detracting in that they are visually incompatible with the existing landscape and visual context. These elements and their role within the visible landscape include:

- Yuen Long, Tsing Lung, San Tin and Fanling Highways which are elevated or in form of viaduct transverse the Study Area;
- Cross-boarder infrastructure facilities to Lok Ma Chau at Chau Tau area;
- Engineering structures of modified river and drainage channel intervene the village settlements such as along Ngau Tam Mei and San Tin Channels and Mai Po Floodwater and Ngau Tam Mei Pumping Stations; and
- Existing extensive low-rise residential buildings, open storage, warehouse and heavy duty vehicular traffic along road and highway adjacent to the proposed alignment.

Existing Visual Amenity and Visually Sensitive Receivers

12.8.3 VSRs identified within the ZVI are grouped by residents living in village settlements and pedestrians looking from the footpath, riverbank or channel side who will be subject to similar views. The existing view, predicted impacts and recommended mitigation measures for each of the identified VSRs are presented in **Table 12-9** and **Table 12-10** and **Figure 12-8A** to **Figure 12-8B**.

12.8.4 The visual amenity observed by VSRs inside ZVI is characterised by the views contained along road, river and channel corridors which majority are limited low-level views. The open views along the corridors are generally interrupted infrastructure, building and vegetation. Views within this area are generally of high to medium quality. The sensitivity of these views to further change is generally medium to low due to their low level views to the proposed works intervened by existing infrastructure, building and vegetation.

Visual Sensitive Receivers

12.8.5 **Table 12-9** determines the sensitivity of selected VSRs within the ZVI to accommodate changes. **Table 12-10** identifies the magnitude of change and the potential impacts on their visual amenity and the residual impact with recommended landscape mitigation measures fully established. VSRs identified within the ZVI are listed below and their existing visual context is illustrated in **Figure 12-7C** and **Figure 12-7D**.

VSR1	Pedestrians and Visitors of Kam Tin Riverbank
VSR2	Pedestrians and Visitors of Ngau Tam Mei Channelside
VSR3	Residents of Man Yuen Tsuen
VSR4	Residents of Fairview Park
VSR5	Residents of Yau Mei San Tsuen
VSR6	Residents of Village Settlement along Castle Peak Road – between Tam Mei and Mai Po Section
VSR7	Residents of Mai Po Village Settlement
VSR8	Residents of San Tin Village Settlement
VSR9	Travellers of Cross-border Infrastructure Facilities
VSR10	Residents of Kwu Tung Village Settlement
VSR11	Pedestrians and Visitors of Sheung Yue Riverbank
VSR12	Residents of Ho Sheung Heung Village Settlement
VSR13	Pedestrians and Visitors of Shek Sheung Riverbank
VSR14	Workers of Sheung Shui Industrial Area

Table 12-9 Sensitivity of Visually Sensitive Receivers

	VSR1 Pedestrians and Visitors of Kam Tin Riverbank	VSR2 Pedestrians and Visitors of Ngau Tam Mei Channel side	VSR3 Residents of Man Yuen Tsuen	VSR4 Residents of Fairview Park	VSR5 Residents of Yau Mei San Tsuen	VSR6 Residents of Village Settlement along Castle Peak Road – between Tam Mei and Mai Po Section	VSR7 Residents of Mai Po Village Settlement	VSR8 Residents of San Tin Village Settlement	VSR9 Travellers of Cross-border Infrastructure Facilities	VSR10 Residents of Kwu Tung Village Settlement	VSR11 Pedestrians and Visitors of Sheung Yue Riverbank	VSR12 Residents of Ho Sheung Heung Village Settlement	VSR13 Pedestrians and Visitors of Shek Sheung Riverbank	VSR14 Workers of Sheung Shui Industrial Area
Quality of View	*High* Open view to Kam Tin River, Nam San Wan and Tai San Wai at riverside maintenance access. Low level views are occasionally interrupted by Tsing Long viaduct.	*High* Open view to Nagu Tam Mei Channel, Tai San Wai and alongside low-rise residential developments at riverside maintenance access. Low level views are confined by riverside amenity areas.	*Medium* Low level views looking outward the developments are usually blocked by the boundary wall of the development and adjacent houses within the development. Only elevated views (maximum 3-storey high) at the periphery of the development are partially opened west to Kam Pok Road and Ngau Tam Mei Channel through existing channelside amenity areas whilst other views are interrupted by neighbourhood low-rise developments and workshops at other directions. These elevated views are also interrupted by container vehicle traffic along Kam Pok Road.	*High* Low level views looking outward the development are usually blocked by boundary wall and adjacent houses, only VSRs living at the centre portion of the development have open views to the central landscape area within the development. Only elevated views (maximum 3-storey high) at the periphery of the development are partially opened east to Ngau Tam Mei Channel through existing channelside amenity areas, Tai San Wai to the west whilst other views are interrupted by low-rise developments at other directions.	*Medium* Low level views are usually blocked by adjacent temporary structures, open storage and vegetation at abandoned fishponds. Elevated views (maximum 3-storey high) at the periphery of the development are partially opened south to Ngau Tam Mei Channel at the junction of Castle Peak Road, east to Castle Peak Road and San Tin Highway.	*Medium* Views are largely confined by adjacent low-rise developments, temporary structures, open storage and roadside vegetation along Castle Peak Road and San Tin Highway. Visual amenity is degraded by the infrastructure and industrial use.	*High* Views looking to the west are open to the abandoned agriculture fields in the foreground with a dam and elevated maintenance access to Mai Po Floodwater Pumping Station in the middle ground blocking their views towards the Mai Po Nature Reserve. Views to other directions are confined by adjacent village houses, open storage and temporary built structures, Castle Peak Road and San Tin Highway.	*Medium* Scattered San Tin Village settlements are largely enclosed by temporary structures and open storage for containers along Castle Peak Road San Tin section and part of San Tin Tsuen Road. Visual amenity is degraded by the infrastructure and industrial uses. With exception of a few village houses located at the northern periphery of the settlement which have views of agriculture fields and fishponds in the foreground and San Tin Tsuen Road and pumping station in the middle ground.	*Low* The local visual context is confined by infrastructure facilities for cross-borderer vehicles and travellers. The visual amenity is degraded by engineered structures such as San Tin Interchange, San Tin Channel, Lok Ma Chau Cross-border facilities and associated car parking facilities and open storage for container as well at their peripheries.	*Medium* The visual context is similar to San Tin Village settlement which dominated by Castle Peak Road and San Tin Highway to the south open storage for containers and warehouse along the road and scattered inland village settlements. The visual amenity is degraded by the industrial landscape along the road corridor. Roadside plantation along San Tin Highway and Castle Peak Road is the only greening measures in the context.	*High* Open view to Sheung Yue River and Long Valley at riverside maintenance access. Low level views towards Ho Sheung Heung and village settlement at Long Valley are largely screened by riverside plantations. The visual amenity dominated by rural and river side landscape which was interrupted by maintenance access, pumping station and engineered river embankments.	*High* The visual context of village settlement along side of Ho Sheung Heung Road dominated by agriculture fields and fishponds surrounding the settlement. Crossed borader Shen zhen and Sheung Shui New Town developed urban landscapes are visually prominent in distance to the north and the east.	*High* Open view towards Shek Sheung River at riverside maintenance access with village settlements of Long Valley to the south and Sheung Shui industrial landscape to the north. The visual amenity is typical at northwest NT urban fringe with a combination of rural and urban setting.	*High* Open view to the west towards Shek Sheung Riverl in the foreground and Long Valley in distance at elevated levels. On the contrary, Sheung Shui urban setting dominated to the east. The visual amenity is typical at urban fringe of NWNT new town.
Availability and Amenity of Alternative Views	High Largely confined within the river corridor by riverside amenity area or low-rise developments	High Largely confined within the river corridor by riverside amenity area or low-rise developments.	Low Largely confined within the development. Partial views to channelside amenity area are only available for VSRs living at the elevated floor at the western periphery of the development whilst low level views are largely obstructed by adjacent developments, workshops and boundary wall. These views are also interrupted by container vehicle traffic at Kam Pok Road.	Medium Largely confined within the development. Open views looking outward at elevated floors are partially obstructed by adjacent developments, Fairway Golf Centre, only VSRs living at the elevated floors along eastern periphery of the development will have partial view to the channelside amenity area and these views are interrupted by channelside vegetations.	Low Low level views are largely obstructed by temporary structures, open storage, heavy traffic road and highways to the north, east and west and construction site located at opposite channel side to the south.	Medium Largely confined with roads and highways to the east and adjacent village houses and built structures to other directions.	High Open to agriculture fields when looking to the west whilst largely confined with roads and highways to the east and adjacent village houses and built structures to other directions.	Low Open to agriculture fields and fishponds when looking to the north at the periphery of the settlement whilst largely confined with roads and highways to the south and adjacent village houses, open storage and built structures to other directions.	High Views are largely confined along the road corridor degraded by heavy road traffic and engineered structures.	Medium Views are largely confined within individual settlements with seldom open view to the whole rural context with exception of inland settlements located along Po lau Road who will have views toward agriculture fields.	High Travellers' views are largely confined with the river corridor with glimpse view to village settlements in distance through riverside plantations.	High Views are largely dominated by agriculture fields and fishponds at the periphery of the settlements. Regarding to the viewing distance, views towards Sheung Yue River are screened by riverside plantations.	High Views are largely restricted along the river corridor.	High Regarding to the height of industrial buildings which comparatively the highest against Shek Sheung river side lowland plain context, therefore have a overview of Long Valley and Ho Sheung Heung. However there is less widow views towards this direction regarding some industrial buildings are utilised for storage.

	VSR1 Pedestrians and Visitors of Kam Tin Riverbank	VSR2 Pedestrians and Visitors of Ngau Tam Mei Channel side	VSR3 Residents of Man Yuen Tsuen	VSR4 Residents of Fairview Park	VSR5 Residents of Yau Mei San Tsuen	VSR6 Residents of Village Settlement along Castle Peak Road – between Tam Mei and Mai Po Section	VSR7 Residents of Mai Po Village Settlement	VSR8 Residents of San Tin Village Settlement	VSR9 Travellers of Cross-border Infrastructure Facilities	VSR10 Residents of Kwu Tung Village Settlement	VSR11 Pedestrians and Visitors of Sheung Yue Riverbank	VSR12 Residents of Ho Sheung Heung Village Settlement	VSR13 Pedestrians and Visitors of Shek Sheung Riverbank	VSR14 Workers of Sheung Shui Industrial Area
Type (Permanent or Transient) / No. of VSRs (Few/ Small/ Intermediate/ Large)	Transient/ Few	Transient/ Few	Permanent/ Few	Permanent/ Intermediate	Permanent/ Few	Permanent/ Intermediate	Permanent/ Intermediate	Permanent/ Intermediate	Transient/ Few	Permanent/ Intermediate	Transient/ Few	Permanent/ Few	Transient/ Few	Transient/ Intermediate
Duration and Frequency of Views to Proposed Works	Short and Variable Only VSRs travelling along river and channel side parallel to the track alignment will have obstructed views towards the works through existing amenity area.	Short and Variable Only VSRs travelling along river and channel side parallel with the track alignment will have obstructed views to the works for the cycle track and Resting Stations R5 and R6 through existing amenity area.	Long and Stable Only VSRs living at top floor of 3-storey house located at the western periphery of the development will have an overview of the works for cycletrack and Resting Station R6 along adjacent channelside. Views looking from other directions of the development will not see the proposed works.	Long and Stable Only VSRs living at top floor of 3-storey house located at the eastern periphery of the development will have an overview of the works along adjacent channelside at Yau Pok Road. Views looking from other directions of the development will not see the proposed works.	Long and Stable Only VSRs living at top floor of 3-storey house located at the southern periphery of the village will have an partially obstructed view to the works for the channelside track and Resting Station R7 in middle ground with abandoned fishponds and vegetation in the foreground and construction sites in the background.	Long and Stable Only VSRs living at the top floor of 3-storey house located along Castle Peak Road will have a partially obstructed view to the east to the works through the boundary fence of development and existing roadside vegetation in the foreground. Other views locking from inland village houses are largely blocked by adjacent developments and built structures.	Long and Stable Only VSRs living in village houses located at the western periphery of Mai Po Village will have a open view to the works proposed along existing maintenance access to the pumping station with agriculture fields in the foreground.	Long and Stable Only VSRs living in village houses located at the northern periphery of San Lung Tsuen, On Lung Tsuen and Tun Chan Wai will have a open view to the works proposed along existing San Tin Tsuen Road with extensive agriculture fields in the foreground.	Short and Variable Only VSRs travelling on vehicles along Castle Peak Road Chau Tau Section and travellers using Cross Boundary Shuttle Bus San Tin Terminus will have restricted views to the works along existing footpath and eastern periphery of the Terminus.	Long and Stable Only VSRs living in Dills Corner Garden and Home of Loving Faithfulness and Shek Tsai Leng adjacent to Castle Peak Road will have glimpse view to the works through boundary fence of individual development in this industrial and roadside context.	Short and Variable Transient VSRs travelling along existing maintenance access along the western river side will have close view to the works of the track and Resting Station R9. The works will not be seen from the other side of river at Long Valley regarding to the viewing distance.	Long and Stable Only VSRs living at southeast periphery of Ho Sheung Heung village settlement will have glimpse views of the works of the track and Resting Station R9 in distance through the plantation along the riverside maintenance access.	Short and Variable Only the travellers along the maintenance access along western riverside will have a close view of the track and Resting Station R9. The proposed works is largely screened by riverside vegetation when looking from eastern side of the river.	Short and Variable Only workers in these industrial buildings who have views from elevated floors with have overview of the works and the cycle bride along the opposite river side of Shek Sheung River.
Degree of Visibility	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures.	Low Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures, the proposed works are largely obstructed by the existing boundary wall and channelside amenity areas.	Low Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures, the proposed works are largely obstructed by this existing boundary wall and channelside amenity areas.	Low Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures, the proposed works formed a minor component in this channelside and roadside context.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing footpath, the proposed works formed a minor component in this roadside context.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing maintenance access, the proposed works formed a minor component in this rural and engineered context.	Low Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing road and Resting Station R8 at roadside area adjacent to open storage, the proposed works formed a minor component in this rural and infrastructure context.	Low Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing road and infrastructure facilities, the proposed works formed a minor component in this infrastructure context.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing road, the proposed works formed a minor component in this infrastructure context.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing maintenance access, the proposed works formed a minor component in this river side context.	Low Regarding to the nature and scope of the works of the track and Resting Station R9 with reinstatement of temporary works areas and low height profile of built structures along existing maintenance access, the proposed works formed a minor component in this rural context.	Medium Regarding to the nature and scope of the works of the track and Resting Station R9 with reinstatement of temporary works areas and low height profile of built structures along existing maintenance access, the proposed works formed a minor component in this urban fringe context.	Medium Regarding to the nature and scope of the works with reinstatement of temporary works areas and low height profile of built structures along existing maintenance access, the proposed works formed a minor component in this urban fringe context.
Sensitivity/ Quality of VSR	Medium	Medium	Medium Relatively lower sensitivity compared to other residential receivers due to their constrained visual context and their visual amenity is largely interrupted by adjacent workshops and traffic along Kam Pok Road. (Figure 12-7C refers)	High	Medium Relatively lower sensitivity compared to other residential receivers due to their visual amenity is largely interrupted by temporary structures, open storage, heavy traffic road and highways and adjacent construction activities. (Figure 12-7C refers)	Medium Relatively lower sensitivity compared to other residential receivers due to their visual context is largely confined by adjacent low-rise developments (Figure 12-7C refers)	High	Medium Relatively lower sensitivity compared to other residential receivers due to their visual context is largely confined by roads and highways to the south and adjacent village houses, open storage and built structures to other directions. (Figure 12-7D refers)	Low	Medium Relatively lower sensitivity compared to other residential receivers due to their visual context is largely confined by industrial uses along Castle Peak Road, and adjacent infrastructures. (Figure 12-7D refers)	Medium	High	Medium	Medium

Visual Impacts

12.8.6 The potential visual impacts on identified VSRs resulting from the proposed works during the construction and operational phases of the Project are summarised in the following sections and listed in **Table 12-10**. These impacts are also mapped on **Figure 12-8A** and **Figure 12-8B**. The mitigated (residual) impacts are assessed during the design year which for the purpose of this study is taken as being between 10 and 15 years after the schemes opening when the proposed mitigation planting is deemed to have reached a level of maturity, which is sufficient for it to perform the design objectives.

12.8.7 Given that the scale of the proposed works are relatively small, visual context of individual VSRs are obstructed by existing infrastructure or adjacent built structures, distance to the proposed works and majority of works are integrated with existing road or engineering structures, it will form a minor component in the visual context with immediate reinstatement of works area and new amenity areas upon sectional completion of the alignment. There is no significant adverse impact on the visual quality or amenity of all VSRs.

Moderate

12.8.8 The proposed cycle track and Resting Stations R5, R6 R7 and R9 are alongside of Castle Peak Road or located at existing maintenance access of Kam Tin River, Ngau Tam Mei Channel and Sheung Yue River and are integrated with the existing land. The scale of the works locally at individual locations is relatively small (4 m wide cycle track and 2 m wide footpath at selected locations), pedestrians and visitors of Kam Tin Riverbank (VSR1), Ngau Tam Mei Channel (VSR2). Sheung Yue Riverbank (VSR11) and Shek Sheung Riverbank (VSR13) adjacent to the alignment will be subject to a small change of visual context with the temporary loss of roadside amenity areas and proximity to the works. However, the majority of the works areas will be reinstated to its original status or new amenity areas. Their extensive open views over the riverside and rural landscapes will remain largely unchanged. Hence these transient VSRs will experience a moderate impact in the absence of mitigation measures during construction and operation phase. In addition, travellers at the opposite riverside to the proposed alignment will not see the works due to the small scale of the Project.

12.8.9 There will be low level views from residents of Man Yuen Tsuen (VSR3), Fairview Park (VSR4) and Yau Mei San Tsuen (VSR5). These receivers are largely screened by the boundary wall of individual developments and only limited VSRs living at the top floor of 3-storey houses at the periphery of the developments adjacent to the alignment will have glimpse views to the works through open storage and temporary structures and existing plantation alongside of Ngau Tam Mei Channel in their foreground. There will be no extensive built structures within Resting Stations R5, R6 and R7, and the majority works areas will be reinstated to its original status or new amenity and seating areas, hence the change of their visual context is relatively small upon to the implementation of the Project. These VSRs are limited in numbers and with alternative views other than looking towards the works will experience a moderate impact in the absence of mitigation measures during construction and operation phase.

12.8.10 Similar to those VSRs identified along riverside within the Study Area as mentioned above, visual context of Residents of Village Settlements along Castle Peak Road –

between Tam Mei and Mai Po Section (VSR6), Mai Po Village Settlement (VSR7), San Tin Village Settlement (VSR8) and Kwu Tung Village Settlement(VSR10) living adjacent to road and highway is confined along the road corridor or interrupted by existing engineering structures and infrastructure such as pumping station and its associate dam and maintenance access and roadside area is dominated by open storage and warehouses which is a typical rural industrial landscape in NWNT. It is also noted that their low level views to the road corridors including Castle Peak Road, San Tin Tsuen Road, Ho Sheung Heung Road, San Tin and Fanling Highways are obstructed by boundary fence of individual settlement or the unpleasant container storage and built structures. Given the alignment of the cycle track and Resting Station R8 are proposed alongside the existing road utilised existing roadside and open channel area, only limited VSRs living at elevated floors at the periphery of the settlement will have glimpse view to the works, whilst views looking from residents living inland are largely blocked by adjacent village houses, hence change of context is relatively small upon the implementation of the project. These VSRs are limited in numbers and with alternative views other than looking towards the works will experience a moderate impact in the absence of mitigation measures during construction and operation phase.

Slight

12.8.11 With exception of the VSRs mentioned in the above section, the remaining VSRs including travellers of Cross-boarder Infrastructure Facilities (VSR9) and workers of Sheung Shui Industrial Area (VSR14) will experience a slight adverse impact in the absence of mitigation measures during construction and operation phases. In view of the scale and nature of the cycle track, this will lead to only very small changes in their visual context which is dominated by extensive infrastructure facilities and industrial buildings.

12.8.12 Residents living at the eastern periphery of Ho Sheung Heung Village Settlement (VSR12) will have a glimpse view to the cycle track and Resting Station R9 alongside of the maintenance access of Sheung Yue River, however their views are largely screened by existing riverside plantation. Given the scale and nature of the works, viewing distance from the works, limited number of VSRs and their alternative views to extensive agriculture fields and fishponds in the foreground, the proposed works will lead to a small change to their visual context, hence these VSRs will experience a slight impact in the absence of mitigation measures during construction and operation phase.

12.8.13 The assessment contained in **Table 12-10** concluded that even though there is slight to slight/moderate impact on visual amenity of the VSRs, the proposed cycle track and associated facilities in combination with reinstatement of works area to its original status, preservation of existing trees and new tree and shrub planting proposals along the track and within the facilities will mitigate the change of visual amenity and restore the roadside landscape as before without the works. The planting proposals achieve a net gain of plantation in combination of preserved trees in the existing landscape context; hence benefit the local visual amenity with their full established. The recommended landscape mitigation measures and residual impact on these VSRs is further discussed in Sections 12.10 and 12.12.

Table 12-10 Visually Sensitive Receivers and Predicted Impacts

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR1 Pedestrians and Visitors of Kam Tin Riverbank	Medium	Varies Immediate adjacent to proposed alignment. or Opposite riverside at minimum 200 m away from the alignment. No blockage of existing views.	High	Medium for VSRs immediately adjacent to the alignment. Not perceivable for VSRs walking along opposite riverside due to viewing distance.	Irreversible	2yrs/ Permanent	Small/ Small Existing view is dominated by viaduct and engineered riverbank. Availability of open view along river corridor largely remains unchanged. The cycle track alignment is designed along existing maintenance access. Resting Station is designed with a low building height profile. Majority works area will be reinstated to its original status. Given the above reasons, the works will become a minor component in the riverside context.	Moderate Adverse This impact is limited to the travellers alongside with proposed alignment regarding to their proximity to the works whilst views looking from opposite riverside are negligible due to small project profile and viewing distance.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected channelside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of channelside sloping area to its original status with plantation, in combination of new tree planting, ensures the visual quality along Kam Tin River will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track and within Resting Station R5 integrated with preserved trees. Responsive design of resting station R5 utilised low building height profile and material finishes. New amenity planting is also accommodated in the design to soften the building structures and provide shade seating area for future users. Upon fully established of the above mitigation measures, the impact will be alleviated.
VSR2 Pedestrians and Visitors of Ngau Tam Mei Channelside	Medium	Varies Immediate adjacent to proposed alignment. or Opposite riverside at minimum 200 m away from the alignment. No blockage of existing views	High	Medium Medium for VSRs immediately adjacent to the alignment. Not perceivable for VSRs walking along opposite riverside due to viewing distance.	Irreversible	2yrs./ Permanent	Small/ Small Existing view is dominated by engineered channel. Availability of open view along channel corridor largely remains unchanged. The cycle track alignment is designed along existing maintenance access. Resting Station is designed with a low building height profile. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in the riverside context.	Moderate Adverse This impact is limited to the travellers alongside with proposed alignment regarding to their proximity to the works whilst views looking from opposite riverside are negligible due to small project profile and viewing distance.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected channelside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized	Slight Adverse Reinstatement of channelside amenity area to its original status with plantation, in combination of new amenity areas, ensures the visual quality along Ngau Tam Mei Channel will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track and within Resting Station R6 and 7 integrated with preserved trees. Responsive design of resting station R6 and 7 utilised low building height profile and material finishes. New amenity planting is also accommodated in the design to soften the building structures and provide shade seating area for future users. Upon fully established of the above mitigation measures, the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR3 Residents of Man Yuen Tsuen	Medium	10 m No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Limited VSRs have obstructed views looking towards the cycle track; their visual context is largely confined within the development, screened by boundary wall, traffic along Kam Pok Road and existing channelside amenity areas. The nature and scope of works are restricted to existing roadside areas of Pok Wai South Road and channelside amenity area. The low profile nature of the proposed works and associated with existing infrastructure. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in the riverside context.	Moderate Adverse Visual impact is limited to the VSRs living at top floor of 3-storey houses who have obstructed view of the works through existing amenity areas in the foreground beyond Kam Pok Road. Low level views are blocked by individual boundary wall of the residential or village developments. This impact is predicted regarding to their proximity to the works.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected channelside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized	Slight Adverse Reinstatement of channelside amenity area to its original status with plantation, in combination of new amenity areas, ensures the visual quality along Ngau Tam Mei Channel will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track integrated with preserved trees. Responsive design of the alignment behind existing amenity areas in the view of these VSRs. Proposed new tree planting will soften the engineering structures. Upon fully established of the above mitigation measures, visual quality looking towards Pok Wai South Road and Kam Pok Road will be enhanced, the impact will be alleviated.
VSR4 Residents of Fairview Park	High	50 m to 150 m No blockage of existing views	High	Small	Irreversible	2yrs./ Permanent	Small/ Small Limited VSRs have obstructed views looking towards the cycle track; their visual context is largely confined within the development which their view is focused to internal courtyard gardens or blocked by adjacent houses. Views looking towards the proposed works are largely screened by boundary wall, school, temporary structures, open storage and existing channelside amenity areas. The nature and scope of works are restricted channelside maintenance access at the opposite side of the channel and beyond the planned channelside open space. . The low profile nature of the proposed works and associated with existing infrastructure. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their low-rise residential context.	Moderate Adverse Visual impact is limited to the VSRs living at top floor of 3-storey houses who have glimpse view of the works through temporary structures, open storage and existing channelside amenity areas in the foreground. Low level views are blocked by boundary wall of the residential or village developments.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected channelside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized	Slight Adverse Reinstatement of channelside amenity area to its original status with plantation, in combination of new amenity areas, ensures the visual quality along Ngau Tam Mei Channel will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track integrated with preserved trees. Responsive design of the alignment integrated with exiting infrastructure. Proposed new tree planting will soften the engineering structures in the views of these VSRs which is already blocked by amenity areas and industrial uses. Upon fully established of the above mitigation measures, visual quality looking towards Ngau Tam Mei Channel in the middleground will be enhanced, the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR5 Residents of Yau Mei San Tsuen	Medium	25 m No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Limited VSRs have glimpse views looking towards the cycle track and Resting Station R7; their visual context is largely confined within the development which their view looking outward is blocked by adjacent houses and extensive infrastructure such as Castle Peak Road and San Tin Highway. Views looking towards the proposed works are largely screened by temporary structures and open storage in the foreground. The nature and scope of works are restricted channelside maintainance access and existing construction site surrounding by open storage. The low profile nature of the proposed works are integrated with surrounding industrial and infrastructure uses. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their industrial and infrastructure context .	Moderate Adverse Visual impact is limited to the VSRs living at top floor of 3-storey houses who have glimpse view of the works through temporary structures, open storage and existing channelside amenity areas in the foreground. Low level views are blocked by adjacent village developments.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected channelside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of channelside amenity area to its original status with plantation, in combination of new amenity areas, ensures the visual quality along Ngau Tam Mei Channel will be restored. Existing industrial and infrastructure landscape will be enhanced through introduction of new tree planting along the cycle track and within Resting Station R7 integrated with preserved trees. Responsive design of the alignment and Resting Station R7 integrated with exiting visual context. Proposed new tree planting will soften the engineering structures in the views of these VSRs which is already blocked by industrial uses. Upon fully established of the above mitigation measures, visual quality looking towards Ngau Tam Mei Channel, Castle Peak Road and San Tin Highway in the middleground will be enhanced, the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR6 Residents of Village Settlement along Castle Peak Road – between Tam Mei and Mai Po Section Figure 12-10A and Figure 12-10B refer	Medium	100 m No blockage of existing views	High	Small	Irreversible	2yrs./ Permanent	Small/ Small Majority views towards the works are obstructed by open storage or warehouses along Castle Peak Road and the works is setting among infrastructure context of Castle Peak Road and San Tin Highway. The nature and scope of works are restricted to existing footpath, roadside areas and open storage areas. The low profile nature of the proposed works are integrated with surrounding industrial and infrastructure uses.. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their industrial and infrastructure context.	Moderate Adverse Visual impact is limited to the VSRs living at top floor of 3-storey houses at the eastern periphery of scattered low-rise residential developments along Castle Peak Road who have glimpse view of the works through open storage, warehouses and roadside plantation in the foreground. Low level views are blocked by fence wall of individual development or temporary built structures within open storage and warehouses.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside amenity area to its original status with plantation, in combination of new amenity areas replacing some of existing open storage, ensures the roadside visual quality will be restored. Existing industrial and infrastructure landscape will be enhanced through introduction of new tree planting on roadside amenity area and replacing some open storage area integrated with preserved trees. Responsive design of the alignment integrated with exiting visual context. Proposed new tree planting will soften the engineering structures in the views of these VSRs which is already blocked by industrial uses. Upon fully established of the above mitigation measures, visual quality looking towards Castle Peak Road and San Tin Highway in the middleground will be enhanced, the impact will be alleviated.
VSR7 Residents of Mai Po Village Settlement Figure 12-10C and Figure 12-10D refer	High	Varies from 25 m to 100 m No blockage of existing views	High	Medium to Small	Irreversible	2yrs./ Permanent	Small/ Small Alternative views are available within the village settlement context to the north, east and south directions and restricted views to the west open to the fields confined by the dam and access road to Mai Po Floodwater Pumping Station in distance. Majority views towards the works are limited tio the VSRs living at the western periphery of the village in distance. The nature and scope of works are restricted to existing maintenance access connecting to the Pumping Station. The low profile nature of the proposed works is integrated with surrounding agriculture and utility uses. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works in distance will become a minor component in their expanse agricultural visual context which has been already disturbed by prominent utility structures.	Moderate Adverse Visual impact is limited to the VSRs living in 3-storey village houses at the western periphery of Mai Po Village settlement adjacent to Castle Peak Road Mai Po Section who have open view to the fields in the foreground and engineered structures associated with Mai Po Floodwater Pumping Station in the middleground.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside area to its original status, in combination of new tree planting alongside of the track ensures the roadside visual quality will be restored. Existing village fringe landscape interrupted by utilities will be enhanced through introduction of new tree planting. Responsive design of the alignment integrated with exiting visual context. Proposed new tree planting the track and on reinstated road embankment will soften the engineered utility structures in the views of these VSRs. Upon fully established of the above mitigation measures, visual quality looking towards the pumping station in the middleground will be enhanced, the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR8 Residents of San Tin Village Settlement	Medium	Varies from 15 m to 100 m No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Alternative views are available within the village settlement context to the north across open storage in the foreground and abandoned fishpond in the middleground. Conserved fishponds located to the north of San Tin Village Road with cross-boarder developments in China in the background. The southern views are confined by open storage and temporary structures along Castle Peak Road and San Tin Highway. Majority views towards the works are obstructed by open storage or warehouses along Castle Peak Road and San Tin Village Road in the middleground to the southwaest and roadside planting and pumping station along San Tin Village Road to the north. The works is setting among infrastructure context of Castle Peak Road and San Tin Highway and village fringe setting along San Tin Village Road. The alignment follows the existing road embankment without encroaching preserved fishponds to the further north. Existing temporary construction site for road and drainage works is utilised for proposed Resting Station R8. The low profile nature of the proposed works is integrated with surrounding industrial and infrastructure uses and fishponds. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their village fringe, industrial and infrastructure context.	Moderate Adverse Visual impact is limited to the VSRs living in 3-storey village houses at the northern periphery of San Tin Village settlement adjacent to Castle Peak Road who have open view to the fields in the foreground and engineered structures associated with San Tin Tsuen Road in the middle ground.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside area to its original status, in combination of new tree planting alongside of the track and on reinstated road embankment ensures the roadside and village fringe visual quality will be restored. Existing village fringe landscape interrupted by utilities will be enhanced through introduction of new tree planting. Responsive design of the alignment and Resting Station R8 integrated with exiting visual context. Proposed new tree planting the track, on reinstated road embankment and within resting station will soften the engineered utility structures and the proposed works in the views of these VSRs. Upon fully established of the above mitigation measures, visual quality looking towards San Tin Tsuen Road in the middleground will be enhanced, the impact will be alleviated.
VSR9 Travellers of Cross-boarder Infrastructure Facilities	Low	20 m No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Existing visual context of these VSRs is largely interrupted by massive infrastructure facilities. Majority views towards the works are confined by highway corridors, roadside open storage or warehouses along Castle Peak Road and San Tin Highway. The works is setting among infrastructure context ands urban context of a combination of open storage and cross-border infrastructure such as Cross Boundary Shuttle Bus Terminus. The alignment follows existing road alignment and drainage channel. The track will be constructed on existing roadside area and drainage channel. The low profile nature of the proposed works is integrated with surrounding industrial and infrastructure uses. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their village fringe, industrial and infrastructure context.	Slight Adverse Visual impact is limited to the cross-boarder travellers at Cross Boundary Shuttle Bus Terminus whose view is dominated by infrastructure facilities.	Slight Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Negligible Reinstatement of roadside area to its original status to the south of Cross-boarder Shuttle Bus Terminus, in combination of new tree planting on reinstated roadside area, ensures the urban visual quality will be restored. This infrastructure landscape will also be enhanced through introduction of new tree planting. Responsive design of the alignment integrated with exiting visual context. Proposed new tree planting on reinstated road embankment will soften the proposed engineering works in the views of these VSRs. Upon fully established of the above mitigation measures, visual quality within the cross-boarder facilities will be enhanced, the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR10 Residents of Kwu Tung Village Settlement	Medium	20 m No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Alternative views are largely confined within the village settlement to the north and temporary structures and warehouses to the south along Catle Peak Road. Majority views towards the works are obstructed by open storage or warehouses along Castle Peak Road and Fanling Highway in the foreground. The works is setting on existing footpath and roadside areas within infrastructure context of Castle Peak Road and Fanling Highway. The proposed works is integrated with surrounding industrial and infrastructure uses. Majority works area will be reinstated to its original status. Given the above reasons, the proposed works will become a minor component in their industrial and infrastructure context.	Moderate Adverse Visual impact is limited to the VSRs living at the top floor in 3-storey village houses at the southern periphery of Kwu Tong Village settlement adjacent to Castle Peak Road whose views are largely interrupted by adjacent village houses, roadside open storage, warehouses and roadside plantation.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside area to its original status, in combination of new tree planting on reinstated roadside area, ensures the visual quality will be restored. This infrastructure landscape will also be enhanced through introduction of new tree planting. Responsive design of the alignment integrated with exiting visual context. Proposed new tree planting on reinstated roadsid3e area will soften the proposed engineering works in the views of these VSRs. Upon fully established of the above mitigation measures, visual quality of this infrastructure context will be enhanced, the impact will be alleviated.
VSR11 Pedestrians and Visitors of Sheung Yue Riverbank Figure 12-10E and Figure 12-10F refer	Medium	Immediate adjacent to proposed alignment. or Opposite riverside at minimum 60 m away from the alignment. No blockage of existing views.	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Existing view is dominated by engineered riverbank and maintenance access in the foreground and expansive view of Ho Sheung Heung agricultural fields to the west and Long Valley to the east in distance. Availability of open view along river corridor largely remains unchanged. Views looking towards the proposed works is limited to very few pedestrian walking along existing maintenance access from Kwun Tung to Sheung Shui Industrial Area. The cycle track alignment and Resting Station R9 is designed along existing maintenance access and its roadside area. Resting Station R9 is designed with a low building height profile and minimized scale responding to this lowland plain landscape. Majority works area will be reinstated to its original status. Given the above reasons, the works will become a minor component in the riverside context.	Moderate Adverse Visual impact is limited to the VSRs travelling along the western riverside who have close view to the cycle track and Resting Station R9 whilst views of travellers along the opposite riverside at Long Valley will be screened by existing plantation.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Moderate Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside areas to its original status with plantation, in combination of new tree planting, ensures the visual quality along Sheung Yue River will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track and within Resting Station R9 integrated with preserved trees. Buffer planting contained with the resting station serves for screening purposes for the low profile structure. Responsive design of resting station R9 utilised low building height profile and natural material finishes responding to the context. New amenity planting is also accommodated in the design to soften the building structures and provide shade seating area for future users. Upon fully established of the above mitigation measures, the visual quality in the distance views of these VSRs will be reinstated and the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR12 Residents of Ho Sheung Heung Village Settlement	High	Varies from 100 m to 300 m No blockage of existing views	High	Small	Irreversible	2yrs./ Permanent	Small/ Small Existing views of this VSRS is confined by village settlement to the north, east and west in the foreground whilst is opened to the agricultural filed in the foreground to the south. Regarding to the viewing distance views looking towards the proposed works is largely screened by the vegetation in the foreground. lowland village visual context is largely remains unchanged. Limited views looking towards the proposed works in distance is limited to very few villagers living at the southern periphery of the village that have views across the fields. Alternatives views open to the field are available. The cycle track alignment and Resting Station R9 is designed along existing maintenance access and its roadside area in distance views of these VSRs. Resting Station R9 is designed with a low building height profile and minimized scale responding to this lowland plain landscape. Majority works area will be reinstated to its original status. Given the above reasons, the works will become a minor component in the lowland plain context.	Slight Adverse Visual impact is limited to the VSRs living at the southeast periphery of Ho Sheung Heung settlement who have a distance view to the works behind plantation along Sheung Yue River with extensive fields and ponds in their foreground.	Slight Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Negligible Reinstatement of roadside amenity area to its original status with plantation, in combination of new amenity areas, ensures the visual quality along Sheung Yue River will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track and within Resting Station R9 integrated with preserved trees. Responsive design of resting station R9 utilised low building height profile and material finishes. New amenity planting is also accommodated in the design to soften the building structures and provide shade seating area for future users. Upon fully established of the above mitigation measures, the visual quality in their distance views of the riverside planting area will be restored, the impact will be alleviated.
VSR13 Pedestrians and Visitors of Shek Sheung Riverbank	Medium	Immediate adjacent to proposed alignment. or Opposite riverside at minimum 60 m away from the alignment. No blockage of existing views.	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Existing view is dominated by engineered riverbank and maintenance access in the foreground and expansive view of Sheung Shui Industrial Area to the north in the foreground and Long Valley to the south across the river. Availability of open view along river corridor largely remains unchanged. Views looking towards the proposed works is limited to very few pedestrian walking along existing maintenance access along the river. The cycle track alignment is designed along existing maintenance access and its roadside area. Majority works area will be reinstated to its original status. Given the above reasons, the works will become a minor component in the riverside context.	Moderate Adverse Visual impact is limited to the VSRs travelling along the riverside adjacent to the works whilst travellers at the opposite site of the river at Sheung Shui urban fringe will not see the works.	Moderate Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Slight Adverse Reinstatement of roadside areas to its original status with plantation, in combination of new tree planting, ensures the visual quality along Shek Sheung River will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track integrated with preserved trees. Responsive design of the alignment follows existing road and maintenance access responding to the context. Upon fully established of the above mitigation measures, the visual quality of Shek Sheung River in the views of these VSRs with Sheung Shui Industrial Area in the background will be enhanced and the impact will be alleviated.

Visually Sensitive Receivers (VSR)	Sensitivity	Determinants for Magnitude of Change					Magnitude of Change (Construction / Operation Phase)	Impact Significance Threshold (Unmitigated)		Mitigation Measures	Impact Significance Threshold (Mitigated)	
		Viewing Distance/ Blockage of view	Compatibility with surrounding landscape	Scale	Reversibility	Duration Construction/ Operation		Construction	Operation		Construction	Operation
VSR14 Workers of Sheung Shui Industrial Area	Medium	Immediate adjacent to proposed alignment. or Opposite riverside at minimum 20 m away from the alignment. No blockage of existing views	High	Medium	Irreversible	2yrs./ Permanent	Small/ Small Existing view is contrasted with Long Valley village fringe settlement to the west and Sheung Shui Industrial areas to the east. Availability of open view along river corridor largely remains unchanged. Views looking towards the proposed works is limited to pedestrian walking along existing maintenance access along the river. The cycle track alignment is designed along existing maintenance access and its roadside area. Majority works area will be reinstated to its original status. Given the above reasons, the works will become a minor component in the riverside context.	Slight Adverse Visual impact is limited to the VSRs working in the riverside industrial building who have window view to Shek Sheung River.	Slight Adverse The operation impact to these VSRs is the same as construction impact regarding to the nature of project.	CP1, CP3, CP4, OP1, OP2 and OP4.	Slight Adverse Given the implementation programme at specific location along the whole alignment is relatively short, duration of the impact in views of these VSRs will be shortened. Temporary works and affected roadside amenity areas will be reinstated locally upon to sectional completion of the whole alignment. Proper management of material storage and construction activities. Given the implementation of above mitigation measures, the construction impact is minimized.	Negligible Reinstatement of roadside areas to its original status with plantation, in combination of new tree planting, ensures the visual quality along Shek Sheung River will be restored. The riverside amenity will be enhanced through introduction of new tree planting along the cycle track integrated with preserved trees. Responsive design of the alignment follows existing road and maintenance access responding to the context. Upon fully established of the above mitigation measures, the visual quality of Shek Sheung River in the views of these VSRs with Sheung Shui Industrial Area in the background will be enhanced and the impact will be alleviated.

Key to Table 12-10:

Sensitivity of Resource / Magnitude of Change:	Low, Medium or High / Negligible, Small, Intermediate or Large
Significance Threshold:	Negligible, Slight, Moderate and Significant (adverse or beneficial)
Residual Impacts:	Refer to matrix in Section 12.8.5

12.9 Cumulative Impacts

12.9.1 A number of projects are currently in progress or planned within the Study Area, which will result in landscape and visual impacts including the degradation of landscape character and visual amenity, and the loss of landscape resources.

12.9.2 Mitigation measures to address landscape and visual impacts have been incorporated into the design of each of the approved projects. The resulting changes to the existing landscape character, landscape resources and visual amenity have been taken into account in the baseline assessment. Cumulative impacts from these projects are therefore taken into account through their inclusion in the baseline conditions for this EIA.

12.9.3 Based on current information, the proposed cycle track will encroach to the proposed landscape areas which will be implemented in 2008 under DSD's PWP Item No. 4215DS "Yuen Long and Kam Tin sewerage and sewage disposal - Kam Tin Trunk Sewerage Stage 1" along southern side of Kam Tin Channel after completion of drainage improvement works. After subsequent discussions between project proponent and DSD, coordinating implementation programme between two projects will be undertaken as a design mitigation measure to mitigate the cumulative landscape impact. The proposed landscape areas under 4215DS that fall within the cycle track works area will be implemented later by project proponent in form of roadside amenity areas after completion of the cycle track. This coordinated works programme tends to avoid abortive planting works and impact on landscape resources between the interface of different public works. Given the extent of cycle track works is limited and majority of works area will be reinstated to its original status or new amenity area, the cumulative impact of the current proposals will not lead to a further degradation of either the landscape character or visual amenity of the Study Area.

12.10 Recommended Mitigation Measures

12.10.1 The landscape mitigation measures described in this report are at a level which both demonstrates their ability to alleviate the potential landscape and visual impacts identified in the assessment and also to allow the proposals to be carried forward during the detailed design stage. The measures are designed to address both the construction and operational phases of the project. More detailed landscape and compensatory planting proposals will be developed by IDC consultants at later stage during detailed design and construction phase of this project following the completion of the detailed Tree Survey Report and will seek for approval from relevant departments at that stage.

12.10.2 The landscape and visual mitigation measures are described both in a generic sense for measures, which apply to all of works area and in terms of the proposed landscape strategy for the roadside planting and amenity areas alongside of cycle track and within the Resting Stations and Information Kiosk. The aim of the mitigation measures is to:

- Alleviate where possible those landscape and visual impacts which are unavoidable through the review of alignment and locations of Resting Stations and Information Kiosk;

- Establish a coherent and integrated landscape framework for the proposed works drawing together the visually disparate components if any of the proposed works;
- Enhance the existing landscape and visual context of the surrounding areas providing integration between the proposed works and its context; and
- Provide a co-ordinated approach between the ecological and landscape mitigation proposals where there is an interface.

12.10.3 The Design Concept Drawings of cycle track and associated facilities and the Conceptual Landscape Master Plan presented as **Figure 12-9A** to **Figure 12-9F** and **Figure 12-9I** to **Figure 12-9P** respectively demonstrate the main landscape and visual mitigation strategies and the application of design mitigation measures including integrated design approach, compensatory and new roadside planting proposals and treatment of retaining wall and slope. Application of the recommended mitigation measures are mapped in **Figure 12-9G** to **Figure 12-9H**.

12.10.4 It is recommended that the Environmental, Monitoring and Audit Requirements (EM&A) for landscape and visual resources described in Section 13.10 of this report is undertaken during both the construction and operational phases of the Project.

Primary Mitigation Measures

12.10.5 In accordance with the EIAO-TM, the hierarchy for landscape and visual impact mitigation is first avoidance of impact, then minimisation of impact and finally compensation of impact. As has been described in the Project description in this report, the current proposals have been undertaken to fulfil the following objectives:

- Minimisation of potential impacts on landscape resources such as watercourses and existing trees by review the alignment and location of associated facilities through limited necessary crossing over the river or drainage channel including Kam Tin River and Sheung Yuen River, preserved wooded knolls including those adjacent to Mai Po and Kwu Tung, avoid impact to the Mai Po Village SSSI and an egretry at Castle Peak Road - Mai Po Section;
- Restoration and enhancement of existing roadside landscapes through planting large feature and ornamental trees following the completion of the construction phase of the project, this will create an instant greening effect be apparent in the enhancement of the streetscape of Castle Peak Road, San Tin Tsuen Road, San Tin and Fanling Highways etc.;
- Relocation of Resting Stations to ensure that a reserve of 5-20 m buffer zone between the proposed Resting Station and major roads such as Castle Peak Road and Fanling Highway is provided to provide a better visual integration between proposed facilities and their neighbourhood rural fringe landscape characters;
- Review the site area for the proposed Resting Stations and Information Kiosk to ensure that sufficient space is reserved within the facilities for compensatory planting and other landscape works; and
- Relocate and minimize the scale of Resting Station R9 Information Kiosk to minimize the potential ecological, visual and landscape impacts to Long Valley and Sheung Yue Riverside.

12.10.6 In accordance with the EIAO-TM, mitigation measures for the construction and operational phases of the project have been designed to minimize predicted landscape and visual impacts, and to compensate for lost landscape resources as far as is possible given the Project constraints.

Secondary Mitigation Measures

12.10.7 A series of mitigation measures designed to alleviate impact and where possible compensate for loss of landscape resources, change of landscape character and visual amenity for VSRs resulting from the construction and operational phases of the project. The implementation, funding, and management and maintenance for the amenity landscape areas associated with the proposed works will be undertaken by relevant departments.

12.10.8 The mitigation measures are summarised in **Table 12-11** and **Table 12-12**.

Table 12-11 Proposed Construction Phase Mitigation Measures

Mitigation Code	Mitigation Measure
CP1	Preservation of Existing Vegetation - The proposed works should avoid disturbance to the existing trees as far as practicable within the works areas. It is recommended that a full tree survey and felling application will be undertaken and submitted for approval by the relevant government departments in accordance with ETWB TCW No. 3/2006, 'Tree Preservation' during the detailed design phase of the project. Where possible all trees which are not in conflict with the proposals would be retained and shall be protected by means of fencing where appropriate to prevent potential damage to tree canopies and root zones from vehicles and storage of materials. Specifications for the protection of existing trees will be circulated for approval by the relevant government authorities during the preparation of the detailed tree survey by IDC consultants at detailed design and construction stage.
CP2	Preservation of Existing Topsoil - Topsoil disturbed during the construction phase will be tested using a standard soil testing methodology and where it is found to be worthy of retention stored for re-use. The soil will be stockpiled to a maximum height of 2 m and will be either temporarily vegetated with hydroseeded grass during construction or covered with a waterproof covering to prevent erosion. The stockpile should be turned over on a regular basis to avoid acidification and the degradation of the organic material, and reused after completion. Alternatively, if this is not practicable, it should be considered for use elsewhere, including other projects.
CP3	Works Area and Temporary Works Areas - The landscape of these works areas should be restored to its original status or new amenity area following the completion of the construction phase. Construction site controls shall be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities are minimized including the storage of materials, the location and appearance of site accommodation and the careful design of site lighting to prevent light spillage. Screen hoarding may not be practicable for this project due to the close viewing distances involved and spatial constraints of the works area
CP4	Mitigation Planting - Replanting of disturbed vegetation should be undertaken at the earliest possible stage of the construction phase of the project and this should use predominantly native and/or ornamental plant species.
CP5	Transplantation of Existing Trees - Existing 792 trees recommended to be transplanted under the current proposal, final recipient site should be, as far as space allows, adjacent to their current locations alongside of the cycle track or within supporting facilities to retain their contribution to the local landscape context, potential recipient sites are shown in Figure 12-9I to Figure 12-9P Conceptual Landscape Mater Plan. The implementation programme of the proposed works should reserve enough time for advance tree transplanting preparation works to enhance the survival of these transplant trees. Transplanting proposals will subject to the findings of the detailed tree survey and felling application undertaken by IDC consultants at the detailed design stage and upon to the approval by relevant departments.

Mitigation Code	Mitigation Measure
CP6	Coordination with Concurrent Projects- Coordinated implementation program with concurrent projects such as Kam Tin Trunk Sewerage Improvement Works undertaken from DSD to minimize cumulative landscape impact. This is evident through taking up the implementation of proposed landscape areas under Kam Tin Trunk Sewerage Improvement Works by cycle track proponent upon completion of cycle track.

Table 12-12 Proposed Operational Phase Mitigation Measures

Mitigation Code	Mitigation Measure
OP1	Design of Cycle Track and Associated Facilities - the cycle track, Resting Station and Information Kiosk will incorporate design features as part of design mitigation measures including: 1. Integrated design approach – the alignment of cycle track should integrated, as far as technically feasible, with existing built structures such as existing road, footpath and track and embankment of river and drainage channel as part of design mitigation measures to reduce the potential cumulative impact of the proposed works. The location and orientation of the associated facilities should be away from landscape and visually sensitive areas such wetland, fishpond and agricultural field. 2. Building massing - the proposed use of simple responsive design with a building height profile ,single-storey, lower than the adjacent village houses and avoids large built structure for supporting facilities to reduce the intrusion of mass in the rural area. 3. Treatment of built structures - the architectural design should seek to reduce the apparent visual mass of the facilities further through the use of natural materials such as wooden frame, vertical greening or other sustainable materials such as recycle plastic. 4. Responsive building finishes - In terms of the building finishes natural tones should be considered for the colour palette with non-reflective finishes are recommended on the outward facing building facades to reduce glare effect. 5. Responsive lighting design – Aesthetic design of architectural and track lighting with following glare design measures: ▪ Directional and full cut off lighting is recommended particularly for recreation and roadside areas to minimize light spillage to the surrounding areas. ▪ Minimize geographical spread of lighting, only applied for safety at the key access points and staircases; ▪ Limited lighting intensity to meet the minimum safety and operation requirement; and ▪ High-pressure sodium road lighting is recommended for more stringent light control reducing spillage and thus visual impacts.
OP2	Roadside and Amenity Planting – These planting will utilise large ornamental trees either with high canopy and thin foliage to allow visual access in the views from the adjacent neighbourhoods to the further roadside or rural landscape or dense foliage at selected locations to provide shade environment for cyclist and give accent to the existing roadside planting whilst native species will utilise on sloping or wooded areas improving the ecological connectivity between existing woodland habitats with the advantage of creating a more coherent landscape framework. Large Feature Trees will utilise within the Resting Stations or along the cycle track, where space allows, to create shaded environment and instant greening effect species such as *Aleurites moluccana, Bombax malabaricum, Cinnamomum camphora, Ficus bengimina, Ficus microcarpa, Grevillea robusta*, are considered. The other ornamental or native species such as *Delonix regia, Bauhinia blakeana, Cassia siamea, Cassia surttensis, Celtis sinensis and Microcos paniculata* are considered in the planting proposal to create a comprehensive planting framework that could enhance both ecological and landscape value of the context. Vertical greening measures should also be considered on engineering structures

Mitigation Code	Mitigation Measure
OP3	Compensatory Planting Proposals – Given the works extent is largely limited along existing roadside and channel side areas to minimize impact to existing village settlements and valuable landscape resources such as wetland, streamcourse and existing trees, and considered the importance of tree retention within the works area, new tree planting will concentrate in the proposed amenity areas along the track infilling between retained and transplanted trees. Eventhough proposed planting areas will be largely reserved for receiving transplanted trees, the preliminary planting proposals for the proposed works include some 919 new trees utilised a combination of mature to light standard sized stock in general roadside planting areas as shown in Figure 12-91 to Figure 12-9P and semi-nature stock for feature trees at selected locations. (i.e. approximate15% of mature trees, 25% of heavy standard trees, 50% of standard trees, and 10% light standard trees).The proposed planting will result in a compensatory planting ratio of 1.28:1 (new planting: trees recommended for felling). This compares favourably with the report's assertion that some 721 trees would be felled due to the proposed works. Following the retention of existing trees through preserving them at their current locations or transplanting locally to new planting areas along the cycle track, the successful establishment of newly planted trees and the transplantation of some of the existing trees, the project area will contain approximately 1824 trees. Trees forming part of the roadside and slope planting will provide amenity and shaded for the cyclists as well as neighbourhood villagers and will utilise species native to Hong Kong or wide canopy evergreen or with ornamental feature while the species selection for the areas within the Resting Stations or information kiosk will required more design accent utilised more flowering species and large feature trees. These proposals will be subject to review at detailed design stage of the project.
OP4	Treatment of Retaining Wall and Slopes- In accordance with GEO Publication No. 1/2000 "Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes and Retaining Walls", these engineering structures will be aesthetically enhanced through the use of soft landscape works including tree and shrub planting to give man-made slopes a more natural appearance blending into the local rural landscape. Whip sized planting is preferred on the face of soil cut slopes and at the crest and toe of the slope, and within berm planters these smaller, younger plants adapt to their new growing conditions more quickly than larger sized stock and establish a naturalistic effect more rapidly.

12.11 Programme for Landscape Works

12.11.1 The landscape works will closely follow the completion of the construction of the proposed cycle track and associates facilities at early 2010. The design year for the purpose of this study is taken as approximately 10 to 15 years after the scheme opening when the proposed soft landscape mitigation is mature. The landscape works will be implemented at the earliest possible time in the planting season immediately following the sectional completion of the construction works. The implementation schedule of landscape works is presented in **Table 14-8** of Section 14 in this report and also presented in the EM&A Manual.

12.12 Residual Landscape and Visual Impacts

12.12.1 Overall, in terms of residual landscape and visual impacts the main effects will primarily result from the interruption of existing roadside and riverside landscapes. However the proposed works will occupy a small part of roadside or riverside areas that majority of works only involves modification of existing roads and tracks, footpaths, drainage channels or planting areas and majority of works area will be reinstated to its original status or new amenity area, it is evident that the works will not cause permanent impact to landscape resources. A relatively low level of disturbance to visual context and visual amenity available to VSRs will result from the proposed works and the works will form only a small component in each identified landscape character areas within the Study Area.

12.12.2 All landscape characters will largely remain unchanged after full establishment of

the recommended mitigation measures, as:

- the scale and nature of the proposed works is small and low building height profile will be adopted;
- majority structures are integrated with existing built structures;
- provision of new recreation facilities and amenity areas; and
- tree preservation and new tree planting proposals, where space allows, will be implemented alongside the track and within the Resting Stations.

12.12.3 The planting proposals also form part of compensatory planting proposals for the loss of landscape resources, such as existing trees, as there will be a net gain of roadside planting, it will benefit the future landscape and ecology context within the Study Area.

Landscape Resources

Slight Adverse

12.12.4 Moderate impact on roadside and riverside Plantation (LR4) will be mitigated through the reinstatement of the majority works area to its original status or new amenity area alongside of the track and within supporting facilities utilised shrub and tree planting to compensate the loss of existing plantation and enhance the local landscape context particularly at where dominated by unpleasant features such as open storage and warehouses, engineering structures along infrastructure corridors. In combination of the tree preservation and transplanting proposals that will retain existing trees, as far as technically feasible, at their current location, there will be a net gain of approximately 1600 trees within the works area, hence the impact to LR4 will be reduced to slight impact upon to the fully establishment of the recommended mitigation measures.

Slight Beneficial

12.12.5 The loss of roadside and drainage areas along Major Road and Highway (LR1) and some areas of Settlement (LR2.1) and Open Storage (LR2.2) adjacent to the existing road will be replaced by a combination of new cycle track, footpath, supporting facilities and new planting areas that will significantly enhance existing infrastructure streetscape of Castle Peak Road, San Tin Tsuen Road, San Tin Highway and Fanling Highway and improve the pedestrian environment along these road corridors, which is dominated by heavy vehicular traffic, for both regional visitors and local residents. Given the above reasons, a slight beneficial impact is predicted to these LRs upon to the fully establishment of the recommended mitigation measures.

12.12.6 Further to the introduction of new amenity areas associated with the works and reinstatement of works area to its original status including affected slope and amenity areas, a slight beneficial impact is predicted to Grassland/ Scrubland Mosaic(LR5), Agricultural Field (LR6) and Modified Watercourse (LR8) upon to the fully establishment of the recommended mitigation measures.

Landscape Character Areas

Negligible

12.12.7 The slight/moderate impact to the landscape context within Kam Tin Riverside Landscape (LCA3), Mai Po Lowland Rural Landscape (LCA7) and Long Valley and Ho Sheung Heung Lowland Rural Landscape (LCA11) will be mitigated through the introduction of new tree and shrub planting along the track and within Resting Stations that will create screening buffer to reduce visual intrusion of engineering and built structures. In combination with the responsive design of the supporting facilities utilising a low building height profile and natural material finishes that will integrate with the riverside and rural context, the cycle track and associated facilities will form a small component being negligible in the context of these LCAs upon to the fully establishment of the recommended mitigation measures.

Slight Beneficial

12.12.8 Similar to the LCAs mentioned above, the recommended mitigation measures will reduce the adverse impact but also beneficial to the landscape context of Fairview Park Extensive Low-rise Residential Landscape (LCA4), Tam Mei Lowland Rural Landscape (LCA5), Mai Po Fringe Extensive Low-rise Residential Landscape (LCA6), San Tin Lowland Rural Landscape (LCA8), San Tin Cross-border Infrastructure and Facilities Landscape (LCA9) and Kwu Tung Lowland Rural Landscape (LCA10) through improvement of pedestrian environment by introducing new amenity areas that will upgrade these LCAs which are currently degrading by extensive infrastructure and industrial landuses, upon the full establishment of the recommended mitigation measures.

Visual

Slight Adverse

12.12.9 The majority of the works area will be reinstated to its original status or new amenity areas upon sectional completion of cycle track and the supporting facilities. Tree and shrub planting will be implemented along the track and within supporting facilities and the responsive design of built structures will be adopted. The visual intrusion of the proposed works will therefore be significantly reduced. The slight to moderate impact to the visual amenity of VSRs including Pedestrians and Visitors of Kam Tin Riverbank (VSR1), Ngau Tam Mei Channelside (VSR2) and Sheung Yue Riverbank (VSR11), and Residents of Village Settlement along Castle Peak Road – between Tam Mei and Mai Po Section (VSR6) and Mai Po Village Settlement (VSR7) due to their proximity to the Project will be alleviated to slight adverse upon the full establishment of the recommended mitigation measures.

12.12.10 The visual amenity of Residents of Man Yuen Tsuen (VSR3), Fairview Park (VSR4), Yau Mei San Tsuen (VSR5), Village Settlement along Castle Peak Road – between Tam Mei (VSR6), Mai Po Village Settlement (VSR7), San Tin Village Settlement (VSR8), Kwu Tung Village Settlement (VSR10) and Pedestrians and Visitors of Shek Sheung Riverbank (VSR13) will be enhanced through the improvement of roadside and riverside pedestrian environment that are currently interrupted by heavy duty vehicular traffic. The introduction of new amenity and shaded setting areas will enhance the visual quality of river and road corridors and provide landscape buffer to the traffic or engineered structures

associated with road or drainage channel. Reinstatement of works area will be carried out upon sectional completion of the works. Hence the adverse impact to these VSRs will be reduced to slight upon the full establishment of the recommended mitigation measures.

Negligible

12.12.11 The slight to moderate impact to the visual amenity of VSRs including Residents of Ho Sheung Heung Village Settlement (VSR12), Travellers of Cross-boarder Infrastructure Facilities (VSR9) and Workers of Sheung Shui Industrial Area (VSR14) will be alleviated by the recommended mitigation measures including roadside planting. It is evident that mitigation measures are more effective to these VSRs regarding to their viewing distance to the project and their existing views are dominated by extensive agriculture fields, fishponds, open storage and warehouse along road corridors or industrial buildings or extensive infrastructure facilities in the foreground. Hence the proposed works will form a small component in their visual context being negligible upon to the fully establishment of the recommended mitigation measures.

Photomontages

12.12.12 A series of computer generated images or photomontages have been prepared for the proposed works demonstrating a worst case scenario to VSRs and are presented as **Figure 12-10A** to **Figure 12-10F**. The location of the vantage points used for these images has been identified on **Figure 12-7A** and **Figure 12-7B**. The photomontages of the proposed works show the existing conditions, Day 1 of Operational Phase after the completion of the construction phase in the absence of mitigation measures and Day 1 of Operational Phase with mitigation measures. Year 10 of Operational Phase with mitigation measures to demonstrate the predicted residual impacts, which would exist in the design year during the operational phase taken as between 10 and 15 years after the completion of the construction phase.

12.12.13 During the preparation of the photomontages the baseline photographs of the existing situation were taken with a 50 mm lens (representing the actual situation as closely as possible) as series of photographs. These photographs were stitched together to form a panoramic view utilising the central portion (approximately 50%) of each photograph (this is the area with the least distortion). These photographs were used to demonstrate the existing view. The photomontages of those views cannot cover the whole development in one single shot due to the effects of perspective and so are presented as a series of individual images.

Vantage Point A - View north from footpath of Castle Peak Road adjacent to Nga Yuet Villa (represents residents of roadside village settlements including (VSR 6) Residents of Village Settlements along Castle Peak Road – between Tam Mei and Mai Po Section)

12.12.14 The photomontages on **Figure 12-10A** and **Figure 12-10B** show the proposed cycle track from footpath level at a close distance to demonstrate the change of visual amenity of the residents living adjacent to this section of Castle Peak Road. The image shows the comparatively small scale of the proposed works in relation to road corridor and village settlements and demonstrates how effective the

mature roadside planting screening the views looking towards busy traffic along Castle Peak Road and San Tin Highway. Existing low-level views of these VSRs are dominated by roadside planting and other built structures associated with roadside development, open storage or warehouses. Regarding to the nature of the proposed works, only a few residents living at the periphery of village development adjacent to Castle Peak Road at elevated floors will perceive the presence of the track. The majority of roadside planting between Castle Peak Road and San Tin Highway will not be affected by the works. Although some of the roadside planting to the west of the footpath requires to be removed for the cycle track, the majority works area will be reinstated to roadside planting area upon sectional completion of the track. In combination with tree retention and transplanting proposals for the affected trees to be preserved in the local context in new planting area, the existing visual context will largely remain unchanged in the view of these roadside VSRs. The residual impact resulted from the proposed works is therefore slight from this vantage point.

Vantage Point B - View at the dam to the west of Mai Po Lo Wai (represents residents of village settlements who have expansive views across agricultural fields and fishponds in the foreground including VSR7 - Residents of Mai Po Village Settlement)

12.12.15 The photomontages on **Figure 12-10C** and **Figure 12-10D** show the proposed cycle track along existing dam through widening the existing maintenance access to Mai Po Floodwater Pumping Station and demonstrate the change of visual amenity of residents living at the periphery of Mai Po Lo Wai and Mai Po San Tsuen. These VSRs are limited in numbers because majority of the villagers living in the centre portion of the settlement will not have a view to the works as most of existing views are obstructed by adjacent village houses. These VSRs have extensive open view to the fishponds to the further west interrupted by the dam and maintenance access to the pumping station. These VSRs are located at a distance of approximate 100 m from the proposed works with extensive fish pond and fields in the foreground. The image shows the comparatively small scale of the proposed works in relation to the extensive open view across the fishponds and demonstrates how effective the integrated design approach of building the proposed track alongside of existing built structures.

12.12.16 Regarding the scale and integrated design approach of the proposed works, the proposed cycle track will not result in cumulative impact to the built structures that are already there viewing from these VSRs, hence their visual quality will largely remain unchanged. In addition, the proposed edge planting along the cycle track utilising a combination of both native and ornamental tree species and shrub planting formed part of landscape mitigation measures could further soften the engineering edge of existing built structures. This planting proposal also provides shaded cycling environment for the future users. The adverse impact resulted from the proposed works is therefore alleviated with fully establishment of this planting edge and the visual quality in the context will be restored. Hence, a slight adverse residual visual impact is predicted from this vantage point.

Vantage Point C - View along the maintenance access along the northern riverbank of Sheung Yue River (represents travellers along riverbanks who have immediate view to the works including VSR11- Pedestrians and Visitors of Sheung Yue Riverbank)

12.12.17 The photomontages on **Figure 12-10E** and **Figure 12-10F** show the proposed

cycle track alongside the existing maintenance access at Sheung Yue River and demonstrate the change of visual amenity of pedestrians and visitors of Sheung Yue River and residents living at the eastern periphery of Ho Sheung Heung. Regarding to the proximity to the works, the visual amenity of pedestrians and visitors travelling along the western maintenance access of Sheung Yue River will be temporary interrupted by the works. The image demonstrates that these impacts will be alleviated by the introduction of new ornamental tree planting, in combination with preserved trees, the appearance of existing engineered access and planned cycle track will be soften. This planting proposal will also provide shaded environment for future cyclists and visitors for their enjoyment of riverside landscape. Hence, the adverse impact will be largely reduced to slight level in the view of travellers along riverbanks adjacent to the works from this vantage point.

12.12.18 This image also demonstrates only limited residents of Ho Sheung Heung have views looking towards the embankment of the existing maintenance access in the middle ground across extensive fishponds and agricultural fields in the foreground. These VSRs are located at a distance of 100 m to 300 m to the west of the works. The image shows that the introduction the track and associated planting alongside will be a comparatively small component in their views in relation to their extensive view in the foreground. The recommended mitigation measures including new tree planting, responsive alignment and integrated design approach with built structures will effectively alleviate the impact in the views at intermediate to long distance. Hence, the residual impact in the views from Ho Sheung Heung is negligible.

12.13 Environmental Monitoring and Audit Requirements

12.13.1 The design, implementation and maintenance of landscape and visual mitigation measures is a key aspect and should be checked to ensure that they are fully realised, thus EM&A for landscape and visual resources should be undertaken. Implementation of the mitigation measures recommended shall be monitored through the site audit programme.

12.14 Conclusion

Compatible to the Landscape Planning Framework

12.14.1 The proposed cycle track and associated facilities encroach a few zoning areas within five Outline Zoning Plans. Equal or less than 1% of individual zoning areas which is sensitive to change such as areas zoned for wetland enhancement area and green belt, and 3 to 19% of the rest of zoning areas which is less sensitive to change such as areas zoned for agriculture, comprehensive development, industrial and open space etc. will be in conflict with the proposed works. However, the nature of the works is to provide new recreation facilities in NWNT. The existing pedestrian environment will be improved with new planting proposals. Thus, the project will not lead to a permanent degradation of the landscape setting of an area upon full establishment of the recommended mitigation measures, and will not affect its viability in terms of being a landscape planning designation. The proposed cycle track and associated facilities largely fit into the planning and development control framework and integrate with the future outlook of this rural landscape context.

Landscape Impact

12.14.2 With the implementation of responsive design of cycle track and associated supporting facilities in combination with the full establishment of planting some 2,300 ornamental and woodland trees along the cycle track and within the Resting Stations together with the preserved trees and reinstatement of majority works area upon completion of the works, the slight/moderate adverse impact on the Plantation (LR4) during both construction and operation phase will be reduced to slight impact, whilst the slight adverse impact on LRs such as Major Road and Highway (LR1), Settlement (LR2.1) and Open Storage (LR2.2), Grassland and Scrubland Mosaic (LR5), Agriculture Field (LR5) and Modified Watercourse (LR6) will be alleviated to a beneficial level.

12.14.3 The preliminary planting proposals for the proposed works include some new trees utilising a combination of standard to heavy standard sized stock in general roadside planting areas and semi-nature stock for feature trees at selected locations along the track and within the Resting Stations. The proposed planting will result in a compensatory planting ratio of 1.28:1 (new planting: trees recommended for felling). This compares favourably with the report's assertion that some 721 trees would be felled due to the proposed works. Following the retention of existing trees of approximately 905 trees through preserving them at their current locations or transplanting locally to new planting areas close to their current location, the successful establishment of newly planted trees and preservation of existing trees, the project area will contain approximately 1824 trees within the Study Area and will be resulted to a net gain of landscape resources.

12.14.4 Quality of the majority landscape character areas identified within the Study Area will be slightly benefited by the improvement of roadside areas with new planting proposals associated with the proposed works making existing infrastructure and riverside corridors better integrated with the rural landscape context.

12.14.5 The slight/moderate impact during construction and operation phase to the landscape context within Kam Tin Riverside Landscape (LCA3), Mai Po Lowland Rural Landscape (LCA7) and Long Valley and Ho Sheung Heung Lowland Rural Landscape(LCA11) will be mitigated to a negligible level, the slight impact to the landscape context of Fairview Park Extensive Low-rise Residential Landscape (LCA4), Tam Mei Lowland Rural Landscape (LCA5), Mai Po Fringe Extensive Low-rise Residential Landscape (LCA6), San Tin Lowland Rural Landscape (LCA8), San Tin Cross-border Infrastructure and Facilities Landscape (LCA9) and Kwu Tung Lowland Rural Landscape (LCA10) will be alleviated to a beneficial level through the introduction of new tree and shrub planting along the track and within Resting Stations that will create effective screening buffer in combination with preserved trees to reduce the visual intrusion of engineering and built structures, and adopting responsive design of the supporting facilities that will utilise a low building height profile, single storey, and natural material finishes. Upon the fully establishment of recommended mitigation measures, the proposed works will form a small component integrated with the riverside and rural context.

Visual Impact

12.14.6 Given majority of the works area will be reinstated to its original status or with new amenity areas upon sectional completion of cycle track and Resting Stations, new tree and shrub planting along the track and within supporting facilities and the responsive design of built structures, provision of buffer planting and shaded seating area within resting station will significantly reduce the visual intrusion of the proposed works to the visual amenity of identified VSRs, the moderate impact

during construction and operation phase to VSRs including Pedestrians and Visitors of Kam Tin Riverbank (VSR1), Ngau Tam Mei Channelside (VSR2), Sheung Yue Riverbank (VSR11) and Shek Sheung Riverbank (VSR13) and Residents of Village Settlement of Man Yuen Tsuen (VSR3) , Fairview Park (VSR4), Yau Mei San Tsuen (VSR5), along Castle Peak Road – between Tam Mei and Mai Po Section (VSR6), Mai Po Village Settlement (VSR7), San Tin Village Settlement (VSR8) and Kwu Tung Village Settlement (VSR10) will be alleviated to slight level upon to the full establishment of the recommended mitigation measures.

12.14.7 In addition the visual amenity of Residents of Ho Sheung Heung Village Settlement (VSR12) who have views looking towards the works screened by existing vegetation in distance and Pedestrians and Travellers of Cross-boarder Infrastructure Facilities (VSR9) who have views dominated by highways and infrastructure facilities and Workers of Sheung Shui Industrial Area (VSR14) who have views dominated by industrial landscape towards Shek Sheung River will also be enhanced through the improvement of roadside and riverside pedestrian environment, introduction of new amenity and shaded setting areas within working stations and provide landscape buffer to the traffic or engineered structures associated with existing road or drainage channel, and reinstatement of works areas upon to sectional completion of the works. These recommended mitigation measures will reduce the slight adverse impact to negligible upon to the full establishment of recommended mitigation measures.

12.14.8 In accordance with Annex 10 of the EIAO-TM, the landscape and visual impacts of the proposed works would be ‘acceptable with mitigation measures’ that is to say ‘there would be some adverse effects, but these can be eliminated, reduced or offset to a large extent by specific measures’.

13. ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

13.1 Introduction

13.1.1 This section provides a summary of the requirements of the environmental monitoring and audit (EM&A) for the Project based on the findings of this EIA study. An EM&A programme has been formulated and the details are provided in the separate EM&A Manual prepared in accordance with Annex 21 of the EIAO-TM.

13.1.2 The objectives of conducting the EM&A programme for the Project are as follows:

- To provide a database against which any short or long-term environmental impacts of the Project can be determined;
- To provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- To monitor the performance of the Project and the effectiveness of mitigation measures;
- To verify the environmental impacts predicted in this EIA;
- To determine project compliance with regulatory requirements, standards and government policies;
- To take remedial action if unexpected problems or unacceptable impacts arise; and
- To provide data to enable an environmental audit.

13.1.3 The following section summarises the recommended EM&A requirements for the Project. Details of the specific requirements are provided in a stand-alone EM&A Manual.

13.2 Air Quality

Construction Phase

13.2.1 With the implementation of the dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices, no adverse construction dust impacts would be expected. Hence, no specific construction dust monitoring is recommended. However, regular environmental audits to be implemented by the Environmental Team during the construction stage are recommended to ensure the implementation of the dust control measures.

Operational Phase

13.2.2 No air quality impacts are anticipated as a result of the implementation of the Project during the operational phase. Thus, no specific EM&A programme with respect to air quality during the operational phase is required.

13.3 Noise

Construction Phase

13.3.1 Mitigation measures have been recommended to control the construction noise impacts arising from the Project. All the recommended mitigation measures will be incorporated into the EM&A programme for implementation during construction.

13.3.2 The recommended mitigation measures, monitoring procedures and locations are detailed in the Environmental Monitoring and Audit (EM&A) Manual and should be implemented by the Environmental Team. This will allow the Contractor to have early warning and undertake the necessary actions to reduce noise emissions at specific areas.

Operational Phase

13.3.3 No noise impacts are anticipated as a result of the implementation of the Project during the operational phase. Thus, no specific EM&A programme with respect to noise during the operational phase is required.

13.4 Water Quality

Construction Phase

13.4.1 The water quality assessment has concluded that the identified water quality impacts could be minimized by implementing the best practicable pollution control measures recommended for the construction works such as control measures on stormwater runoff into receiving waters, and proper site management and good housekeeping practices. No unacceptable residual water quality impact is expected. Any effluent discharges from the site would be required to comply with the terms and conditions of a discharge licence issued by EPD under the WPCO.

13.4.2 No specific water quality monitoring is considered necessary and effective for non-point runoff. However, on-site environmental audit and visual inspection is recommended to ensure proper implementation of water pollution control measures during the construction phase and this should be implemented by the Environmental Team. The section of the proposed cycle tracks near Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River and fishponds at Mai Po shall receive particular attention in the environmental audit to avoid pollution of immediate and downstream waters.

13.4.3 Any wastewater discharges from the construction sites will require a WPCO discharge licence to be issued. There may be requirements for monitoring the quality/quantity of the discharges to show compliance with the conditions of the licence. However, such monitoring would not form part of the EM&A programme.

Operational Phase

13.4.4 No adverse water quality impacts would be expected as a result of the implementation of the Project during operational phase. Thus, no specific EM&A programme with respect to water quality during the operational phase is required.

13.5 Waste Management

Construction Phase

13.5.1 The assessment on waste management has concluded that with proper handling, storage, collection, transportation and disposal of waste materials generated during construction phase, no significant impacts to nearby sensitive receivers are expected.

13.5.2 Waste management would be the Contractor's responsibility to ensure that all wastes produced during the construction of the Project are handled, stored and disposed of in accordance with good waste management practices and EPD's regulations and requirements. The mitigation measures recommended in Section 7.4 should form the basis of the site Waste Management Plan to be developed by the Contractor at the construction phase.

13.5.3 Whilst no specific EM&A requirement have been considered necessary, it is recommended that during the construction phase, site inspections and supervisions of waste management procedures and auditing of the effectiveness of implemented mitigation measures should be undertaken by the Environmental Team on a regular basis (e.g. weekly as a minimum). These tasks shall be scheduled in the Waste Management Plan to be prepared by the Contractor, and the site audits summary shall be presented in the EM&A reports.

Operational Phase

13.5.4 No adverse waste management impacts would be expected as a result of the implementation of the Project during operational phase. Thus, no specific EM&A programme with respect to waste management during the operational phase is required.

13.6 Land Contamination

13.6.1 There are six potential areas proposed for further investigation as potential contaminative land uses located within the Project boundary is suspected. Investigation at works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road is also recommended to confirm the arsenic level. A CAP should be submitted to EPD for endorsement prior to conducting the contamination assessment works. Contamination assessment at the potential contaminated zones should follow the requirements laid out in the CAP. A CAR and RAP, where necessary, should be prepared based on the results obtained from the site investigation and submitted for EPD's approval. The contaminated site(s) shall be remediated in accordance with the approved CAR/RAP. The EM&A programme should be to ensure all relevant land contamination assessment works are implemented. Details of the requirements are provided in the EM&A Manual.

13.7 Ecology

Construction Phase

13.7.1 The implementation of the terrestrial ecological mitigation measures should be checked as part of the environmental monitoring and audit procedures during the construction period. There will be no significant overall loss of valuable ecological

habitat and it is considered any impacts to surrounding habitats and species that will arise from the construction and operation of the cycle track will be minor. No other ecology-specific measures are considered necessary.

Operational Phase

13.7.2 The Operational Phase EM&A will comprise of an audit during the first year of operation of the cycle track to ensure appropriate implementation of mitigation measures including signage, mitigation planting at Mai Po Egretry, R9 and planting for screening at meander 8 in Long Valley.

13.8 Fisheries

Construction Phase

13.8.1 As there will be no loss of fishponds, no significant negative or unacceptable impacts on aquaculture fisheries resources and operations will arise as a result of the implementation of the Project. No specific fisheries-specific monitoring is required. However, environmental audits will be required to be undertaken by the Environmental Team to ensure proper implementation of runoff control measures during the construction phase.

Operational Phase

13.8.2 No adverse fisheries impacts would be expected as a result of the implementation of the Project during operational phase. Thus, no specific EM&A programme with respect to fisheries during the operational phase is required.

13.9 Cultural Heritage

Construction Phase

13.9.1 The EIA has concluded that there are no direct or indirect impacts to archaeological remains, declared/deemed monuments and historic buildings as a result of the Project. No specific EM&A programme is considered necessary. As a precautionary measure however, care should be taken during the construction stage to report any signs of possible discovery of artefacts.

Operational Phase

13.9.2 No adverse impacts on any cultural heritage resources would be expected as a result of the implementation of the Project during operational phase. Thus, no specific EM&A programme with respect to cultural heritage during the operational phase is required.

13.10 Landscape and Visual

Construction Phase

13.10.1 The EIA has identified a number of potential landscape and visual impacts during construction and operation. In order to mitigate these impacts, a number of on-site landscape mitigation measures are recommended for incorporation into the Project. No off-site mitigation measures have been proposed.

13.10.2 Regular audits should be carried out to ensure all the recommended landscape and visual mitigation measures would be effectively implemented and audited by a landscape auditor of the Environment Team during construction and operation phases of the Project. The EM&A will comprise audit of the tree transplanting, compensatory planting and planting establishment through site audit programme.

Operational Phase

13.10.3 Operational stage EM&A during the operational phase will comprise audit of the implementation of the landscape plan in the form of site inspection.

14. IMPLEMENTATION SCHEDULE OF MITIGATION MEASURES

14.1 Introduction

14.1.1 The implementation schedules for the recommended mitigation measures for each environmental aspect covered in this EIA are given in the following **Table 14-1** to **Table 14-8** as appropriate.

Table 14-1 Air Quality – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.3.6.2	S.3.2.3	All the dust control measures as recommended in the Air Pollution Control (Construction Dust) Regulation, where applicable, should be implemented. Typical dust control measures include:	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ The works area for site clearance shall be sprayed with water before, during and after the operation so as to maintain the entire surface wet	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ Restricting heights from which materials are to be dropped, as far as practicable to minimize the fugitive dust arising from unloading/ loading	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ Immediately before leaving a construction site, all vehicles shall be washed to remove any dusty materials from the bodies and wheels. However, all spraying of materials and surfaces should avoid excessive water usage	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ Where a vehicle leaving a construction site is carrying a load of dusty materials, the load shall be covered entirely by clean impervious sheeting to ensure that the dusty materials will not leak from the vehicle	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ Travelling speeds should be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ Erection of hoarding of not less than 2.4 m high from ground level along the site boundary, where appropriate	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.3.6.2	S.3.2.3	▪ Any stockpile of dusty materials shall be covered entirely by impervious sheeting; and/or placed in an area sheltered on the top and 4 sides	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
S.3.6.2	S.3.2.3	▪ All dusty materials shall be sprayed with water or a dust suppression chemical immediately prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet	Air Quality (fugitive dust) Control during Construction Phase	Contractors	At all construction areas of the site during the entire construction period	Annex 4 and Annex 12 of EIAO -TM, Air Pollution Control (Construction Dust) Regulation
Operational Phase						
N/A	N/A	None specific	N/A	N/A	N/A	N/A

Table 14-2 Noise – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.5.5.11	S.4.2.17	In order to prevent potential cumulative construction noise impacts to NSRs at Mai Po San Tsuen and Palm Springs, the works at the cycle track section (near CH-MP5+100m) are recommended to be scheduled to avoid works at the areas near Castle Peak Road of the Proposed Comprehensive Development at Wo Shang Wai (CDWSW) project if the works site of the CDWSW project is less than 300 m away from Castle Peak Road.	Noise control during construction	Contractors, ER	Construction areas near the specified locations during the construction period	EIA, Contractual requirements
S.5.5.14	S.4.2.17	The contractor shall liaise with the Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2 (YLKTSSD2) and North West New Territories Salt Water Supply (NWNTSWS) works contractors so as to avoid undertaking works concurrently with the works when they are in the close proximity as far as practicable. As a conservative approach, works for the cycle track shall be carried out when the works from the other projects are over 300 m away. The requirements shall be included in the works contracts.	Noise control during construction	Contractors, ER	Construction areas near the specified locations during the construction period	EIA, Contractual requirements
Table 5-7	S.4.2.19	Use of quiet plant (PME): - mini excavator - mobile crane - dump truck - hand-held electric circular saw - concrete lorry mixer - lorry - vibratory poker - asphalt paver - crane mounted auger - road roller - road ripper, excavator mounted	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	EIA, Contractual requirements

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.5.6.2 Table 5-8	S.4.2.19	Noise barrier in the form of site hoarding shall be used for the following PMEs where practicable: - mini excavator - mobile crane - dump truck - hand-held electric circular saw - bar bender - vibrating hammer - generator - concrete lorry mixer - lorry - vibratory poker - asphalt paver - compactor - road roller - crane mounted auger - grout mixer - grout pump - drill - road ripper, excavator mounted	Noise control during construction	Contractors	At all construction areas of the site close to identified NSRs during the entire construction period	EIA, Contractual requirements
S.5.6.2	S.4.2.19	Noise enclosure shall be used for the following PMEs where practicable: - air compressor - hand-held breaker	Noise control during construction	Contractors	At all construction areas of the site close to identified NSRs during the entire construction period	EIA, Contractual requirements
S.5.6.2	S.4.2.19	The barrier / enclosure material's surface mass shall be in excess of 7 kg/m^2.	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	EIA, Contractual requirements
S.5.6.6	S.4.2.19	Use of alternative quieter plant such as road ripper, excavator mounted instead of handheld breaker during levelling/excavation works.	Noise control during construction	Contractors	At construction areas of the site close to NSR12 and NSR20 during the entire construction period	EIA, Contractual requirements
S.5.6.8	S.4.2.19	The Contractor shall adopt the Code of Practice on Good Management Practice to Prevent Violation of the Noise Control Ordinance (Chapter 400) (for Construction Industry) published by EPD	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.5.6.8	S.4.2.19	The Contractor shall observe and comply with the statutory and non-statutory requirements and guidelines	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	Before commencing any work, the Contractor shall submit to the project Engineer for approval the method of working, equipment and noise mitigation measures intended to be used at the site	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	The Contractor shall devise and execute working methods to minimize the noise impact on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	Noisy equipment and noisy activities should be located as far away from the NSRs as is practical	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	Unused equipment should be turned off. PME should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	Regular maintenance of all plant and equipment	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	Material stockpiles and other structures should be effectively utilised as noise barriers, where practicable	Noise control during construction	Contractors	At all construction areas of the site during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
S.5.6.8	S.4.2.19	The Contractor shall liaise with the schools that are located near the works sites regarding their examination period and schedule the noisy works to avoid the examination period as far as possible	Noise control during construction	Contractors	At construction areas near schools during the entire construction period	Annex 5 and Annex 13 of EIAO-TM
Operational Phase						
N/A	N/A	None specific	N/A	N/A	N/A	N/A

Table 14-3 Water Quality – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S. 6.6.1	S.5.2.4	Mitigation measures should be implemented to prevent the uncontrolled discharge of wastewater from the construction site in accordance with Practice Note for Professional Persons ProPECC PN1/94 - Construction Site Drainage	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	ProPECC PN1/94, Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Surface run-off from the construction sites will be directed into storm drains via adequately designed wastewater treatment facilities such as sand traps, silt traps and sediment settling basins. This is important for works immediately along the Kam Tin River, Ngau Tam Mei Main Drainage Channel, River Beas and Shek Sheung River	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Channels, earth bunds or sand bag barriers will be provided on-site to properly direct stormwater to the above-mentioned facilities	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Existing silt removal facilities, channels and manholes along roads and pedestrian walkways will be maintained and the deposited silt and grit will be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Other manholes (including any newly constructed ones) will be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Open stockpiles of materials on site will be avoided or where unavoidable covered with tarpaulin or similar fabric during rainstorms. Measures will be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Where possible, works entailing soil excavation will be minimized during the rainy season (i.e. April to September);	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Where applicable, final earthworks surfaces/ slopes will be well compacted and hydro-seeded following completion to prevent erosion	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S. 6.6.1	S.5.2.4	During construction works, chemical toilets will be provided for the use of site staff. These will be provided by a licensed contractor, who will be responsible for appropriate disposal and maintenance of the effluent	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Works adjacent to the fishponds near Kam Tin River inside the conservation area (CA) and Mai Po San Tsuen should be avoided as far as possible during the wet season to avoid runoff into the fishponds	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Wastewater from site facilities (such as toilets) should be discharged to foul sewer, where available. Chemical toilets will be considered where there is no foul sewer connection. There is not expected to be a temporary canteen.	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	All site discharges within Water Control Zones must comply with the terms and conditions of a valid discharge licence issued by EPD	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Vehicle wheel washing facilities should be provided, where applicable, at the site exit such that mud, debris, etc. deposited onto the vehicle wheels or body can be washed off before the vehicles are leaving the site area	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Section of the road between the wheel washing bay and the public road should be paved with backfill to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains	Stormwater and Non-point Source Pollution Control	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	The project may occasionally involve the handling of fuel and generates chemical wastes. It must be ensured that all fuel tanks and chemical storage are sited on sealed areas and provided with locks	Protection Against Accidental Spillage	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	The storage areas will be surrounded by bunds with a capacity equal to 110% of the storage capacity of the largest tank to prevent accidentally spilled oil, fuel or chemicals from reaching the receiving waters	Protection Against Accidental Spillage	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance
S. 6.6.1	S.5.2.4	Oil and grease removal facilities will be provided where appropriate, for example, in area near plant workshop/ maintenance areas	Protection Against Accidental Spillage	Contractors	At all construction areas of the site during the entire construction period	Water Pollution Control Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location / Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S. 6.6.1	S.5.2.4	Chemical waste arising from the site should be properly stored, handled, treated and disposed of in compliance with the requirements stipulated under the Waste Disposal (Chemical Waste) (General) Regulation	Protection Against Accidental Spillage	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal (Chemical Waste) (General) Regulation
Operational Phase						
N/A	N/A	None specific	N/A	N/A	N/A	N/A

Table 14-4 Waste Management Implication – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.7.4.1	S. 6.2.1 – S.6.2.4	An on-site environmental co-ordinator employed by the Contractor should be identified at the outset of the works. Prior to commencement of Project works, the co-ordinator shall prepare a WMP in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Sites, for the ER's approval. The WMP shall include monthly and yearly Waste Flow Tables ("WFT") that indicate the amounts of waste generated, recycled and disposed of (including final disposal site), and which should be regularly updated;	Waste management during construction	Contractors	Prior to commencement of Project works, and implemented throughout the entire construction period	ETWB TCW No. 19/2005, Waste Management on Construction Sites
S.7.4.1	S. 6.2.6	Given the potential for secondary environmental impacts (dust, noise, water quality and visual impacts), mitigation measures are required to ensure proper handling, storage, transportation and disposal of materials at the outset and throughout the construction phase of the project	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ The reuse/ recycling of all materials on site shall be investigated and exhausted prior to treatment/ disposal off-site	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ Good site practices shall be adopted from the commencement of works to avoid the generation of waste, reduce cross contamination of waste and to promote waste minimisation	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ All waste materials shall be sorted on-site into inert and non-inert C&D materials, and where the materials can be recycled or reused, they shall be further segregated. Inert material, or public fill will comprise stone, rock, masonry, brick, concrete and soil which is suitable for land reclamation and site formation whilst non-inert materials include all other wastes generated from the construction process such as plastic packaging and vegetation (from site clearance).	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.7.4.1	S. 6.2.6	▪ The Contractor shall be responsible for identifying what materials can be recycled/ reused, whether on-site or off-site. In the event of the latter, the Contractor shall make arrangements for the collection of the recyclable materials. Any remaining non-inert waste shall be collected and disposed of to the Public Filling Areas whilst any inert C&D materials shall be re-used on site as far as possible. Alternatively, if no use of the inert material can be found on-site, the materials can be delivered to a Public Fill Area or Public Fill Bank after obtaining the appropriate licence;	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ In order to monitor the disposal of C&D material and solid wastes at public filling facilities and landfills, and control fly-tipping, a trip-ticket system shall be implemented by the Contractor, in accordance with the contract and the requirements of WBTC 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Material".	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	WBTC 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Material"
S.7.4.1	S. 6.2.6	▪ Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register as a Chemical Waste Producer if chemical wastes such as spent lubricants and paints are generated on site. Only licensed chemical waste collectors shall be employed to collect any chemical waste generated at site. The handling, storage, transportation and disposal of chemical wastes shall be conducted in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes and A Guide to the Chemical Waste Control Scheme both published by EPD;	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal (Chemical Waste) (General) Regulation
S.7.4.1	S. 6.2.6	▪ A sufficient number of covered bins shall be provided on site for the containment of general refuse to prevent visual impacts and nuisance to the sensitive surroundings. These bins shall be cleared daily and the collected waste disposed of to the refuse transfer station. Further to the issue of ETWB TCW No. 6/2002A, Enhanced Specification for Site Cleanliness and Tidiness, the Contractor is required to maintain a clean and hygienic site throughout the project works;	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.7.4.1	S. 6.2.6	▪ All chemical toilets, if any, shall be regularly cleaned and the night-soil collected and transported by a licensed contractor to a Government Sewage Treatment Works facility for disposal; and	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ Toolbox talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
S.7.4.1	S. 6.2.6	▪ The Contractor shall comply with all relevant statutory requirements and guidelines and their updated versions that may be issued during the course of project construction.	Waste management during construction	Contractors	At all construction areas of the site during the entire construction period	Waste Disposal Ordinance
Operational Phase						
S. 7.4.2	S.6.3.2	Waste collection facilities (e.g. litter bins) to be included in the design of the supporting facilities, and at regular intervals along the route. The Government Department responsible for managing the facilities will be responsible for arranging for regular collection of litter from these facilities. Separate collection bins shall be provided for aluminium cans, plastic drinks bottles and paper wastes, which will facilitate recycling of these waste streams	Waste management during operational phase	LCSD for management and maintenance of facilities FEHD for arranging regular collection of refuse	All Resting Stations and along the cycle track. Collection of refuse at regular interval	EIA, Contractual requirements

Table 14-5 Land Contamination – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.8.7.2 – S.8.7.3	S.7.2.2	Preparation of Contamination Assessment Plan (CAP), which should be submitted to EPD for endorsement, prior to investigation. Site investigation and sampling works in accordance with the approved CAP. If contamination is identified, Contamination Assessment Report (CAR) and Remediation Action Plan (RAP) shall be prepared and submitted for EPD's approval.	To formulate CAP and CAR to assess the land contamination impact	Project Proponent, Contractor	Prior to construction works within the area 5 m of the Project alignment neighbouring Sites A to F, and works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road.	Guidance Note for Contaminated Land Assessment and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/ Dismantling Workshops
S.8.7.5	S.7.3.1	The following control measures should be implemented when handling identified contaminated materials: ▪ General site safety shall be enforced to include basic practices such as the use of safety boots, hard hats, coveralls, gloves and eye protection; ▪ Avoid skin contact, ingestion and inhalation of excavated contaminated soils. Basic personal protective equipment should be used; ▪ Site staff and workers shall be given adequate training and instructions specific to the potential hazards, their health and safety responsibilities and safe working practice including basic personal hygiene; ▪ Measures shall be implemented to prevent non-workers from approaching the identified works areas in order to avoid exposure to contaminants.	Safety precautionary measures for identified contaminated materials	Contractors	During construction at works areas neighbouring Sites A to F and works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road	Guidance Note for Contaminated Land Assessment and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/ Dismantling Workshops

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.8.7.5	S.7.3.1	Management of Contaminated Soils ▪ Where appropriate, the use of bulk handling equipment should be maximised to reduce the potential contacts between excavated contaminated materials and associated workers; ▪ The plants for excavation and transportation of the material shall be cleaned prior to leaving the Site; ▪ All temporary stockpiles of the materials shall be completely covered with plastic/ tarpaulin sheets, particularly during heavy rainstorms. The stockpiling areas should be concrete-paved or lined with its perimeter constructed of a concrete bund where appropriate in order to avoid any leachate from migrating out of the area; ▪ Any vehicles transporting the material shall be suitably covered to limit potential dust emissions; ▪ Surface waters shall be diverted around any contaminated areas or stockpiles to minimize potential runoff into excavations, as runoff might increase the volume of contaminated water requiring disposal and suspended solids in the wastewater stream	Proper management of contaminated soils	Contractors	During construction at works areas neighbouring Sites A to F and works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road	Guidance Note for Contaminated Land Assessment and Guidance Notes for Investigation and Remediation of Contaminated Sites of Petrol Filling Stations, Boatyards, and Car Repair/ Dismantling Workshops
Operational Phase						
N/A	N/A	None specific	N/A	N/A	N/A	N/A

Table 14-6 Ecology & Fisheries – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.9.11.4	S.8.2.3	Prior to tree felling, survey inspections should be made for their suitability for roosting bats. Once these trees have been highlighted, then appropriate checks of each tree for bats should be made prior to removal as a precautionary measure. It is more realistic to further assess the trees with potential for bat roosting at a later stage in the project, programmed at such a time that a survey can be completed in a reasonable timescale prior to felling	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor, ET	During construction	EIA, Contractual requirements
S.9.11.17 - 9.11.19	S.8.2.4	For the Kam Tin section and the Long Valley section of the Project, construction works shall be carried out during the dry season (October to March) which is considered to have no significant impact to wildlife and to avoid the breeding season of Greater Painted-snipes at Long Valley. This is also to prevent any site run-off to adjacent water channels and fishponds including those fishponds along San Tin Tsuen Road.	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
S.9.11.23	S.8.2.5	Construction of the section in the vicinity of Mai Po Egretry would need to be completed outside of the recognised breeding season for Ardeids in Hong Kong to prevent any disturbance to the nesting birds. This breeding season is from March to August inclusive. Therefore, construction should take place between the months of September to February to avoid any disturbance to breeding and nesting birds	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
S.9.11.25	S.8.2.6	Planting of tall bamboo or other vegetation could also be implemented at the corner of Mai Po Road and Castle Peak Road on the northern side to act as a screen between the cycle track and egretry. This may help to reduce any potential disturbance to breeding ardeids	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
S.9.11.7	S.8.2.6	*In situ* compensation planting should occur at the Information Kiosk and R9, to provide continuing function of the bamboo and plantation (as well as the provision of potential roosting habitats for birds, an anticipated benefit of the mitigation planting from a previous project (Maunsell 1998).	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.10.5.1	S.8.2.2	Local narrowing of the cycle track (from 4m to 3m) shall be implemented to avoid the impact of the cycle track on the single, inactive fishpond edge just outside Mai Po Village (see Figure 10-1).	Fisheries – to minimize impact to fisheries	Contractor	During construction	EIA, Contractual requirements
S.10.5.4	S.8.2.7	Good site practice must be employed at all times, particularly in the areas close to fishponds. Practice Note for Professional Persons ProPECC PN1/94 – Construction Site Drainage shall be implemented	Fisheries – to minimize impact to fisheries	Contractor	During construction	EIA, Contractual requirements
S.10.5.4	S.8.2.8	Along Pok Wai South Road and San Tin Tsuen Roads, once the final construction sequencing is known, liaison with local residents and aquaculturists should be implemented in order to minimize temporary road blockages and to identify the best timing for works along this area	Fisheries – to minimize impact to fisheries	Contractor	During construction	EIA, Contractual requirements
S.10.5.3	S.8.2.9	During wet seasons, surface run-off from the construction sites will need to be directed into storm drains via adequately designed wastewater treatment facilities such as sand traps, silt traps and sediment settling basins. Works adjacent to the fishponds near NTMDC inside the Wetland Conservation Area (WCA) and Mai Po San Tsuen should be avoided, as far as practicable, during the wet season to avoid runoff into the fishponds	Fisheries – to minimize impact to fisheries	Contractor	During construction	EIA, Contractual requirements

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
S.9.11.27	S.8.2.11	The following good work practices are recommended: ▪ Avoid soil storage against trees; ▪ Fence off any potentially ecologically sensitive areas; ▪ Delineation of works area to prevent encroachment onto adjacent habitats; ▪ Reinstatement of habitat after works; ▪ No on-site burning of waste; ▪ Waste and refuse in appropriate receptacles; ▪ Staff training/toolbox talks for site work near Long Valley and WCA – important areas for birds therefore staff should reduce amount of noise whilst working and during breaks where possible; ▪ Regular ecological checks; and ▪ Silt/ Sediment/ Oil traps for drainage to prevent site run-off	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
Operational Phase						
S.9.11.26	S.8.2.10	Implementation of signage at the Resting Stations to indicate that wildlife may be present and that noise levels and activities should be kept to a minimum could be implemented to help to reduce any potential disturbance to wildlife.	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
S.9.11.26	S.8.2.10	At Long Valley, to mitigate against potential indirect human disturbance to Greater Painted-snipe, planting could be undertaken as appropriate along the proposed cycle track at meander 8 to act as screening.	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor	During construction	EIA, Contractual requirements
S.9.13.2	S.8.3.1	Operational Phase EM&A will comprise of an audit undertaken by the ET Leader during the first year of operation of the cycle track to ensure appropriate implementation of mitigation measures including signage, mitigation planting at Mai Po Egretry, R9 and planting for screening at meander 8 in Long Valley.	Ecological – to minimize ecological impact/ ecological enhancement works	Contractor, ET	During operation	EIA, Contractual requirements

Table 14-7 Cultural Heritage – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	EM&A Ref.	Recommended Environmental Protection Measures/ Mitigation Measures	Objectives of the recommended measures & main concerns to address	Who to implement the measures?	Location/ Timing of implementation of Measures	What requirements or standards for the measures to achieve?
Construction Phase						
S.11.5.1	S.9.2.1	Care should be taken during the construction stage to report any signs of possible discovery of artefacts.	Cultural heritage protection	Contractors	During the construction period	AMO
Operational Phase						
N/A	N/A	None specific	N/A	N/A	N/A	N/A

Table 14-8 Landscape & Visual – Implementation Schedule of Recommended Mitigation Measures

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
Detailed Design Phase											
Table 12-11	CP1	A detailed tree survey to be carried out by the IDC Consultant during the detailed design stage. The recommendations of the preliminary tree survey shall be reviewed and confirmed during the detailed survey. Should tree felling be required, tree felling application is required in accordance with ETWB TCW No. 3/2006, Tree Preservation	Site	Project Proponent	Project Proponent, IDC Consultant	EIA, Contractual requirements Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓			During detailed design	Landscape mitigation measures
S.12.9.3	CP6	It has been agreed that the proposed landscape areas under DSD's 4215DS project which falls within the cycle track works area will be implemented by Project proponent of this Project in form of roadside amenity areas after completion of the cycle track. During the detailed design, the works programme of this Project shall be coordinated with the above-mentioned DSD project in order to avoid abortive planting works and impact on landscape resources between the interface of different public works. The proposed landscape areas under 4215DS falled within the cycle track works area shall be incorporated in the final landscape design of this Project.	Site	Project Proponent	Project Proponent, IDC Consultant	EIA, Contractual requirements Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓			During detailed design	Landscape mitigation measures

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
S.12.10.1	OP1	The Design Concept Drawings and Conceptual Landscape Master Plan of cycle track and associated facilities demonstrate landscape and visual mitigation strategies and design measures including integrated design approach, amenity and compensatory planting proposals and treatment of retaining structure and slopes have been recommended in the EIA. More detailed landscape and compensatory planting proposals shall be developed by IDC consultants at later stage during detailed design and construction phase of this project following the completion of the detailed Tree Survey Report and approval from relevant departments at that stage	Site	Project Proponent	Project Proponent, IDC Consultant	EIA, Contractual requirements Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓			During detailed design	Landscape mitigation measures
Construction Phase Landscape and Visual Mitigation Measures											
Table 12-11	CP1	Preservation of Existing Vegetation									
	CP1.1	To retain trees, which have high amenity or ecology value and contribute most to the landscape and visual amenity of the site and its immediate environs.	Site	Project Proponent	Project Landscape Architect / Contractor, Project Proponent	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓			Throughout design phase	To minimize the disturbance to the existing landscape resources.
	CP1.2	Creation of precautionary area around trees to be retained equal to half of the trees canopy diameter. Precautionary area to be fenced.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Before construction phase commence	To ensure the success of the tree preservation proposals.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	CP1.3	Prohibition of the storage of materials including fuel, the movement of construction vehicles, and the refuelling and washing of equipment including concrete mixers within the precautionary area.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.
	CP1.4	Phased segmental root pruning for trees to be retained and transplanted over a suitable period (determined by species and size) prior to lifting or site formation works which affect the existing rootball of trees identified for retention. The extent of the pruning will be based on the size and the species of the tree in each case.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.
	CP1.5	Pruning of the branches of existing trees identified for transplantation and retention to be based on the principle of crown thinning maintaining their form and amenity value.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.
	CP1.6	The watering of existing vegetation particularly during periods of excavation when the water table beneath the existing vegetation is lowered.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	CP1.7	The rectification and repair of damaged vegetation following the construction phase to it's original condition prior to the commencement of the works or replacement using specimens of the same species, size and form where appropriate to the design intention of the area affected	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.
	CP1.8	All works affecting the trees identified for retention and transplantation will be carefully monitored. This includes the key stages in the preparation of the trees, the implementation of protection measures and health monitoring through out the construction period	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		Throughout construction phase	To ensure the success of the tree preservation proposals.
	CP1.9	Detailed landscape and tree preservation proposals will be submitted to the relevant government departments for approval under the lease conditions and in accordance with ETWB TCW No. 2/2004 and WBTC No. 14/2002.	Site	Project Proponent	Project Proponent, Project Landscape Architect / NA	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓			Throughout design phase	To ensure the tree preservation and planting proposals are integrated with the existing landscape context and that the landscape resources are preserved where appropriate.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	CP2.0	The tree preservation works should be implemented by approved Landscape Contractors and inspected and approved on site by a qualified Landscape Architect. A tree protection specification would be included within the contract documents.	Site	Project Proponent	Landscape Architect, Project Proponent / NA	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓	✓		Throughout design and construction phases	To ensure the tree preservation and planting proposals are integrated with the existing landscape context and that the landscape resources are preserved where appropriate.
Table 12-11	CP2	Preservation of Existing Topsoil									
	CP2.1	Topsoil disturbed during the construction phase should be tested using a standard soil testing methodology and where it is found to be worthy of retention stored for re-use.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Throughout construction phase	To provide a viable growing medium suited to the existing conditions and reduce the need for the importation of topsoil.
	CP2.2	The soil will be stockpiled to a maximum height of 2m and will be either temporarily vegetated with hydroseeded grass during construction or covered with a waterproof covering to prevent erosion.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Throughout construction phase	To provide a viable growing medium suited to the existing conditions and reduce the need for the importation of topsoil.
	CP2.3	The stockpile should be turned over on a regular basis to avoid acidification and the degradation of the organic material, and reused after completion. Alternatively, if this is not practicable, it should be considered for use elsewhere, including other projects.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Throughout construction phase	To provide a viable growing medium suited to the existing conditions and reduce the need for the importation of topsoil.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
Table 12-11	CP3	Works Area and Temporary Works Areas									
	CP3.1	Where appropriate to the final design the landscape of these works areas should be restored following the completion of the construction phase.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Through out construction phase	To minimize the disturbance to existing landscape resources and change of visual amenity.
	CP3.2	Construction site controls should be enforced including the storage of materials, the location and appearance of site accommodation and the careful design of site lighting to prevent light spillage.	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Through out construction phase	To minimize the disturbance to existing landscape resources and change of visual amenity.
	CP3.3	Screen the works area during the construction phase through the use of decorative hoarding along the site boundary facing adjacent VSRs	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM		✓		Through out construction phase	To minimize the disturbance to existing landscape resources and change of visual amenity.
Table 12-11	CP4	Mitigation Planting									
	CP4.1	Replanting of disturbed vegetation should be undertaken at the earliest possible stage of the construction phase	Site	Project Proponent	Contractor / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002		✓		After the site formation and on completion of planting area.	To minimize the disturbance to existing landscape resources and minimize the impacts on the visual amenity of the area.
	CP4.2	Use of native plant species predominantly in the planting design for the buffer areas.	Site	Project Proponent	Project Landscape Architect/ NA	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓	✓		After the site formation and on completion of planting area.	To enhance the local landscape and ecological value.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	CP4.3	The tree planting works should be implemented by approved Landscape Contractors and inspected and approved on site by a qualified Landscape Architect. A tree planting specification would be included within the contract documents.	Site	Project Proponent	Landscape Architect, Project Proponent / NA	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓	✓		Throughout design and construction phases	To ensure the tree preservation and planting proposals are integrated with the existing landscape context and that valuable landscape resources are preserved where appropriate to the final design.
Table 12-11	CP5	Transplantation of Existing Trees									
	CP5.1	The tree transplanting works should be implemented by approved Landscape Contractors and inspected and approved on site by a qualified Landscape Architect. A tree protection / transplanting specification would be included within the contract documents.	Site	Project Proponent	Project Proponent / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓	✓		Throughout design and construction phases	To ensure the tree preservation and planting proposals are integrated with the existing landscape context and that valuable landscape resources are preserved where appropriate to the final design.
	CP5.2	The implementation program should reserve enough time for advance tree transplanting preparation.	Site	Project Proponent	Project Proponent / Contractor	Annex 10 and Annex 18 of EIAO-TM, ETWB TCW No. 3/2006 & WBTC No. 14/2002	✓	✓		Throughout design and construction phases	To ensure the tree preservation and planting proposals are integrated with the existing landscape context and that valuable landscape resources are preserved where appropriate to the final design.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
Operational Phase Landscape and Visual Mitigation Measures											
Table 12-12	OP1	Design of Cycle Track and Associated Facilities									
	OP1.1	Where possible integrate the alignment, as far as technically feasible, with existing built structures. Select responsive The locations for the associated facilities away from landscape and visually sensitive areas.	Site	Project Proponent	Project Engineer and Architect/ NA	Annex 10 and Annex 18 of EIAO-TM and BD	✓			Throughout Design phase	To ensure the proposals are integrated with the existing landscape and visual context, and avoid cluster effect.
	OP1.2	Where possible adopt a simple building design and building height profile, single-storey (lower than the adjacent village houses), responding to the village houses in the context.	Site	Project Proponent	Project Engineer and Architect/ NA	Annex 10 and Annex 18 of EIAO-TM and BD	✓			Throughout Design phase	To ensure the proposals are integrated with the existing landscape and visual context, and avoid cluster effect.
	OP1.3	Use of natural materials such as wooden framing or sustainable materials such as recycle plastic for built structure.	Site	Project Proponent	Project Engineer and Architect/ NA	Annex 10 and Annex 18 of EIAO-TM and BD	✓			Throughout Design phase	Responsive building façade treatment to reduce the apparent visual mass of the facilities and reduce the glare effect from the reflection of sunlight.
	OP1.4	Use of natural tones with non-reflective finishes on the outward facing building facades to reduce glare effect. Sustainable material such as recycle plastic shall be considered.	Site	Project Proponent	Project Engineer and Architect/ NA	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD	✓			Throughout Design phase	To reduce the nighttime glare effect to the surrounding environs.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	OP1.5	Formulate lighting operation management programme to minimize potential light spillage and glare impacts.	Site	Project Proponent	HyD and ArchSD/ HyD and ArchSD	Annex 10 and Annex 18 of EIAO-TM			✓	Through out Operation phase	To reduce the nighttime glare effect to the surrounding environs.
Table 12-12	OP2	Roadside and Amenity Planting									
	OP2.1	Utilise large ornamental trees with high canopy and thin foliage to allow some through views from the adjacent neighbourhood and give accent to the existing road planting and wooded areas with the advantage of creating a more coherent landscape framework whilst native species will utilise on sloping area improving the ecological connectivity between existing woodland habitats.	Site	Project Proponent	Project Landscape Architect / AFCD and LCSD	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD	✓		✓	Through out Design phase	Provide a linkage with the existing roadside and woodland planting areas creating a more coherent landscape framework.
	OP2.2	Large Feature Trees will utilise within the resting station and education centre or along the cycle tracks where space allows	Site	Project Proponent	Project Landscape Architect / AFCD and LCSD	Annex 10 and Annex 18 of EIAO-TM, HKPSG & BD	✓		✓	Through out Design phase	Conserve and enhance the landscape interest.
Table 12-12	OP3	Compensatory Planting Proposals									
	OP3.1	Utilise ornamental species along the track and within the resting stations and education whilst species native to Hong Kong will be added the roadside planting along cycle track or on sloping area	Site	Project Proponent	Project Landscape Architect / AFCD and LCSD	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD	✓		✓	Through out Design phase	The planting proposal seeks to compensate for the predicted tree loss resulting from the construction of the proposed works, visually integrate the proposals within its existing landscape framework and provide an improved visual amenity for future residents.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	OP3.2	A qualified or registered landscape architect will be involved in the design, construction supervision and monitoring, and maintenance period to oversee the implementation of the recommended landscape and visual mitigation measures including the tree preservation and landscape works on site.	Site	Project Proponent	Project Proponent / NA	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD	✓			Through out Design phase	The planting proposal seeks to compensate for the predicted tree loss resulting from the construction of the proposed works, visually integrate the proposals within its existing landscape framework and provide an improved visual amenity for future users.
Table 12-12	OP4	Treatment of Retaining Wall and Slopes									
	OP4.1	Use of soft landscape works including tree and shrub planting to give man-made slopes a more natural appearance blending into the woodland setting for the development	Site	Project Proponent	Project Landscape Architect / AFCD	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD GEO Publication No. 1/2000 "Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes and Retaining Walls"	✓			Through out Design phase	The design seeks to visually integrate the engineered slope feature within the rural and riverside landscapes.

EIA Ref.	Mit. Code	Recommended Mitigation Measures	Location	Funding	Implementation/ Maintenance Agent	Relevant Standard or Requirement	Implementation Stages			Timing of Implementation	Objectives of the Recommended Measure and Main Concern to address
							D	C	O		
	OP4.2	Utilise whip sized planting on the face of soil cut slopes and at the crest and toe of the slope, and within berm planters these smaller, younger plants adapt to their new growing conditions more quickly than larger sized stock and establish a naturalistic effect more rapidly.	Site	Project Proponent	Project Landscape Architect/ AFCD	Annex 10 and Annex 18 of EIAO-TM, HKPSG and BD GEO Publication No. 1/2000 "Technical Guidelines on Landscape Treatment and Bio-engineering for Man-made Slopes and Retaining Walls"	✓		✓	Through out Design phase	The planting proposal seeks to integrate the engineered slope feature within the rural and riverside landscapes.

Legend: D – Design, C – Construction, O - Operation
BD – Building Ordinance
ETWB TCW – Environmental and Transport Works Bureau Technical Circular
HKPSG – Hong Kong Planning Standards and Guidelines
EIAO-TM – Technical Memorandum on Environmental Impact Assessment Process
TPO – Town Planning Ordinance
WBTC – Works Bureau Technical Circulars

Note: Management and maintenance of the landscape and visual mitigation measures listed above is subject to further agreement with relevant departments under Agreement No. CE22/2006(HY) upon finalisation of cycle track alignment by IDC Consultants.

15. SUMMARY OF ENVIRONMENTAL OUTCOMES AND OVERALL CONCLUSION

15.1 Project Summary

15.1.1 This Project is intended primarily for recreational use and is classified a Designated Project under Items P.1 and Q.1 of Part I, Schedule 2 of the EIAO.

15.2 Key Environmental Outcomes

15.2.1 The key environmental outcomes of the Project are summarised below.

15.2.2 *Population and environmentally sensitive area protected:* The cycle track alignment has been re-routed to avoid impacts to the Mai Po Village SSSI and the associated egretries. The proposed Information Kiosk has been relocated to integrate with the Resting Station R9. The site location has been selected to minimize disturbance to the existing mitigation plantation by AFCD.

15.2.3 *Environmentally friendly designs recommended:* The cycle track alignment has been selected to be located alongside existing highways/ roads and drainage channel. This minimizes the need for construction on virgin site and there will be no loss of wetland though the cycle track runs through the Wetland Conservation Area. The proposed Information Kiosk integrated with Resting Station R9 has been sited more than 500 m from the Sheung Shui Slaughter House and sewage treatment works so as to avoid the potential odour nuisance during the operational phase. A section of the cycle track is designed to deck over of about 1.2 km of small stormwater drainage channels along Castle Peak Road for minimising the felling of trees.

15.2.4 *Key environmental problems avoided:* As referred above, the cycle track alignment has been sited to minimize the potential ecological concerns in relation to the Mai Po Village SSSI and the associated egretries, and there will be no wetland loss. The Project alignment has been reviewed to maintain as far as possible the existing individual or group of trees which have great contribution to the local landscape context.

15.2.5 *Compensation areas included:* There is no significant habitat loss as a consequence of the Project. Thus there are no specific compensation areas.

15.2.6 *Environmental benefits of environmental protection measures recommended:* With the implementation of proposed cycle track and the associated supporting facilities in combination with full establishment of planting proposals in combination of preserved trees in the existing landscape context, the landscape context and the local visual amenity (currently largely composed of major road and highways, settlements and open storages) will be benefited.

15.3 Overall Conclusions

15.3.1 This EIA Report has provided an assessment of the potential environmental impacts associated with the Construction of Cycle Tracks and the Associated Supporting Facilities from Sha Po Tsuen to Shek Sheung River. The environmental issues below have been assessed in this EIA report, in accordance with the EIA Study

Brief (No. ESB-149/2006) registered under the EIAO for the Project:

- Air Quality
- Construction Noise
- Water Quality
- Waste Management
- Land Contamination
- Ecology
- Fisheries
- Cultural Heritage
- Landscape & Visual

15.3.2 This EIA has provided information on the nature and extent of environmental impacts arising from the construction and operation of the proposed Project. A summary of assessment findings of these individual issues is provided at the end of each section. The EIA has, where appropriate, identified practicable mitigation measures for incorporation into the design and construction method of the Project, to comply with environmental legislation and standards. The Implementation Schedules of the recommended mitigation measures are presented in Section 14.

15.3.3 Overall, the EIA Report for the Project has predicted that the Project would comply with environmental legislation after the implementation of the proposed construction and operation phase mitigation measures, and any residual impacts from the Project minimized. This EIA has also demonstrated the protection of the population and environmentally sensitive resources. An environmental monitoring and audit programme has been recommended before and during construction and operation, where necessary, as a check on the implementation and effectiveness of the recommended mitigation measures.

Appendix 2-1

Letters from Various Government Departments

SWA313956

7 DEC 2006

水務署
Water Supplies Department

BY POST ONLY

旺角辦事處
九龍旺角洗衣街一二八號

Mong Kok Office
128 Sai Yee Street, Mong Kok, Kowloon.

電子郵遞 *e-mail* sw_chau@wsd.gov.hk

電話 *Telephone* 2399 4330 圖文傳真 *Facsimile* 2789 4680

檔號 *Reference* (8) in WSD 1745/60/02 Pt.5 TJ(1)

5 December 2006

File	06115/01/
By	
Reply Ref.	

	Action	Info	Copy
SY		✓	✓
AKWC		✓	
CW		✓	
DL			✓

CC ONL

(include C.D)

Scott Wilson Ltd
38/F Metroplaza Tower 1
223 Hing Fong Road
Kwai Fong
Attn: Mr Collin Chan

Dear Sir,

Agreement No. CE 22/2006(HY)
Cycle Tracks Connecting North West New Territories with North East New Territories – Investigation, Design and Construction
Request for Information

I refer to you letter ref 06115/01/301023 dated 16 October 2006.

I return one copy of our plans with the existing watermains and waterworks installations indicated. You are requested to note that the alignment of the watermains shown is indicative only. Although it is our intention to provide you with the most up to date information, we cannot guarantee that the information returned to you is exhaustive. In particular, we cannot guarantee that all our water mains, especially those laid only recently, have been incorporated in our central records and hence on the plans returned.

The exact lines and levels of the water mains as well as the materials that the water mains are made of should be established by hand dug trial holes on site if they are of significance to your works. You should instruct your consultants and/or contractors to take all necessary measures during the design and/or construction stage to avoid causing damage to the water mains and waterworks installations, for which you will be held responsible.

Your attention is particularly drawn to the fact that some of the existing water mains, especially those in older urban areas, are asbestos cement pipes, which are vulnerable to damage when exposed. You are advised to conduct thorough site investigations to ascertain whether there are any asbestos cement pipes affected by the project, and to make special provisions as necessary to protect asbestos cement pipes identified on site. Should diversion/replacement of asbestos cement pipes be found necessary to be carried out in conjunction with your proposed works after detailed investigations or studies, you should instruct your consultants and/or contractors to take all necessary measures during the design and/or construction stages to comply with all prevailing statutory requirements for the safe handling, removal, transportation and disposal of asbestos cement pipes.

The proposed works would affect the following projects. You are advised to contact the subject officers to carry out project coordination with yours.

Replacement and Rehabilitation of Watermains – Stage 2
Contact Person: Mr SWL Shou of Black & Veatch Hong Kong Ltd
Contact Tel: 2601 1000
Commencement: 2007
Completion: 2011

Replacement and Rehabilitation of Watermains – Stage 3
Contact Person: Mr Oliver Au-yeung of Scott Wilson & CDM JV
Contact Tel: 2410 3714
Commencement: 2008
Completion: 2013

237WF – Mainlaying along Fanling Highway and near She Shan Tsuen
Contact Person: E/Des(15) – Mr Albert WM Leung of WSD
Contact Tel: 2829 4486
Commencement: Aug 2008
Completion: Dec 2013

046WS – Uprating of Sha Tin Salt Water Supply System
Contact Person: E/Des(11) – Mr LM Chan of WSD
Contact Tel: 2829 4729
Commencement: Jun 2008
Completion: Jun 2011

9045WS – Salt Water Supply to Yuen Long
Contact Person: E/Des(15) – Mr SK Lau of WSD
Contact Tel: 2829 4475
Commencement: 2007
Completion: 2010

9048WS – Salt Water Supply to Yuen Long
Contact Person: E/Des(2) – Mr KW Chu of WSD
Contact Tel: 2829 4784
Commencement: 2009
Completion: 2014

Furthermore, the proposed works falls within water gathering ground (WGG) and crosses over our shallow ground raw water tunnel, you are required to assess the impacts of the project on the WGG and raw water tunnel and mitigate the same to our satisfaction.

This is a consolidated reply from our New Territories East and New Territories West Region.

Yours faithfully,

SW CHAU
For Chief Engineer/New Territories West
Water Supplies Department

SWCE222006HY01

SWA328485

MAUNSELL | AECOM

Metcalf & Eddy Ltd
9/F Grand Central Plaza Tower 2 138 Shatin Rural Committee Road Shatin N.T. Hong Kong
茂迪工程顧問有限公司
香港新界沙田鄉事委員會路138號新城中央廣場第2座9樓
T +852 2605 6262 F +852 2691 2649 www.maunsell.aecom.com

Received by ADM
14 NOV 2007

Your Ref :
Our Ref : KWL:JCHY:achm:60022017/04.8-0150

Distribution List

13 November 2007

Dear Sir,

Agreement No. CE 30/2006 (DS)
Yuen Long and Kam Tin Sewerage and Sewage Disposal – Design and Construction

Interfacing Project

We refer to WSD letter's ref: (3) in WSD/ST CM/11/94 Pt.37 dated 27 August 2007 addressed to us and copied to you regarding the captioned.

It is noted that your proposed works would be in conflict with our proposed sewerage works. We attached the site location plans no. 60022017/002 to 005 showing the scope of works for your reference. According to our tentative programme, the construction works is scheduled to commence in mid 2009 for the completion in end 2013.

In order for us to identify the extent of the conflicts and review the measures to resolve the interfacing issue, we should be grateful if you could provide us the layout of your proposed works as well as the implementation programme for the potential conflict area.

Should you have any queries, please feel free to contact our Mr. Glen SHUM at 2685 6417.

Yours faithfully,

Michael Leung
Design Manager

Encl.

cc CE/SP, DSD (Attn: Mr. Mr. Tim TSOI)
CE/CM, WSD (Attn: Mr. T. Y. LAI)

Maunsell AECOM Group Chief Executive President/HK Chief Financial Officer
Metcalf & Eddy Ltd Chairman Vice Chairman Managing Director
Executive Directors Associates
Offices

HIGHWAYS DEPARTMENT
Works Division
16/F, Skyline Tower, 39 Wang Kwong Road,
Kowloon Bay, Kowloon
Web site: http://www.hyd.gov.hk

路 政 署
工程部
九龍九龍灣宏光道 39 號
宏天廣場 16 樓
網址：http://www.hyd.gov.hk

[BJDZ]

本署檔號 Our Ref.: (BJX5) in HCW/1/145/3
來函檔號 Your Ref.: 06115/5/01/303754
電　　話 Tel. No.: 3188 3360
圖文傳真 Fax No.: 3188 3418

2 March 2007

Scott Wilson Ltd.
38th Floor, Metroplaza Tower 1
223 Hing Fong Road, Kwai Fong
(Attn: Sharon Yeung)

Dear Sirs/Madams,

Agreement No. CE22/2006(HY)
Cycle Tracks Connecting North West New Territories with North East New Territories
Investigation, Design and Construction

Request for Information

I refer to your above referenced letter dated 21.2.2007 and append below the requested information:

(i) Layout plan for project "Widening of Castle Peak Road – San Tin near Tsing Lung Tsuen, Yuen Long" as attached. It is noted that the proposed alignment of CEDD's cycle track will intrude into the limit of this project, which has been gazetted under Roads (W, U & C) Ordinance and is tentatively scheduled to commence construction in late 2007 for completion in 2009;

(ii) Regarding the project "Construction of Access Road and Car Park at San Lung Tsuen, Yuen Long (YL-177)", please note that this project is situated away from the Castle Peak and will not affect the construction of the concerned cycle track; and

(iii) Layout plan for project "Improvements to San Tin Interchange" as attached. The construction works under this project has already been commenced since April 2005 for completion in March/April 2007.

Yours faithfully,

(CHEN Lan)
for Chief Highway Engineer/Works
Highways Department

File	06115/5/01
By	
Reply Ref.	

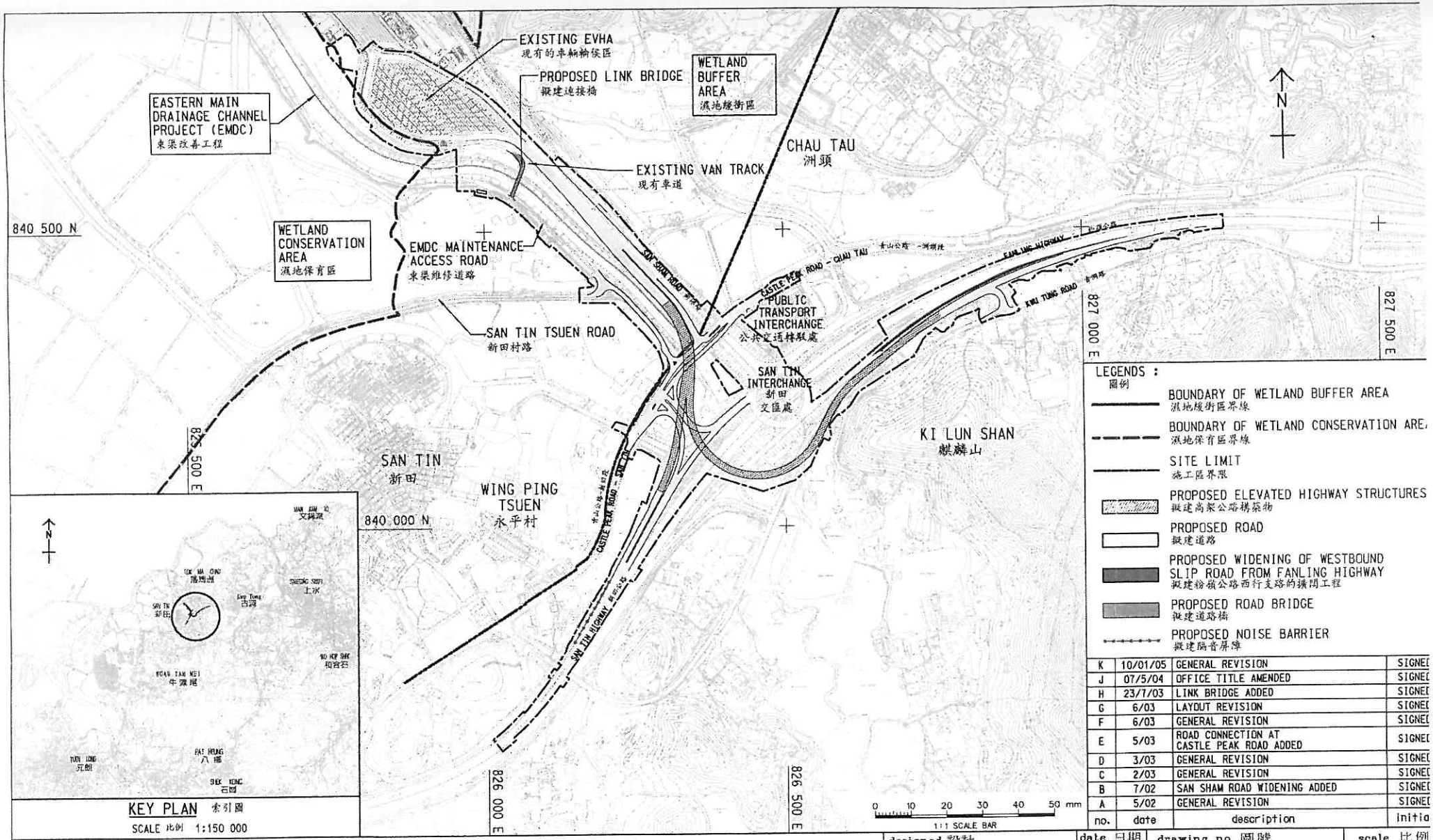
	Action	Info	Copy
SY		SY	
AWC			
CHC			

please pass to Jennifer for register

Encl.

LC/HMC/-

CERTIFIED COMPANY ISO 9001 : 2000 Certificate No: CC1881
CERTIFIED COMPANY HKQAA ISO 14001 : 1996 Certificate No.: CC 2634



no.	date	description	initia
K	10/01/05	GENERAL REVISION	SIGNED
J	07/5/04	OFFICE TITLE AMENDED	SIGNED
H	23/7/03	LINK BRIDGE ADDED	SIGNED
G	6/03	LAYOUT REVISION	SIGNED
F	6/03	GENERAL REVISION	SIGNED
E	5/03	ROAD CONNECTION AT CASTLE PEAK ROAD ADDED	SIGNED
D	3/03	GENERAL REVISION	SIGNED
C	2/03	GENERAL REVISION	SIGNED
B	7/02	SAN SHAM ROAD WIDENING ADDED	SIGNED
A	5/02	GENERAL REVISION	SIGNED

drawing title 圖則名稱

PWP ITEM No. 777TH
工務計劃項目第777TH號
IMPROVEMENTS TO SAN TIN INTERCHANGE - GENERAL LAYOUT
新田交匯處改善工程 - 平面圖

designed 設計 L. CHEN	SIGNED	date 日期 23/04/02
drawn 繪圖 W. M. LEUNG	SIGNED	date 日期 23/04/02
approved 核准 H. M. CHAN	SIGNED	date 日期 23/04/02

office 路政署（工程部）
HIGHWAYS / WORKS DIVISION

drawing no. 圖號 NHC10202-SK0002-K

scale 比例 1 : 6 000

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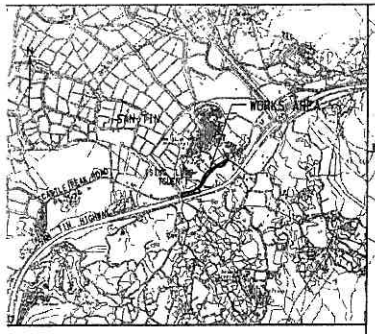
HIGHWAYS DEPARTMENT HONG KONG 香港路政署



KEY PLAN
SCALE 1 : 20 000

N

CH. 5100
CH. 4450
CH. 4400
CH. 3450
CH. 3400
CH. 2450
CH. 2400
CH. 1450
CH. 1400
CH. 0450
CH. 0400

FOOTBALL FIELD
TSING LUNG TSUEN
CASTLE PEAK ROAD - SAN TIN
SAN TIN CHEUNG PARK
SAN TIN HIGHWAY
Burial Urns

SLOPE NO. 25E-A/C74
PROPOSED 30° CUT SLOPE
PROPOSED RETAINING WALL NO.1
PROPOSED 45° CUT SLOPE
EXISTING STAIRCASE TO BE RECONSTRUCTED
PROPOSED STAIRCASE
SLOPE NO. 25E-A/C75
SLOPE NO. 25E-A/C77
SLOPE NO. 25E-A/C76
SLOPE NO. 25E-A/C81
PROPOSED RETAINING WALL NO.2 WITH FILL
PROPOSED 26° FILL SLOPE
PROPOSED FILL SLOPE WITH VARYING ANGLES
SLOPE NO. 25E-A/F24

NOTES:
1. ALL DIMENSIONS ARE IN METRES.
2. ALL LEVELS ARE IN METRES AND ABOVE
3. SIMAR SLOPES SHOWN ARE INDICATIVE A REFERENCE ONLY.

LEGEND :
- LIMIT OF WORKS AREA
- PROPOSED CARRIAGEWAY
- EXISTING CARRIAGEWAY TO RESURFACED
- PROPOSED FOOTPATH
- EXISTING FOOTPATH TO BE RECONSTRUCTED
- PROPOSED LAY-BY
- PROPOSED CUT SLOPE
- PROPOSED FILL SLOPE
- PROPOSED KERB LINE
- PROPOSED RETAINING WALL
- PROPOSED LEVEL
- EXISTING LEVEL
- SIMAR SLOPES WITH REGISTR NO. INDICATED

PROVISIONAL
SUBJECT TO AMENDMENTS

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DATE 07 NOV 2006

no.	description	checked / approved
REVISION		

	post	name	signature
designed	E/NT3-3	W.K. FONG	
drawn	TO/3-1	S.C. CHAN	
checked	SE/NT3	H.M. CHAN	
approved			

S.W. CHU
Chief Highway Engineer / Works

contract no.
file no.
project no.
contract

WIDENING OF CASTLE P ROAD - SAN TIN NEAR TSING LUNG TSUEN, YUEN LONG

drawing title

GENERAL LAYOUT

drawing no.
HWDYL0441-GL0001

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office
WORKS DIVISIO

HIGHWAYS DEPARTME HONG KON

Appendix 4-1

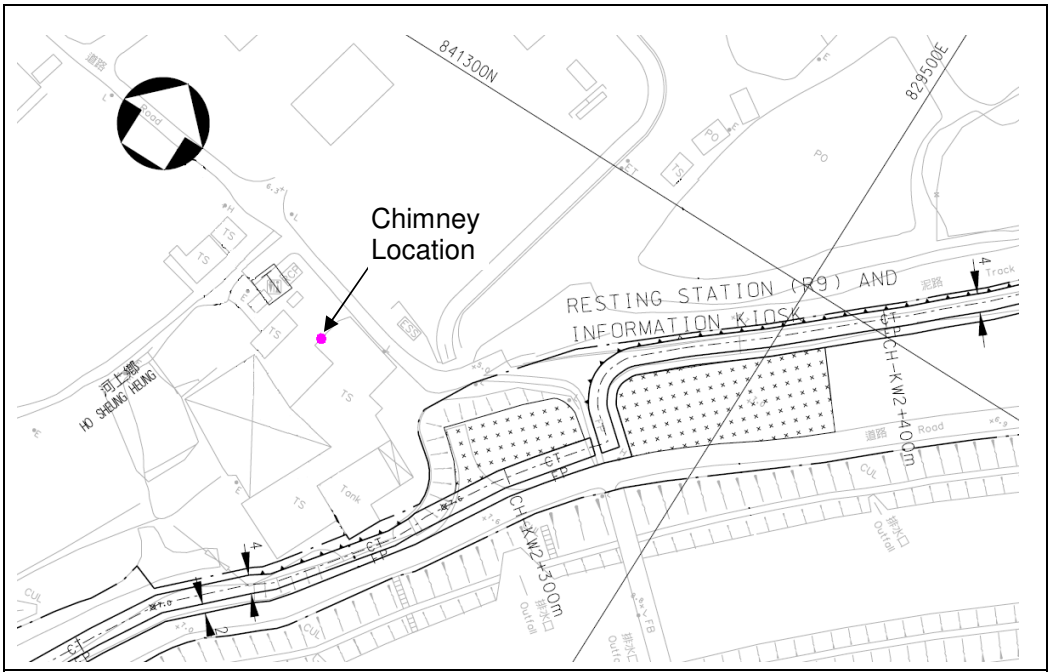
Chimney Emissions Impact Assessment

Appendix 4-1 Chimney Emissions Impact Assessment

1. INTRODUCTION

1.1 The Emission Source

1.1.1 One small chimney stack of a local soy products factory located at about 64 m to the southwest of the Information Kiosk has been identified. The relevant location and the chimney photo are shown below:



1.1.2 The operator was interviewed and the following operation details of the chimney were obtained:

- Height of chimney: 8 m above ground

- Fuel type: diesel
- Operating hours: 6 to 8 hours a day, starting from 8 am

1.1.3 Other information of the chimney such as exit gas temperature, efflux velocity, maximum fuel consumption rate, top diameter, were not provided.

1.2 Major Pollutants

1.2.1 Sulphur Dioxide (SO_2), nitrogen dioxide (NO_2) are the major pollutants from industrial operations involving the burning of fossil fuel. As the fuel type is diesel, SO_2 and NO_2 were assessed. Respirable suspended particulate (RSP) was also included in this assessment.

2. CHIMNEY EMISSIONS IMPACT ASSESSMENT

2.1 Background Air Quality Levels

2.1.1 Background levels have made reference to Yuen Long Air Quality Monitoring Station (Air Quality in Hong Kong, 2003 to 2007). The mean value of the 5 years annual average are adopted in the assessment for the purpose of evaluating the cumulative air quality impact, and are as follow:

Annual Average Concentration of Pollutants

Pollutant	Annual Average Concentration (µg/m³)					5-year average (used as background)
	Year 2003	Year 2004	Year 2005	Year 2006	Year 2007	
Sulphur Dioxide, SO_2	18	31	28	28	24	26
Respirable Suspended Particulates, RSP	61	71	62	62	64	64
Nitrogen Dioxide, NO_2	60	67	58	58	55	60

2.2 Assessment Criteria

2.2.1 The assessment criteria are based on Air Quality Objectives (AQOs). The standards for SO_2, NO_2 and RSP levels adopted in this assessment are given below:

Hong Kong Air Quality Objectives for Pollutants Assessed

Pollutant	Concentration (µg/m³) (1) Averaging Period	
	1 Hour(2)	24 Hours(3)
Sulphur Dioxide, SO_2	800	350
Respirable Suspended Particulates, RSP(4)	-	180
Nitrogen Dioxide, NO_2	300	150

Notes:
(1) Measured at 298 K and 101.325 kPa (one atmosphere)
(2) Not to be exceeded more than 3 times per year
(3) Not to be exceeded more than once per year
(4) Respirable suspended particulates means suspended particles in air with a nominal aerodynamic diameter of 10 µm or less

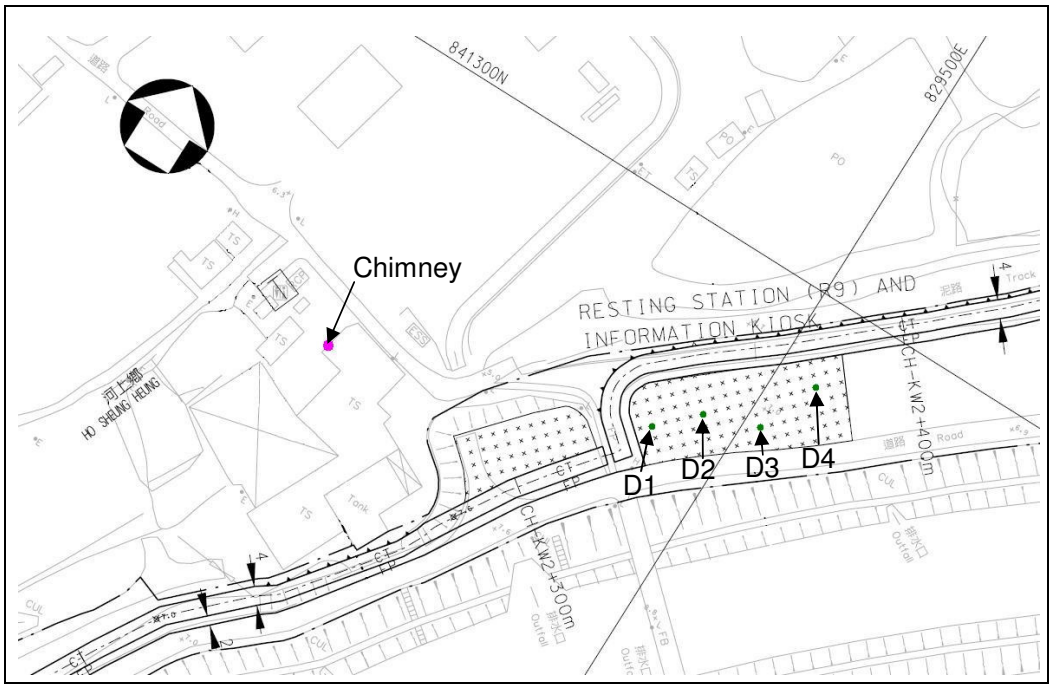
2.3 Air Sensitive Receivers

2.3.1 The Information Kiosk has been selected as air sensitive receiver (ASR) for this

assessment as it is the operational phase ASR closest to the chimney in concern. Concentrations at selected locations within the Information Kiosk were assessed at 1.5 m above the ground level which is the breathing level. The selected assessment points are described below:

- D1 – shelter / pavilion area within the Information Kiosk
- D2 – open space / sitting out area within the Information Kiosk
- D3 – information board area
- D4 – mobile first aid station

2.3.2 The location of the assessment points are shown in the following figure.



2.4 Meteorological Data

2.4.1 Meteorological data of Ta Kwu Ling Weather Station in 2006 obtained from the Hong Kong Observatory was used for the model run. Parameters include wind speed, wind direction, Pasquill stability class, ambient air temperature and mixing heights.

2.5 Modelling Data

2.5.1 Due to the lack of details of the chimney, reference has been made to previous EIA Studies for the model parameters. The following approved Reports were referenced to:

- EIA-152/2008 Tsuen Wan Bypass, Widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange, and Associated Junction Improvement Works
- EIA-068/2001 Planning and Engineering Feasibility Study for Sham Tseng Development
- EIA-073/2001 Yau Tong Bay Development - Engineering Feasibility Study for the Comprehensive Development at Yau Tong Bay

2.5.2 SO_2, NO_2 and RSP emission rates were estimated based on chimney emission inventory of similar size chimney from previous approved EIA study. With reference

to Appendix 4-P of the Tsuen Wan Bypass, Widening of Tsuen Wan Road between Tsuen Tsing Interchange and Kwai Tsing Interchange EIA study (EIA-152/2008), emission rates of a chimney (Chimney ID TW-5*) with a stack diameter same as the chimney in concern (i.e., 0.20 m) have been adopted under a conservative approach. The emission data of Chimney ID TW-5* was estimated under a conservative approach. The estimated chimney emission rates adopted in this study are as below:

- Emission rate of SO_2 = 1.05 g/s
- Emission rate of RSP = 0.0296 g/s
- Emission rate of NOx = 0.2958 g/s
- As a worst case, it is assumed that all NOx emissions are NO_2.
- Thus, emission rate of NO_2 = 0.2958 g/s
- General load factors of 41% during the daytime and 23% during the nighttime were adopted.

2.5.3 According to the Air Pollution Control (Fuel Restriction) (Amendment) Regulations under the Air Pollution Control Ordinance, sulphur content of liquid fuel is not allowed to exceed 0.005% w/w. Thus, the emission factor of SO_2 adopted is very conservative.

2.5.4 Exit gas temperature and velocity were assumed with reference to the EPD's Guidelines on Estimating Height Restriction and Position of Fresh Air Intake Using Gaussian Plume Models:

- Exit gas temperature = 373 K
- Exit gas velocity = 6 m/s

2.6 Modelling Results

2.6.1 The chimney emissions were modelled using the software "Industrial Source Complex Short Term Version 3 (ISCST3)" developed by Trinity Consultants Incorporated. This model is based on the principle of Gaussian dispersion.

2.6.2 Under a conservative approach, the predicted highest 1-hour and 24-hour average SO_2, NO_2 and RSP levels with background concentration included are summarised below:

Predicted Highest Hourly and Daily SO_2, NO_2 and RSP Levels at Information Kiosk

Pollutant	Concentration (µg/m³) Averaging Period							
	1 Hour				24 Hours			
	D1	D2	D3	D4	D1	D2	D3	D4
SO_2	454	444	416	385	138	123	116	107
RSP	76	76	75	74	67	67	67	66
NO_2	181	178	170	161	92	87	85	83

Notes:
D1 – shelter / pavilion area within the Information Kiosk
D2 – open space / sitting out area within the Information Kiosk
D3 – information board area
D4 – mobile first aid station

2.6.3 The above results show that under a conservative approach the predicted highest 1-hour and 24-hour average SO_2, NO_2 and RSP levels are within the AQOs. The ISCST3 model output files for the chimney emissions modelling are provided in the following pages.

```
                    ISCST3 - (DATED 02035)

                  ISC3MSPx     VERSION  4.4.3
            (C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/24/2008 at  9:14:10

** BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat
** Trinity Consultants


CO STARTING
CO TITLEONE  Construction of Cycle Tracks and the Associated Supporting Faciliti
CO TITLETWO  ISCST Model for Chimney at Gugusoy
CO MODELOPT  CONC  RURAL  GRDRIS
CO AVERTIME  1  24  ANNUAL
CO POLLUTID  NO2
CO TERRHGTS  ELEV
CO FLAGPOLE  1.5
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  SRC1  POINT  829417.0  841235.0  6.3
** SRCDESCR  Stack at Gugusoy
SO SRCPARAM  SRC1     2.958000E-01 8  373  6  0.2
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.41  0.41  0.41  0.41
SO EMISFACT  SRC1  HROFDY  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.23
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.23
SO EMISUNIT  1.0E+06  GRAMS/SEC  MICROGRAMS/M**3
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
RE DISCCART  829484.0  841257.0  7  1.5
** RCPDESCR  shelter / pavilion
RE DISCCART  829492.0  841265.0  7  1.5
** RCPDESCR  Open space / sitting out area
RE DISCCART  829503.0  841269.0  7  1.5
** RCPDESCR  Information Board
RE DISCCART  829509.0  841282.0  7  1.5
** RCPDESCR  Mobile First Aid Station
RE FINISHED

ME STARTING
ME INPUTFIL  D:\4082\TKL2006.ASC
ME ANEMHGHT  28.3  METERS
ME SURFDATA  00000  2006
ME UAIRDATA  11111  2006
ME STARTEND  2006  01  01  1  2006  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU RECTABLE  ALLAVE  FIRST
OU MAXTABLE  ALLAVE  10
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  D:\4082\test.lst
** RAWFILE  D:\4082\test.RAW
** RAWFMT  2
** AMPDATUM  0
** HILLBOUN  0 0 0 0

** POLLUTNT IDN  01  SO2  X
** POLLUTNT NAM  01  Sulphur Dioxide
** POLLUTNT IDN  02  PM  X
** POLLUTNT NAM  02  Particulate Matters
** POLLUTNT IDN  03  NO2  X
** POLLUTNT NAM  03  Nitrogen Dioxide
** POLLUTNT EMS  SRC1 1.050000E+00 2.960000E-02 2.958000E-01


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   1
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Intermediate Terrain Processing is Selected

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  SCAVENGING/DEPOSITION LOGIC --
 **Model Uses NO DRY DEPLETION.  DDPLETE =  F
 **Model Uses NO WET DEPLETION.  WDPLETE =  F
 **NO WET SCAVENGING Data Provided.
 **NO GAS DRY DEPOSITION Data Provided.
 **Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

 **Model Uses RURAL Dispersion.

 **Model Uses User-Specified Options:
            1. Gradual Plume Rise.
            2. Stack-tip Downwash.
            3. Buoyancy-induced Dispersion.
            4. Calms Processing Routine.
            5. Not Use Missing Data Processing Routine.
            6. Default Wind Profile Exponents.
            7. Default Vertical Potential Temperature Gradients.

 **Model Accepts Receptors on ELEV Terrain.

 **Model Accepts FLAGPOLE Receptor Heights.

 **Model Calculates  2 Short Term Average(s) of:   1-HR  24-HR
```

```
     and Calculates ANNUAL Averages

 **This Run Includes:     1 Source(s);      1 Source Group(s); and       4 Receptor(s)

 **The Model Assumes A Pollutant Type of:  NO2

 **Model Set To Continue RUNning After the Setup Testing.

 **Output Options Selected:
         Model Outputs Tables of ANNUAL Averages by Receptor
         Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
         Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Anem. Hgt. (m) =    28.30 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                      ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =     1.2 MB of RAM.

 **Input Runstream File:          D:\4082\TEST_NO2.DAT
 **Output Print File:             D:\4082\TEST_NO2.LST
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   2
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                                *** POINT SOURCE DATA ***

                NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BUILDING EMISSION RATE
    SOURCE       PART. (USER UNITS)      X        Y      ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER   EXISTS   SCALAR VARY
      ID         CATS.              (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)               BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

   SRC1           0   0.29580E+00  829417.0  841235.0     6.3     8.00   373.00     6.00     0.20      NO       HROFDY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   3
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 GROUP ID                                              SOURCE IDs


  ALL       SRC1    ,
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   4
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                        * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

     HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 SOURCE ID = SRC1      ;  SOURCE TYPE = POINT    :
       1   .23000E+00      2   .23000E+00      3   .23000E+00      4   .23000E+00      5   .23000E+00      6   .41000E+00
       7   .41000E+00      8   .41000E+00      9   .41000E+00     10   .41000E+00     11   .41000E+00     12   .41000E+00
      13   .41000E+00     14   .41000E+00     15   .41000E+00     16   .41000E+00     17   .41000E+00     18   .23000E+00
      19   .23000E+00     20   .23000E+00     21   .23000E+00     22   .23000E+00     23   .23000E+00     24   .23000E+00

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   5
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZFLAG)
                                                  (METERS)

     ( 829484.0,  841257.0,       7.0,       1.5);          ( 829492.0,  841265.0,       7.0,       1.5);
     ( 829503.0,  841269.0,       7.0,       1.5);          ( 829509.0,  841282.0,       7.0,       1.5);
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                          PAGE   6
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                    *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                              (1=YES; 0=NO)

          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
          1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1

                    METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2006   1  1  1
                                                      AND END DATE: 2006  12 31 24

               NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                  (METERS/SEC)

                                              1.54,   3.09,   5.14,   8.23,  10.80,

                                                *** WIND PROFILE EXPONENTS ***
```

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY CATEGORY	WIND SPEED CATEGORY 1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/24/08
*** ISCST Model for Chimney at Gugusoy *** 09:14:10
**MODELOPTs: PAGE 7
CONC RURAL ELEV FLGPOL GRDRIS

*** THE FIRST 24 HOURS OF METEOROLOGICAL DATA ***

FILE: D:\4082\TKL2006.ASC
FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
SURFACE STATION NO.: 0 UPPER AIR STATION NO.: 11111
NAME: UNKNOWN NAME: UNKNOWN
YEAR: 2006 YEAR: 2006

YR	MN	DY	HR	FLOW VECTOR	SPEED (M/S)	TEMP (K)	STAB CLASS	MIXING HEIGHT (M) RURAL	MIXING HEIGHT (M) URBAN	USTAR (M/S)	M-O LENGTH (M)	Z-0 (M)	IPCODE	PRATE (mm/HR)
06	01	01	01	300.0	2.10	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	02	340.0	1.50	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	03	280.0	0.70	290.7	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	04	280.0	0.40	290.6	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	05	280.0	1.00	290.4	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	06	280.0	1.40	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	07	290.0	1.50	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	08	290.0	1.30	290.2	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	09	300.0	2.60	290.9	4	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	10	300.0	2.30	292.1	3	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	11	200.0	1.10	293.6	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	12	100.0	1.10	294.9	1	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	13	100.0	1.40	296.5	1	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	14	100.0	0.90	298.7	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	15	280.0	1.70	297.6	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	16	300.0	2.60	296.5	2	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	17	300.0	0.70	295.3	4	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	18	300.0	1.90	293.1	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	19	300.0	2.30	291.5	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	20	300.0	0.80	290.8	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	21	320.0	2.20	290.4	5	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	22	330.0	2.10	290.1	5	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	23	320.0	1.80	290.1	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00
06	01	01	24	330.0	0.90	289.7	6	950.7	950.7	0.0000	0.0	0.0000	0	0.00

*** NOTES: STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti ***
*** ISCST Model for Chimney at Gugusoy ***

* ----------
* ----------
* *** EMISSION RATE DATA FOR ***
* NO2
* Nitrogen Dioxide
* ----------

SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE	SOURCE ID	EMISSION RATE
SRC1	0.2958000E+00						

* ----------
* ----------

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/24/08
*** ISCST Model for Chimney at Gugusoy *** 09:14:10
**MODELOPTs: PAGE 8
CONC RURAL ELEV FLGPOL GRDRIS

*** THE ANNUAL (1 YRS) AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	X-COORD (M)	Y-COORD (M)	CONC
829484.00	841257.00	1.69358	829492.00	841265.00	1.70170
829503.00	841269.00	1.56246	829509.00	841282.00	1.58048

1 *** ISCST3 - VERSION 02035 *** *** Construction of Cycle Tracks and the Associated Supporting Faciliti *** 12/24/08
*** ISCST Model for Chimney at Gugusoy *** 09:14:10
**MODELOPTs: PAGE 9
CONC RURAL ELEV FLGPOL GRDRIS

*** THE 1ST HIGHEST 1-HR AVERAGE CONCENTRATION VALUES FOR SOURCE GROUP: ALL ***
INCLUDING SOURCE(S): SRC1 ,

*** DISCRETE CARTESIAN RECEPTOR POINTS ***

** CONC OF NO2 IN MICROGRAMS/M**3 **

X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)	X-COORD (M)	Y-COORD (M)	CONC	(YYMMDDHH)
829484.00	841257.00	120.59790	(06062509)	829492.00	841265.00	117.69342	(06062509)

```
       829503.00    841269.00      109.99660  (06062509)              829509.00    841282.00      101.03226  (06080815)
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                     ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  10
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                              *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      SRC1    ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                       ** CONC OF NO2      IN MICROGRAMS/M**3                        **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)             X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
       829484.00    841257.00       31.58146c (06083124)              829492.00    841265.00       27.24837c (06083124)
       829503.00    841269.00       25.27343c (06083124)              829509.00    841282.00       22.70435  (06071524)
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                     ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  11
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                              *** THE MAXIMUM   10   1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):    SRC1    ,

                                       ** CONC OF NO2      IN MICROGRAMS/M**3                        **

 RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.     120.59790 (06062509) AT ( 829484.00,  841257.00)  DC       6.     116.83125 (06101410) AT ( 829492.00,  841265.00)  DC
    2.     119.22198 (06061512) AT ( 829484.00,  841257.00)  DC       7.     116.62239 (06061512) AT ( 829492.00,  841265.00)  DC
    3.     118.80826 (06101410) AT ( 829484.00,  841257.00)  DC       8.     116.61179 (06052311) AT ( 829492.00,  841265.00)  DC
    4.     118.52853 (06052311) AT ( 829484.00,  841257.00)  DC       9.     116.40796 (06061911) AT ( 829484.00,  841257.00)  DC
    5.     117.69342 (06062509) AT ( 829492.00,  841265.00)  DC      10.     116.17319 (06043016) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                     ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  12
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                              *** THE MAXIMUM   10  24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):    SRC1    ,

                                       ** CONC OF NO2      IN MICROGRAMS/M**3                        **

 RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.      31.58146c(06083124) AT ( 829484.00,  841257.00)  DC       6.      21.52903c(06090624) AT ( 829484.00,  841257.00)  DC
    2.      27.24837c(06083124) AT ( 829492.00,  841265.00)  DC       7.      21.15851c(06090124) AT ( 829492.00,  841265.00)  DC
    3.      26.42203c(06090124) AT ( 829484.00,  841257.00)  DC       8.      20.52612c(06090624) AT ( 829492.00,  841265.00)  DC
    4.      25.27343c(06083124) AT ( 829503.00,  841269.00)  DC       9.      18.81963c(06090124) AT ( 829503.00,  841269.00)  DC
    5.      22.70435 (06071524) AT ( 829509.00,  841282.00)  DC      10.      18.68867c(06081924) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                     ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  13
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                       *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***

                                       ** CONC OF NO2      IN MICROGRAMS/M**3                        **

                                                                                                                 NETWORK
 GROUP ID                      AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZFLAG)    OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 ALL      1ST HIGHEST VALUE IS       1.70170 AT (  829492.00,   841265.00,      7.00,      1.50)  DC      NA
          2ND HIGHEST VALUE IS       1.69358 AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA
          3RD HIGHEST VALUE IS       1.58048 AT (  829509.00,   841282.00,      7.00,      1.50)  DC      NA
          4TH HIGHEST VALUE IS       1.56246 AT (  829503.00,   841269.00,      7.00,      1.50)  DC      NA
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                    ***  ISCST Model for Chimney at Gugusoy                                     ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  14
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                       *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                                       ** CONC OF NO2      IN MICROGRAMS/M**3                        **

                                                    DATE                                                         NETWORK
 GROUP ID                      AVERAGE CONC     (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
 ALL      HIGH  1ST HIGH VALUE IS     120.59790  ON 06062509: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
```

```
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  15
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                                              *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***


                                           ** CONC OF NO2      IN MICROGRAMS/M**3                          **

                                                    DATE                                                                NETWORK
 GROUP ID                          AVERAGE CONC     (YYMMDDHH)             RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      HIGH  1ST HIGH VALUE IS      31.58146c ON 06083124: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA


   *** RECEPTOR TYPES:  GC = GRIDCART
                        GP = GRIDPOLR
                        DC = DISCCART
                        DP = DISCPOLR
                        BD = BOUNDARY
 1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/24/08
                                     ***  ISCST Model for Chimney at Gugusoy                                    ***        09:14:10
 **MODELOPTs:                                                                                                            PAGE  16
 CONC                    RURAL ELEV  FLGPOL        GRDRIS


 *** Message Summary : ISCST3 Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            0 Warning Message(s)
 A Total of          315 Informational Message(s)

 A Total of          315 Calm Hours Identified


    ******** FATAL ERROR MESSAGES ********
               ***  NONE  ***


    ********   WARNING MESSAGES   ********
               ***  NONE  ***


    ***********************************
    *** ISCST3 Finishes Successfully ***
    ***********************************

                    ISCST3 - (DATED 02035)

                  ISC3MSPx     VERSION  4.4.3
            (C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/23/2008 at 18:40:23

** BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat
** Trinity Consultants


CO STARTING
CO TITLEONE  Construction of Cycle Tracks and the Associated Supporting Faciliti
CO TITLETWO  ISCST Model for Chimney at Gugusoy
CO MODELOPT  CONC  RURAL  GRDRIS
CO AVERTIME  1  24  ANNUAL
CO POLLUTID  PM
CO TERRHGTS  ELEV
CO FLAGPOLE  1.5
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  SRC1  POINT  829417.0  841235.0  6.3
** SRCDESCR  Stack at Gugusoy
SO SRCPARAM  SRC1     2.960000E-02 8  373  6  0.2
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.41  0.41  0.41  0.41
SO EMISFACT  SRC1  HROFDY  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.23
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.23
SO EMISUNIT  1.0E+06  GRAMS/SEC  MICROGRAMS/M**3
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
RE DISCCART  829484.0  841257.0  7  1.5
** RCPDESCR  shelter / pavilion
RE DISCCART  829492.0  841265.0  7  1.5
** RCPDESCR  Open space / sitting out area
RE DISCCART  829503.0  841269.0  7  1.5
** RCPDESCR  Information Board
RE DISCCART  829509.0  841282.0  7  1.5
** RCPDESCR  Mobile First Aid Station
RE FINISHED

ME STARTING
ME INPUTFIL  D:\4082\TKL2006.ASC
ME ANEMHGHT  28.3  METERS
ME SURFDATA  00000  2006
ME UAIRDATA  11111  2006
ME STARTEND  2006  01  01  1  2006  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU RECTABLE  ALLAVE  FIRST
OU MAXTABLE  ALLAVE  10
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  D:\4082\test.lst
** RAWFILE  D:\4082\test.RAW
** RAWFMT  2
** AMPDATUM  0
** HILLBOUN  0 0 0 0
```

```
** POLLUTNT IDN  01  SO2  X
** POLLUTNT NAM  01  Sulphur Dioxide
** POLLUTNT IDN  02  PM  X
** POLLUTNT NAM  02  Particulate Matters
** POLLUTNT IDN  03  NO2  X
** POLLUTNT NAM  03  Nitrogen Dioxide
** POLLUTNT EMS  SRC1 1.000000E+00 2.960000E-02 2.958000E-01


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   1
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                          ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Intermediate Terrain Processing is Selected

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  SCAVENGING/DEPOSITION LOGIC --
 **Model Uses NO DRY DEPLETION.  DDPLETE =  F
 **Model Uses NO WET DEPLETION.  WDPLETE =  F
 **NO WET SCAVENGING Data Provided.
 **NO GAS DRY DEPOSITION Data Provided.
 **Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

 **Model Uses RURAL Dispersion.

 **Model Uses User-Specified Options:
           1. Gradual Plume Rise.
           2. Stack-tip Downwash.
           3. Buoyancy-induced Dispersion.
           4. Calms Processing Routine.
           5. Not Use Missing Data Processing Routine.
           6. Default Wind Profile Exponents.
           7. Default Vertical Potential Temperature Gradients.

 **Model Accepts Receptors on ELEV Terrain.

 **Model Accepts FLAGPOLE Receptor Heights.

 **Model Calculates  2 Short Term Average(s) of:   1-HR  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:     1 Source(s);      1 Source Group(s); and       4 Receptor(s)

 **The Model Assumes A Pollutant Type of:  PM

 **Model Set To Continue RUNning After the Setup Testing.

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
          Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
                                                                 b for Both Calm and Missing Hours

 **Misc. Inputs:  Anem. Hgt. (m) =    28.30 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =     1.2 MB of RAM.

 **Input Runstream File:          D:\4082\TEST_PM.DAT
 **Output Print File:             D:\4082\TEST_PM.LST
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   2
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                          *** POINT SOURCE DATA ***

             NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BUILDING EMISSION RATE
    SOURCE     PART. (USER UNITS)     X         Y     ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER   EXISTS   SCALAR VARY
      ID       CATS.               (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)                 BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

   SRC1          0   0.29600E-01  829417.0  841235.0     6.3     8.00   373.00     6.00     0.20      NO       HROFDY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   3
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                       *** SOURCE IDs DEFINING SOURCE GROUPS ***

 GROUP ID                                        SOURCE IDs


  ALL       SRC1    ,
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   4
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                          * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

     HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 SOURCE ID = SRC1     ;  SOURCE TYPE = POINT    :
```

```
      1   .23000E+00      2   .23000E+00      3   .23000E+00      4   .23000E+00      5   .23000E+00      6   .41000E+00
      7   .41000E+00      8   .41000E+00      9   .41000E+00     10   .41000E+00     11   .41000E+00     12   .41000E+00
     13   .41000E+00     14   .41000E+00     15   .41000E+00     16   .41000E+00     17   .41000E+00     18   .23000E+00
     19   .23000E+00     20   .23000E+00     21   .23000E+00     22   .23000E+00     23   .23000E+00     24   .23000E+00

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   5
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                          *** DISCRETE CARTESIAN RECEPTORS ***
                                            (X-COORD, Y-COORD, ZELEV, ZFLAG)
                                                    (METERS)

     ( 829484.0,  841257.0,       7.0,       1.5);          ( 829492.0,  841265.0,       7.0,       1.5);
     ( 829503.0,  841269.0,       7.0,       1.5);          ( 829509.0,  841282.0,       7.0,       1.5);
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   6
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                       *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                                  (1=YES; 0=NO)

           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
           1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
```

METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2006 1 1 1
AND END DATE: 2006 12 31 24

NOTE: METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.

*** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
(METERS/SEC)

1.54, 3.09, 5.14, 8.23, 10.80,

*** WIND PROFILE EXPONENTS ***

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
B	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01	.70000E-01
C	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00	.10000E+00
D	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00	.15000E+00
E	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00	.35000E+00
F	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00	.55000E+00

*** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
(DEGREES KELVIN PER METER)

STABILITY	WIND SPEED CATEGORY					
CATEGORY	1	2	3	4	5	6
A	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
B	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
C	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
D	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00	.00000E+00
E	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01	.20000E-01
F	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01	.35000E-01

```
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   7
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                      *** THE FIRST  24 HOURS OF METEOROLOGICAL DATA ***

      FILE:   D:\4082\TKL2006.ASC
      FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
      SURFACE STATION NO.:      0                    UPPER AIR STATION NO.:  11111
                    NAME: UNKNOWN                                NAME: UNKNOWN
                    YEAR:   2006                                 YEAR:   2006

               FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-0 IPCODE PRATE
 YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL   URBAN     (M/S)     (M)        (M)        (mm/HR)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 06 01 01 01  300.0   2.10  290.6   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 02  340.0   1.50  290.8   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 03  280.0   0.70  290.7   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 04  280.0   0.40  290.6   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 05  280.0   1.00  290.4   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 06  280.0   1.40  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 07  290.0   1.50  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 08  290.0   1.30  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 09  300.0   2.60  290.9   4     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 10  300.0   2.30  292.1   3     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 11  200.0   1.10  293.6   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 12  100.0   1.10  294.9   1     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 13  100.0   1.40  296.5   1     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 14  100.0   0.90  298.7   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 15  280.0   1.70  297.6   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 16  300.0   2.60  296.5   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 17  300.0   0.70  295.3   4     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 18  300.0   1.90  293.1   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 19  300.0   2.30  291.5   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 20  300.0   0.80  290.8   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 21  320.0   2.20  290.4   5     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 22  330.0   2.10  290.1   5     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 23  320.0   1.80  290.1   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 24  330.0   0.90  289.7   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
```

```
 *** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
             FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***

* ------------------------------------------------------------------------------------------------------------------------
* ------------------------------------------------------------------------------------------------------------------------
*                                    *** EMISSION RATE DATA FOR ***
*                                        PM
*                                        Particulate Matters
* ------------------------------------------------------------------------------------------------------------------------
* SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE
*------------------------*--------------------------*--------------------------*--------------------------------
* SRC1       0.2960000E-01  *
* ------------------------------------------------------------------------------------------------------------------------
* ------------------------------------------------------------------------------------------------------------------------

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
 **MODELOPTs:                                                                                                         PAGE   8
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                              *** THE ANNUAL (   1 YRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL      ***
                                  INCLUDING SOURCE(S):      SRC1    ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                      ** CONC OF PM       IN MICROGRAMS/M**3                        **

      X-COORD (M)   Y-COORD (M)        CONC                      X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        829484.00     841257.00        0.16947                    829492.00     841265.00        0.17029
        829503.00     841269.00        0.15635                    829509.00     841282.00        0.15815
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
 **MODELOPTs:                                                                                                         PAGE   9
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                              *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      SRC1    ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                      ** CONC OF PM       IN MICROGRAMS/M**3                        **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)            X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
       829484.00    841257.00       12.06794  (06062509)             829492.00    841265.00       11.77730  (06062509)
       829503.00    841269.00       11.00710  (06062509)             829509.00    841282.00       10.11006  (06080815)
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
 **MODELOPTs:                                                                                                         PAGE  10
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                              *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):      SRC1    ,

                                          *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                      ** CONC OF PM       IN MICROGRAMS/M**3                        **

     X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)            X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
       829484.00    841257.00       3.16028c (06083124)             829492.00    841265.00       2.72668c (06083124)
       829503.00    841269.00       2.52905c (06083124)             829509.00    841282.00       2.27197  (06071524)
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
 **MODELOPTs:                                                                                                         PAGE  11
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                               *** THE MAXIMUM   10   1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                   INCLUDING SOURCE(S):    SRC1    ,

                                      ** CONC OF PM       IN MICROGRAMS/M**3                        **

 RANK        CONC     (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC     (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.      12.06794 (06062509) AT ( 829484.00,  841257.00)  DC       6.      11.69102 (06101410) AT ( 829492.00,  841265.00)  DC
    2.      11.93026 (06061512) AT ( 829484.00,  841257.00)  DC       7.      11.67012 (06061512) AT ( 829492.00,  841265.00)  DC
    3.      11.88886 (06101410) AT ( 829484.00,  841257.00)  DC       8.      11.66906 (06052311) AT ( 829492.00,  841265.00)  DC
    4.      11.86087 (06052311) AT ( 829484.00,  841257.00)  DC       9.      11.64867 (06061911) AT ( 829484.00,  841257.00)  DC
    5.      11.77730 (06062509) AT ( 829492.00,  841265.00)  DC      10.      11.62517 (06043016) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
 **MODELOPTs:                                                                                                         PAGE  12
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                               *** THE MAXIMUM   10  24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                   INCLUDING SOURCE(S):    SRC1    ,

                                      ** CONC OF PM       IN MICROGRAMS/M**3                        **

 RANK        CONC     (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC     (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.      3.16028c(06083124) AT ( 829484.00,  841257.00)  DC       6.      2.15436c(06090624) AT ( 829484.00,  841257.00)  DC
    2.      2.72668c(06083124) AT ( 829492.00,  841265.00)  DC       7.      2.11728c(06090124) AT ( 829492.00,  841265.00)  DC
    3.      2.64399c(06090124) AT ( 829484.00,  841257.00)  DC       8.      2.05400c(06090624) AT ( 829492.00,  841265.00)  DC
    4.      2.52905c(06083124) AT ( 829503.00,  841269.00)  DC       9.      1.88324c(06090124) AT ( 829503.00,  841269.00)  DC
    5.      2.27197 (06071524) AT ( 829509.00,  841282.00)  DC      10.      1.87013c(06081924) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
```

```
**MODELOPTs:                                                                                                    PAGE  13
CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                        *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***

                                     ** CONC OF PM       IN MICROGRAMS/M**3                        **

                                                                                                    NETWORK
 GROUP ID                      AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      1ST HIGHEST VALUE IS       0.17029 AT (  829492.00,   841265.00,      7.00,      1.50)  DC      NA
          2ND HIGHEST VALUE IS       0.16947 AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA
          3RD HIGHEST VALUE IS       0.15815 AT (  829509.00,   841282.00,      7.00,      1.50)  DC      NA
          4TH HIGHEST VALUE IS       0.15635 AT (  829503.00,   841269.00,      7.00,      1.50)  DC      NA
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
**MODELOPTs:                                                                                                    PAGE  14
CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                        *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                                     ** CONC OF PM       IN MICROGRAMS/M**3                        **

                                                          DATE                                              NETWORK
 GROUP ID                      AVERAGE CONC     (YYMMDDHH)             RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      HIGH  1ST HIGH VALUE IS      12.06794  ON 06062509: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
**MODELOPTs:                                                                                                    PAGE  15
CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                        *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

                                     ** CONC OF PM       IN MICROGRAMS/M**3                        **

                                                          DATE                                              NETWORK
 GROUP ID                      AVERAGE CONC     (YYMMDDHH)             RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      HIGH  1ST HIGH VALUE IS       3.16028c ON 06083124: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                  ***        18:40:23
**MODELOPTs:                                                                                                    PAGE  16
CONC                   RURAL ELEV  FLGPOL        GRDRIS


 *** Message Summary : ISCST3 Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            0 Warning Message(s)
 A Total of          315 Informational Message(s)

 A Total of          315 Calm Hours Identified


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
              ***  NONE  ***


    ***********************************
    *** ISCST3 Finishes Successfully ***
    ***********************************

                   ISCST3 - (DATED 02035)

                ISC3MSPx     VERSION  4.4.3
          (C) COPYRIGHT 1991-2006, Trinity Consultants

Run Began on 12/23/2008 at 18:40:23

** BREEZE ISC GIS Pro v5.2.1 - D:\4082\test.dat
** Trinity Consultants


CO STARTING
CO TITLEONE  Construction of Cycle Tracks and the Associated Supporting Faciliti
CO TITLETWO  ISCST Model for Chimney at Gugusoy
```

```
CO MODELOPT  CONC  RURAL  GRDRIS
CO AVERTIME  1  24  ANNUAL
CO POLLUTID  NO2
CO TERRHGTS  ELEV
CO FLAGPOLE  1.5
CO RUNORNOT  RUN
CO FINISHED

SO STARTING
SO ELEVUNIT  METERS
SO LOCATION  SRC1  POINT  829417.0  841235.0  6.3
** SRCDESCR  Stack at Gugusoy
SO SRCPARAM  SRC1     2.958000E-01 8  373  6  0.2
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.41  0.41  0.41  0.41
SO EMISFACT  SRC1  HROFDY  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.41  0.23
SO EMISFACT  SRC1  HROFDY  0.23  0.23  0.23  0.23  0.23  0.23
SO EMISUNIT  1.0E+06  GRAMS/SEC  MICROGRAMS/M**3
SO SRCGROUP  ALL
SO FINISHED

RE STARTING
RE ELEVUNIT  METERS
RE DISCCART  829484.0  841257.0  7  1.5
** RCPDESCR  shelter / pavilion
RE DISCCART  829492.0  841265.0  7  1.5
** RCPDESCR  Open space / sitting out area
RE DISCCART  829503.0  841269.0  7  1.5
** RCPDESCR  Information Board
RE DISCCART  829509.0  841282.0  7  1.5
** RCPDESCR  Mobile First Aid Station
RE FINISHED

ME STARTING
ME INPUTFIL  D:\4082\TKL2006.ASC
ME ANEMHGHT  28.3  METERS
ME SURFDATA  00000  2006
ME UAIRDATA  11111  2006
ME STARTEND  2006  01  01  1  2006  12  31  24
ME FINISHED

OU STARTING
OU RECTABLE  1  FIRST
OU RECTABLE  ALLAVE  FIRST
OU MAXTABLE  ALLAVE  10
OU FINISHED

** PROJECTN  0 104 7 -177 0 0.9996 500000 0
** OUTFILE  D:\4082\test.lst
** RAWFILE  D:\4082\test.RAW
** RAWFMT  2
** AMPDATUM  0
** HILLBOUN  0 0 0 0

** POLLUTNT IDN  01  SO2  X
** POLLUTNT NAM  01  Sulphur Dioxide
** POLLUTNT IDN  02  PM  X
** POLLUTNT NAM  02  Particulate Matters
** POLLUTNT IDN  03  NO2  X
** POLLUTNT NAM  03  Nitrogen Dioxide
** POLLUTNT EMS  SRC1 1.000000E+00 2.960000E-02 2.958000E-01


 ***********************************
 *** SETUP Finishes Successfully ***
 ***********************************

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   1
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                                        ***     MODEL SETUP OPTIONS SUMMARY       ***
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 **Intermediate Terrain Processing is Selected

 **Model Is Setup For Calculation of Average CONCentration Values.

   --  SCAVENGING/DEPOSITION LOGIC --
 **Model Uses NO DRY DEPLETION.  DDPLETE =  F
 **Model Uses NO WET DEPLETION.  WDPLETE =  F
 **NO WET SCAVENGING Data Provided.
 **NO GAS DRY DEPOSITION Data Provided.
 **Model Does NOT Use GRIDDED TERRAIN Data for Depletion Calculations

 **Model Uses RURAL Dispersion.

 **Model Uses User-Specified Options:
            1. Gradual Plume Rise.
            2. Stack-tip Downwash.
            3. Buoyancy-induced Dispersion.
            4. Calms Processing Routine.
            5. Not Use Missing Data Processing Routine.
            6. Default Wind Profile Exponents.
            7. Default Vertical Potential Temperature Gradients.

 **Model Accepts Receptors on ELEV Terrain.

 **Model Accepts FLAGPOLE Receptor Heights.

 **Model Calculates  2 Short Term Average(s) of:   1-HR  24-HR
     and Calculates ANNUAL Averages

 **This Run Includes:     1 Source(s);      1 Source Group(s); and       4 Receptor(s)

 **The Model Assumes A Pollutant Type of:  NO2

 **Model Set To Continue RUNning After the Setup Testing.

 **Output Options Selected:
          Model Outputs Tables of ANNUAL Averages by Receptor
          Model Outputs Tables of Highest Short Term Values by Receptor (RECTABLE Keyword)
          Model Outputs Tables of Overall Maximum Short Term Values (MAXTABLE Keyword)

 **NOTE:  The Following Flags May Appear Following CONC Values:  c for Calm Hours
                                                                 m for Missing Hours
```

```
                                                    b for Both Calm and Missing Hours

 **Misc. Inputs:  Anem. Hgt. (m) =    28.30 ;    Decay Coef. =       0.0000 ;    Rot. Angle =     0.0
                  Emission Units = GRAMS/SEC                                  ;  Emission Rate Unit Factor =   0.10000E+07
                  Output Units   = MICROGRAMS/M**3

 **Approximate Storage Requirements of Model =     1.2 MB of RAM.

 **Input Runstream File:          D:\4082\TEST_NO2.DAT
 **Output Print File:             D:\4082\TEST_NO2.LST
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   2
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                                *** POINT SOURCE DATA ***

            NUMBER EMISSION RATE                    BASE     STACK   STACK    STACK     STACK    BUILDING EMISSION RATE
    SOURCE     PART. (USER UNITS)     X        Y      ELEV.    HEIGHT  TEMP.   EXIT VEL. DIAMETER   EXISTS   SCALAR VARY
      ID       CATS.             (METERS) (METERS) (METERS) (METERS) (DEG.K)  (M/SEC)  (METERS)              BY
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

   SRC1          0   0.29580E+00  829417.0  841235.0     6.3     8.00   373.00     6.00     0.20      NO       HROFDY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   3
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                          *** SOURCE IDs DEFINING SOURCE GROUPS ***

 GROUP ID                                              SOURCE IDs


  ALL       SRC1    ,
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   4
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                            * SOURCE EMISSION RATE SCALARS WHICH VARY FOR EACH HOUR OF THE DAY *

     HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR      HOUR    SCALAR
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 SOURCE ID = SRC1     ;  SOURCE TYPE = POINT    :
       1   .23000E+00      2   .23000E+00      3   .23000E+00      4   .23000E+00      5   .23000E+00      6   .41000E+00
       7   .41000E+00      8   .41000E+00      9   .41000E+00     10   .41000E+00     11   .41000E+00     12   .41000E+00
      13   .41000E+00     14   .41000E+00     15   .41000E+00     16   .41000E+00     17   .41000E+00     18   .23000E+00
      19   .23000E+00     20   .23000E+00     21   .23000E+00     22   .23000E+00     23   .23000E+00     24   .23000E+00

1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   5
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                        *** DISCRETE CARTESIAN RECEPTORS ***
                                          (X-COORD, Y-COORD, ZELEV, ZFLAG)
                                                  (METERS)

     ( 829484.0,  841257.0,       7.0,       1.5);          ( 829492.0,  841265.0,       7.0,       1.5);
     ( 829503.0,  841269.0,       7.0,       1.5);          ( 829509.0,  841282.0,       7.0,       1.5);
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                    ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE   6
 CONC                   RURAL ELEV  FLGPOL        GRDRIS


                                    *** METEOROLOGICAL DAYS SELECTED FOR PROCESSING ***
                                              (1=YES; 0=NO)

            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1 1 1 1 1
            1 1 1 1 1 1 1 1 1 1   1 1 1 1 1 1
                      METEOROLOGICAL DATA PROCESSED BETWEEN START DATE: 2006   1  1  1
                                                       AND END DATE: 2006  12 31 24

          NOTE:  METEOROLOGICAL DATA ACTUALLY PROCESSED WILL ALSO DEPEND ON WHAT IS INCLUDED IN THE DATA FILE.


                                    *** UPPER BOUND OF FIRST THROUGH FIFTH WIND SPEED CATEGORIES ***
                                                  (METERS/SEC)

                                                1.54,   3.09,   5.14,   8.23,  10.80,

                                                *** WIND PROFILE EXPONENTS ***

                  STABILITY                                WIND SPEED CATEGORY
                  CATEGORY        1             2             3             4             5             6
                     A         .70000E-01    .70000E-01    .70000E-01    .70000E-01    .70000E-01    .70000E-01
                     B         .70000E-01    .70000E-01    .70000E-01    .70000E-01    .70000E-01    .70000E-01
                     C         .10000E+00    .10000E+00    .10000E+00    .10000E+00    .10000E+00    .10000E+00
                     D         .15000E+00    .15000E+00    .15000E+00    .15000E+00    .15000E+00    .15000E+00
                     E         .35000E+00    .35000E+00    .35000E+00    .35000E+00    .35000E+00    .35000E+00
                     F         .55000E+00    .55000E+00    .55000E+00    .55000E+00    .55000E+00    .55000E+00


                                    *** VERTICAL POTENTIAL TEMPERATURE GRADIENTS ***
                                          (DEGREES KELVIN PER METER)
```

```
                STABILITY                          WIND SPEED CATEGORY
                CATEGORY         1             2             3             4             5             6
                   A         .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00
                   B         .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00
                   C         .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00
                   D         .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00    .00000E+00
                   E         .20000E-01    .20000E-01    .20000E-01    .20000E-01    .20000E-01    .20000E-01
                   F         .35000E-01    .35000E-01    .35000E-01    .35000E-01    .35000E-01    .35000E-01
1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                            PAGE   7
 CONC                    RURAL ELEV  FLGPOL        GRDRIS


                      *** THE FIRST  24 HOURS OF METEOROLOGICAL DATA ***

      FILE:   D:\4082\TKL2006.ASC
      FORMAT: (4I2,2F9.4,F6.1,I2,2F7.1,f9.4,f10.1,f8.4,i4,f7.2)
      SURFACE STATION NO.:      0                  UPPER AIR STATION NO.:  11111
                     NAME: UNKNOWN                              NAME: UNKNOWN
                     YEAR:   2006                               YEAR:   2006

                FLOW   SPEED  TEMP  STAB  MIXING HEIGHT (M)  USTAR  M-O LENGTH   Z-0 IPCODE PRATE
 YR MN DY HR VECTOR  (M/S)   (K)  CLASS   RURAL    URBAN     (M/S)      (M)       (M)        (mm/HR)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 06 01 01 01  300.0   2.10  290.6   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 02  340.0   1.50  290.8   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 03  280.0   0.70  290.7   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 04  280.0   0.40  290.6   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 05  280.0   1.00  290.4   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 06  280.0   1.40  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 07  290.0   1.50  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 08  290.0   1.30  290.2   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 09  300.0   2.60  290.9   4     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 10  300.0   2.30  292.1   3     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 11  200.0   1.10  293.6   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 12  100.0   1.10  294.9   1     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 13  100.0   1.40  296.5   1     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 14  100.0   0.90  298.7   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 15  280.0   1.70  297.6   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 16  300.0   2.60  296.5   2     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 17  300.0   0.70  295.3   4     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 18  300.0   1.90  293.1   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 19  300.0   2.30  291.5   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 20  300.0   0.80  290.8   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 21  320.0   2.20  290.4   5     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 22  330.0   2.10  290.1   5     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 23  320.0   1.80  290.1   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00
 06 01 01 24  330.0   0.90  289.7   6     950.7   950.7    0.0000       0.0  0.0000   0   0.00


 *** NOTES:  STABILITY CLASS 1=A, 2=B, 3=C, 4=D, 5=E AND 6=F.
             FLOW VECTOR IS DIRECTION TOWARD WHICH WIND IS BLOWING.

1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***

* ---------------------------------------------------------------------------------------------------------------------
* ---------------------------------------------------------------------------------------------------------------------
*                                      *** EMISSION RATE DATA FOR ***
*                                          NO2
*                                          Nitrogen Dioxide
* ---------------------------------------------------------------------------------------------------------------------
* SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE  * SOURCE ID  EMISSION RATE
*------------------------*-------------------------*-------------------------*-------------------------------
* SRC1       0.2958000E+00  *
* ---------------------------------------------------------------------------------------------------------------------
* ---------------------------------------------------------------------------------------------------------------------

1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                            PAGE   8
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                          *** THE ANNUAL (   1 YRS) AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP: ALL      ***
                              INCLUDING SOURCE(S):      SRC1    ,

                                      *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF NO2      IN MICROGRAMS/M**3                        **

       X-COORD (M)   Y-COORD (M)        CONC                     X-COORD (M)   Y-COORD (M)        CONC
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
         829484.00     841257.00        1.69358                   829492.00     841265.00        1.70170
         829503.00     841269.00        1.56246                   829509.00     841282.00        1.58048
1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                            PAGE   9
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                          *** THE   1ST HIGHEST  1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                              INCLUDING SOURCE(S):      SRC1    ,

                                      *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF NO2      IN MICROGRAMS/M**3                        **

      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)            X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
        829484.00    841257.00      120.59790  (06062509)              829492.00    841265.00      117.69342  (06062509)
        829503.00    841269.00      109.99660  (06062509)              829509.00    841282.00      101.03226  (06080815)
1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                            PAGE  10
 CONC                    RURAL ELEV  FLGPOL        GRDRIS

                          *** THE   1ST HIGHEST 24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                              INCLUDING SOURCE(S):      SRC1    ,

                                      *** DISCRETE CARTESIAN RECEPTOR POINTS ***

                                   ** CONC OF NO2      IN MICROGRAMS/M**3                        **
```

```
      X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)             X-COORD (M)  Y-COORD (M)        CONC     (YYMMDDHH)
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
       829484.00    841257.00       31.58146c (06083124)               829492.00    841265.00       27.24837c (06083124)
       829503.00    841269.00       25.27343c (06083124)               829509.00    841282.00       22.70435  (06071524)
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  11
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                              *** THE MAXIMUM   10   1-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):    SRC1    ,

                                  ** CONC OF NO2      IN MICROGRAMS/M**3                       **

 RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.     120.59790 (06062509) AT ( 829484.00,  841257.00)  DC       6.     116.83125 (06101410) AT ( 829492.00,  841265.00)  DC
    2.     119.22198 (06061512) AT ( 829484.00,  841257.00)  DC       7.     116.62239 (06061512) AT ( 829492.00,  841265.00)  DC
    3.     118.80826 (06101410) AT ( 829484.00,  841257.00)  DC       8.     116.61179 (06052311) AT ( 829492.00,  841265.00)  DC
    4.     118.52853 (06052311) AT ( 829484.00,  841257.00)  DC       9.     116.40796 (06061911) AT ( 829484.00,  841257.00)  DC
    5.     117.69342 (06062509) AT ( 829492.00,  841265.00)  DC      10.     116.17319 (06043016) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  12
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                              *** THE MAXIMUM   10  24-HR AVERAGE CONCENTRATION   VALUES FOR SOURCE GROUP:  ALL      ***
                                  INCLUDING SOURCE(S):    SRC1    ,

                                  ** CONC OF NO2      IN MICROGRAMS/M**3                       **

 RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE    RANK        CONC    (YYMMDDHH) AT      RECEPTOR (XR,YR) OF TYPE
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
    1.      31.58146c(06083124) AT ( 829484.00,  841257.00)  DC       6.      21.52903c(06090624) AT ( 829484.00,  841257.00)  DC
    2.      27.24837c(06083124) AT ( 829492.00,  841265.00)  DC       7.      21.15851c(06090124) AT ( 829492.00,  841265.00)  DC
    3.      26.42203c(06090124) AT ( 829484.00,  841257.00)  DC       8.      20.52612c(06090624) AT ( 829492.00,  841265.00)  DC
    4.      25.27343c(06083124) AT ( 829503.00,  841269.00)  DC       9.      18.81963c(06090124) AT ( 829503.00,  841269.00)  DC
    5.      22.70435 (06071524) AT ( 829509.00,  841282.00)  DC      10.      18.68867c(06081924) AT ( 829484.00,  841257.00)  DC

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  13
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                       *** THE SUMMARY OF MAXIMUM ANNUAL (   1 YRS) RESULTS ***

                                  ** CONC OF NO2      IN MICROGRAMS/M**3                       **

                                                                                                                  NETWORK
 GROUP ID                      AVERAGE CONC              RECEPTOR  (XR, YR, ZELEV, ZFLAG)   OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      1ST HIGHEST VALUE IS       1.70170 AT (  829492.00,   841265.00,      7.00,      1.50)  DC      NA
          2ND HIGHEST VALUE IS       1.69358 AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA
          3RD HIGHEST VALUE IS       1.58048 AT (  829509.00,   841282.00,      7.00,      1.50)  DC      NA
          4TH HIGHEST VALUE IS       1.56246 AT (  829503.00,   841269.00,      7.00,      1.50)  DC      NA
          5TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          6TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          7TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          8TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
          9TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)
         10TH HIGHEST VALUE IS       0.00000 AT (       0.00,        0.00,      0.00,      0.00)


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  14
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                       *** THE SUMMARY OF HIGHEST  1-HR RESULTS ***

                                  ** CONC OF NO2      IN MICROGRAMS/M**3                       **

                                                    DATE                                                          NETWORK
 GROUP ID                      AVERAGE CONC      (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -

 ALL      HIGH  1ST HIGH VALUE IS     120.59790  ON 06062509: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA


  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***    ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                    ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  15
 CONC                   RURAL ELEV  FLGPOL        GRDRIS

                                       *** THE SUMMARY OF HIGHEST 24-HR RESULTS ***

                                  ** CONC OF NO2      IN MICROGRAMS/M**3                       **

                                                    DATE                                                          NETWORK
 GROUP ID                      AVERAGE CONC      (YYMMDDHH)            RECEPTOR  (XR, YR, ZELEV, ZFLAG)     OF TYPE  GRID-ID
 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -
```

```
 ALL      HIGH  1ST HIGH VALUE IS      31.58146c ON 06083124: AT (  829484.00,   841257.00,      7.00,      1.50)  DC      NA

  *** RECEPTOR TYPES:  GC = GRIDCART
                       GP = GRIDPOLR
                       DC = DISCCART
                       DP = DISCPOLR
                       BD = BOUNDARY
1 *** ISCST3 - VERSION 02035 ***     ***  Construction of Cycle Tracks and the Associated Supporting Faciliti ***        12/23/08
                                     ***  ISCST Model for Chimney at Gugusoy                                   ***        18:40:23
 **MODELOPTs:                                                                                                          PAGE  16
 CONC                    RURAL ELEV  FLGPOL        GRDRIS


 *** Message Summary : ISCST3 Model Execution ***

  --------- Summary of Total Messages --------

 A Total of            0 Fatal Error Message(s)
 A Total of            0 Warning Message(s)
 A Total of          315 Informational Message(s)

 A Total of          315 Calm Hours Identified


    ******** FATAL ERROR MESSAGES ********
              ***  NONE  ***


    ********   WARNING MESSAGES   ********
              ***  NONE  ***


    ***********************************
    *** ISCST3 Finishes Successfully ***
    ***********************************
```

Appendix 5-1

Construction Noise Impact Assessment – Unmitigated Scenario

Construction Noise Impact on	A/NSR12	(Works Type 1 associated with new cycle tracks, fill slopes, retaining wall, or structures)											
PME	**TM or other reference**	**No. of PME**	**SWL, dB(A)**	**Total SWL, dB(A)**	**Slant dist. From NSR, m**	**Dist. Corr., dB(A)**	**% on time**	**% on time Corr., dB(A)**	**Screening Corr., dB(A)**	**Façade Corr., dB(A)**	**CNL, dB(A)**		
Stage 1 - Site Clearance													
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Dump truck	CNP 067	1	117	117	8.0	-26.0	50%	-3.0	0.0	3.0	91		
Saw, circular, wood	CNP 201	1	108	108	8.0	-26.0	100%	0.0	0.0	3.0	85	**Total CNL, dB(A)**	**95**
Stage 2 - Levelling/ Excavation works													
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	8.0	-26.0	100%	0.0	0.0	3.0	79		
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	111	8.0	-26.0	100%	0.0	0.0	3.0	88		
Dump truck	CNP 067	1	117	117	8.0	-26.0	50%	-3.0	0.0	3.0	91		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89	**Total CNL, dB(A)**	**94**
Stage 3 - Construction/ Paving works													
Group 1 - slope works/ retaining wall													
Bar bender and cutter (electric)	CNP 021	1	90	90	8.0	-26.0	100%	0.0	0.0	3.0	67		
Vibrating Hammer	[Note 1]	1	115	115	8.0	-26.0	100%	0.0	0.0	3.0	92		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	0.0	3.0	77		
Concrete lorry mixer	CNP 044	1	109	109	8.0	-26.0	100%	0.0	0.0	3.0	86		
Lorry	CNP 141	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Poker, vibratory, hand-held	CNP 170	1	113	113	8.0	-26.0	100%	0.0	0.0	3.0	90		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89	**Total CNL, dB(A)**	**97**
Group 2- paving works													
Asphalt paver	CNP 004	1	109	109	8.0	-26.0	100%	0.0	0.0	3.0	86		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	8.0	-26.0	100%	0.0	0.0	3.0	79		
Compactor, vibratory	CNP 050	1	105	105	8.0	-26.0	50%	-3.0	0.0	3.0	79		
Lorry	CNP 141	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Road roller	CNP 185	1	108	108	8.0	-26.0	100%	0.0	0.0	3.0	85	**Total CNL, dB(A)**	**94**
Group 3 - foundation for bridges													
Piling, earth auger, auger	CNP 167	1	114	114	8.0	-26.0	100%	0.0	0.0	3.0	91		
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	2	102	105	8.0	-26.0	100%	0.0	0.0	3.0	82		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Grout Mixer	[Note 1]	1	90	90	8.0	-26.0	100%	0.0	0.0	3.0	67		
Grout Pump	[Note 1]	1	105	105	8.0	-26.0	100%	0.0	0.0	3.0	82		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	0.0	3.0	77	**Total CNL, dB(A)**	**94**
Group 4 - structures/subways/bridges													
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Bar bender and cutter (electric)	CNP 021	1	90	90	8.0	-26.0	100%	0.0	0.0	3.0	67		
Concrete lorry mixer	CNP 044	1	109	109	8.0	-26.0	100%	0.0	0.0	3.0	86		
Compactor, vibratory	CNP 050	1	105	105	8.0	-26.0	50%	-3.0	0.0	3.0	79		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	0.0	3.0	77		
Poker, vibratory, hand-held	CNP 170	1	113	113	8.0	-26.0	100%	0.0	0.0	3.0	90		
Lorry	CNP 141	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	8.0	-26.0	100%	0.0	0.0	3.0	89	**Total CNL, dB(A)**	**96**
[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf													
NB Group 1 - 4 works will not be conducted simultaneously. Work stages will not overlap.												**Max. =**	**97**

Construction Noise Impact on	A/NSR01	(Works Type 2 involving resting stations/ Information Kiosk)											
PME	**TM or other reference**	**No. of PME**	**SWL, dB(A)**	**Total SWL, dB(A)**	**Slant dist. From NSR, m**	**Dist. Corr., dB(A)**	**% on time**	**% on time Corr., dB(A)**	**Screening Corr., dB(A)**	**Façade Corr., dB(A)**	**CNL, dB(A)**		
Stage 1 - Site Clearance													
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Dump truck	CNP 067	1	117	117	156.0	-51.8	50%	-3.0	0.0	3.0	65		
Saw, circular, wood	CNP 201	1	108	108	156.0	-51.8	100%	0.0	0.0	3.0	59	**Total CNL, dB(A)**	**69**
Stage 2 - Levelling/ Excavation works													
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	156.0	-51.8	100%	0.0	0.0	3.0	53		
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	111	156.0	-51.8	100%	0.0	0.0	3.0	62		
Dump truck	CNP 067	1	117	117	156.0	-51.8	50%	-3.0	0.0	3.0	65		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63	**Total CNL, dB(A)**	**68**
Stage 3 - Construction/ Paving works													
Group 1 - slope works/ retaining wall													
Bar bender and cutter (electric)	CNP 021	1	90	90	156.0	-51.8	100%	0.0	0.0	3.0	41		
Vibrating Hammer	---	1	115	115	156.0	-51.8	100%	0.0	0.0	3.0	66		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	0.0	3.0	51		
Concrete lorry mixer	CNP 044	1	109	109	156.0	-51.8	100%	0.0	0.0	3.0	60		
Lorry	CNP 141	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Poker, vibratory, hand-held	CNP 170	1	113	113	156.0	-51.8	100%	0.0	0.0	3.0	64		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63	**Total CNL, dB(A)**	**71**
Group 2- paving works													
Asphalt paver	CNP 004	1	109	109	156.0	-51.8	100%	0.0	0.0	3.0	60		
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	156.0	-51.8	100%	0.0	0.0	3.0	53		
Compactor, vibratory	CNP 050	1	105	105	156.0	-51.8	50%	-3.0	0.0	3.0	53		
Lorry	CNP 141	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Road roller	CNP 185	1	108	108	156.0	-51.8	100%	0.0	0.0	3.0	59	**Total CNL, dB(A)**	**68**
Group 3 - structures													
Excavator/ loader, wheeled/ tracked	CNP 081	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Bar bender and cutter (electric)	CNP 021	1	90	90	156.0	-51.8	100%	0.0	0.0	3.0	41		
Concrete lorry mixer	CNP 044	1	109	109	156.0	-51.8	100%	0.0	0.0	3.0	60		
Compactor, vibratory	CNP 050	1	105	105	156.0	-51.8	50%	-3.0	0.0	3.0	53		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	0.0	3.0	51		
Poker, vibratory, hand-held	CNP 170	1	113	113	156.0	-51.8	100%	0.0	0.0	3.0	64		
Lorry	CNP 141	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63	**Total CNL, dB(A)**	**70**
Group 4- fitting works													
Crane, mobile/ barge mounted (diesel)	CNP 048	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63		
Drill/grinder, hand-held (electric)	CNP 065	3	98	103	156.0	-51.8	100%	0.0	0.0	3.0	54		
Saw, circular, wood	CNP 201	1	108	108	156.0	-51.8	100%	0.0	0.0	3.0	59		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	0.0	3.0	51		
Lorry	CNP 141	1	112	112	156.0	-51.8	100%	0.0	0.0	3.0	63	**Total CNL, dB(A)**	**67**
[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf													
NB Group 1 - 4 works will not be conducted simultaneously. Work stages will not overlap.												**Max. =**	**71**

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Unmitigated Worst Case Noise Impact, dB(A)	Unmitigated Noise Impact, dB(A) Works Type 1						Unmitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR01	Village House near Kam Tin River (Possible cumulative noise impact due to cycle track & R5)	G/F	55	0.7	55.0	Y	Y	75	79	78	77		77			-	-	-	-	-	-
		1/F		3.5	55.1				79	78	77		77			-	-	-	-	-	-
		2/F		6.3	55.4				79	78	77		77			-	-	-	-	-	-
	Village House near Kam Tin River (Impact due to Resting Station - R5 only)	G/F	156	0.0	156.0		Y	75	71	-	-	-	-	-	-	69	68	71	68	70	67
		1/F		2.8	156.0				71	-	-	-	-	-	-	69	68	71	68	70	67
		2/F		5.6	156.1				71	-	-	-	-	-	-	69	68	71	68	70	67
A/NSR02	Village House near Kam Tin River	G/F	77	0.7	77.0	Y		75	75	75	74		74			-	-	-	-	-	-
		1/F		3.5	77.1				75	75	74		74			-	-	-	-	-	-
		2/F		6.3	77.3				75	75	74		74			-	-	-	-	-	-
A/NSR03	No.28 Man Yuen Chuen (Possible cumulative noise impact due to cycle track & R6)	G/F	24	1.1	24.0	Y	Y	75	87	85	84	87	84		86	-	-	-	-	-	-
		1/F		3.9	24.3				87	85	84	87	84		86	-	-	-	-	-	-
		2/F		9.5	25.8				87	85	84	87	84		86	-	-	-	-	-	-
	No.28 Man Yuen Chuen (Impact due to Resting Station - R6 only)	G/F	94	0.1	94.0		Y	75	75	-	-	-	-	-	-	73	72	75	72	74	71
		1/F		2.9	94.0				75	-	-	-	-	-	-	73	72	75	72	74	71
		2/F		8.5	94.4				75	-	-	-	-	-	-	73	72	75	72	74	71
A/NSR04	Wong Chan Sook Ying Memorial School	G/F	97	1.0	97.0	Y		70	75	73	72	75	72			-	-	-	-	-	-
		2/F		6.6	97.2				75	73	72	75	72			-	-	-	-	-	-
		4/F		12.2	97.8				75	73	72	75	72			-	-	-	-	-	-
	Wong Chan Sook Ying Memorial School (Examination Period)	G/F	97	1.0	97.0	Y		65	75	73	72	75	72			-	-	-	-	-	-
		2/F		6.6	97.2				75	73	72	75	72			-	-	-	-	-	-
		4/F		12.2	97.8				75	73	72	75	72			-	-	-	-	-	-
A/NSR04a	No. 10 Yau Pok Road	G/F	60	0.7	60.0	Y		75	79	77	76	79	76			-	-	-	-	-	-
		1/F		3.5	60.1				79	77	76	79	76			-	-	-	-	-	-
		2/F		6.3	60.3				79	77	76	79	76			-	-	-	-	-	-
A/NSR05	Bethel High School	G/F	80	0.3	80.0	Y		70	77	75	74	77	74			-	-	-	-	-	-
		1/F		3.1	80.1				77	75	74	77	74			-	-	-	-	-	-
		3/F		14.3	81.3				77	75	74	77	74			-	-	-	-	-	-
	Bethel High School (Examination Period)	G/F	80	0.3	80.0	Y		65	77	75	74	77	74			-	-	-	-	-	-
		1/F		3.1	80.1				77	75	74	77	74			-	-	-	-	-	-
		3/F		14.3	81.3				77	75	74	77	74			-	-	-	-	-	-
A/NSR06	House in Fairview Park	G/F	37	0.9	37.0	Y		75	84	82	81	84	81			-	-	-	-	-	-
		1/F		3.7	37.2				84	82	81	84	81			-	-	-	-	-	-
		2/F		9.3	38.2				83	81	80	83	80			-	-	-	-	-	-
A/NSR07	No. 53 Castle Peak Road - Mai Po (NB: distance from retaining wall is 66 m)	G/F	12	0.9	12.0	Y		75	91	91	90	79	90			-	-	-	-	-	-
A/NSR08	No.1, Yau Mei San Tsuen (Possible cumulative noise impact due to cycle track & R7) (NB: distance from retaining wall is 80 m)	G/F	21	0.5	21.0	Y	Y	75	87	87	86	77	86			-	-	-	-	-	-
		1/F		3.3	21.3				86	86	85	77	85			-	-	-	-	-	-
		2/F		6.1	21.9				86	86	85	77	85			-	-	-	-	-	-
	No.1, Yau Mei San Tsuen (Impact due to Resting Station - R7 only)	G/F	95	1.0	95.0		Y	75	75	-	-	-	-	-	-	73	72	75	72	74	71
		1/F		3.8	95.1				75	-	-	-	-	-	-	73	72	75	72	74	71
		2/F		6.6	95.2				75	-	-	-	-	-	-	73	72	75	72	74	71

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Unmitigated Worst Case Noise Impact, dB(A)	Unmitigated Noise Impact, dB(A) Works Type 1						Unmitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR09	House in Green Crest	G/F	123	3.4	123.0	Y		75	71	71	70		70			-	-	-	-	-	-
		1/F		6.2	123.2				71	71	70		70			-	-	-	-	-	-
		2/F		9.0	123.3				71	71	70		70			-	-	-	-	-	-
A/NSR10	House in Royal Palms	G/F	123	0.0	123.0	Y		75	73	71	70	73	70			-	-	-	-	-	-
		1/F		2.8	123.0				73	71	70	73	70			-	-	-	-	-	-
		2/F		5.6	123.1				73	71	70	73	70			-	-	-	-	-	-
A/NSR11	House B15 in Maple Gardens (NB: distance from retaining wall is 138 m)	G/F	86	5.2	86.2	Y		75	74	74	73	72	73			-	-	-	-	-	-
		1/F		8.0	86.4				74	74	73	72	73			-	-	-	-	-	-
		2/F		10.8	86.7				74	74	73	72	73			-	-	-	-	-	-
A/NSR11a	House C1, Casa Paradizo	G/F	70	5.2	70.2	Y		75	78	76	75	78	75			-	-	-	-	-	-
		1/F		8.0	70.5				78	76	75	78	75			-	-	-	-	-	-
		2/F		10.8	70.8				78	76	75	78	75			-	-	-	-	-	-
A/NSR12	No.159 Mai Po San Tsuen (NB: distance from retaining wall is 60 m)	G/F	8	0.7	8.0	Y		75	95	95	94	79	94			-	-	-	-	-	-
		1/F		3.5	8.7				94	94	93	79	93			-	-	-	-	-	-
		2/F		6.3	10.2				93	93	92	79	92			-	-	-	-	-	-
A/NSR13	No. 1C Mai Po Lo Wai	G/F	12	1.2	12.1	Y		75	93	91	90	93	90			-	-	-	-	-	-
		1/F		4.0	12.7				93	91	90	93	90			-	-	-	-	-	-
		2/F		6.8	13.8				92	90	89	92	89			-	-	-	-	-	-
A/NSR13a	Yeung Hau Temple (NB: distance from retaining wall is 70 m)	G/F	15	1.2	15.1	Y		70	89	89	88	78	88			-	-	-	-	-	-
A/NSR14	No.111 Tsing Lung Tsuen	G/F	80	-0.1	80.0	Y	Y	75	77	75	74	77	74			-	-	-	-	-	-
		1/F		2.7	80.0				77	75	74	77	74			-	-	-	-	-	-
		2/F		8.3	80.4				77	75	74	77	74			-	-	-	-	-	-
	No.111 Tsing Lung Tsuen (Impact due to Resting Station - R8 only)	G/F	285	-0.1	285.0		Y	75	66	-	-	-	-	-	-	64	63	66	63	65	62
		1/F		2.7	285.0				66	-	-	-	-	-	-	64	63	66	63	65	62
		2/F		8.3	285.1				66	-	-	-	-	-	-	64	63	66	63	65	62
A/NSR15	No. 88 Yan Shau Wai (NB: distance from retaining wall is 123 m)	G/F	72	0.4	72.0	Y		75	76	76	75	73	75			-	-	-	-	-	-
		1/F		3.2	72.1				76	76	75	73	75			-	-	-	-	-	-
		2/F		6.0	72.3				76	76	75	73	75			-	-	-	-	-	-
A/NSR16	No. 68N Tung Chan Wai (NB: distance from retaining wall is 175 m)	G/F	70	2.5	70.0	Y		75	76	76	75	70	75			-	-	-	-	-	-
		1/F		5.3	70.2				76	76	75	70	75			-	-	-	-	-	-
		2/F		8.1	70.5				76	76	75	70	75			-	-	-	-	-	-
A/NSR17	No. 78 Tung Chan Wai (NB: distance from retaining wall is 185 m)	G/F	67	2.2	67.0	Y		75	77	77	76	70	76			-	-	-	-	-	-
		1/F		5.0	67.2				77	77	76	70	76			-	-	-	-	-	-
		2/F		7.8	67.5				76	76	75	70	75			-	-	-	-	-	-

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Unmitigated Worst Case Noise Impact, dB(A)	Unmitigated Noise Impact, dB(A) Works Type 1						Unmitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR18	B15 of Europa Garden	G/F	67	2.9	67.1	Y		75	77	77	76		76			-	-	-	-	-	-
		1/F		5.7	67.2				77	77	76		76			-	-	-	-	-	-
		2/F		8.5	67.5				76	76	75		75			-	-	-	-	-	-
A/NSR19	Block 2, Dills Corner Garden	G/F	6	1.1	6.1	Y		75	97	97	96		96			-	-	-	-	-	-
		1/F		3.9	7.2				96	96	95		95			-	-	-	-	-	-
A/NSR20	Ku Tung Public Oi Wah School	G/F	150	0.7	150.0	Y		70	72	70	69	72	69			-	-	-	-	-	-
		1/F		3.5	150.0				72	70	69	72	69			-	-	-	-	-	-
		2/F		6.3	150.1				72	70	69	72	69			-	-	-	-	-	-
	Ku Tung Public Oi Wah School (Examination Period)	G/F	150	0.7	150.0	Y		65	72	70	69	72	69			-	-	-	-	-	-
		1/F		3.5	150.0				72	70	69	72	69			-	-	-	-	-	-
		2/F		6.3	150.1				72	70	69	72	69			-	-	-	-	-	-
A/NSR21	Home of Loving Faithfulness (NB: distance from retaining wall is 72m)	G/F	13	2.0	13.1	Y		75	91	91	90	78	90			-	-	-	-	-	-
		1/F		4.8	13.8				90	90	89	78	89			-	-	-	-	-	-
		2/F		7.6	15.0				90	90	89	78	89			-	-	-	-	-	-
A/NSR22	No.D2A Ho Sheung Heung	G/F	84	0.9	84.0	Y	Y	75	78	75	74	77	74			-	-	-	-	-	-
		1/F		3.7	84.1				78	75	74	77	74			-	-	-	-	-	-
		2/F		6.5	84.3				78	75	74	77	74			-	-	-	-	-	-
	No.D2A Ho Sheung Heung (Impact due to Resting Station - R9 and Information Kiosk only)	G/F	161	0.9	161.0		Y	75	71	-	-	-	-	-	-	69	68	71	68	70	67
		1/F		3.7	161.0				71	-	-	-	-	-	-	69	68	71	68	70	67
		2/F		6.5	161.1				71	-	-	-	-	-	-	69	68	71	68	70	67
A/NSR23	No. C110 Tsung Pak Long Village	G/F	24	1.0	24.0	Y		75	87	85	84	87	84	84	86	-	-	-	-	-	-
		1/F		3.8	24.3				87	85	84	87	84	84	86	-	-	-	-	-	-
		2/F		9.4	25.8				87	85	84	87	84	84	86	-	-	-	-	-	-
Planned Noise Sensitive Uses																					
A/NSR_P01a	"CDA" site as in Kam Tin North OZP No. S/YL-KTN/7	G/F	260	1.1	260.0	Y		75	67	65	64	67	64			-	-	-	-	-	-
		1/F		3.9	260.0				67	65	64	67	64			-	-	-	-	-	-
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	G/F	275	0.5	275.0	Y		75	66	64	63	66	63			-	-	-	-	-	-
		1/F		3.3	275.0				66	64	63	66	63			-	-	-	-	-	-
		2/F		6.1	275.1				66	64	63	66	63			-	-	-	-	-	-
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	G/F	85	0.1	85.0	Y		75	76	74	73	76	73			-	-	-	-	-	-
		1/F		2.9	85.0				76	74	73	76	73			-	-	-	-	-	-
		2/F		5.7	85.2				76	74	73	76	73			-	-	-	-	-	-
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	G/F	82	-1.0	82.0	Y		75	77	75	74	77	74			-	-	-	-	-	-
		1/F		1.8	82.0				77	75	74	77	74			-	-	-	-	-	-
		2/F		4.6	82.1				77	75	74	77	74			-	-	-	-	-	-
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	G/F	60	-0.4	60.0	Y		75	79	77	76	79	76			-	-	-	-	-	-
		1/F		2.4	60.0				79	77	76	79	76			-	-	-	-	-	-
		2/F		5.2	60.2				79	77	76	79	76			-	-	-	-	-	-

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

Appendix 5-2

Construction Noise Impact Assessment – Mitigated Scenario

Mitigated Construction Noise Impact on	A/NSR12	(Works type 1 associated with new cycle tracks, fill slopes, retaining wall, or structures)										
Noise Criterion, Leq (30 min) =	75 dB(A)											
PME	TM or other reference	No. of PME	SWL, dB(A)	Total SWL, dB(A)	Slant dist. From NSR, m	Dist. Corr., dB(A)	% on time	% on time Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	CNL, dB(A)	
Stage 1 - Site Clearance												
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66	
Mobile crane	BS5228 Table C.7/118	1	99	99	8.0	-26.0	100%	0.0	-5.0	3.0	71	
Dump truck	BS5228 Table C.9/39	1	103	103	8.0	-26.0	50%	-3.0	-5.0	3.0	72	
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	8.0	-26.0	100%	0.0	-10.0	3.0	72	**Total CNL, dB(A)** **77**
Stage 2 - Levelling/ Excavation works												
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	8.0	-26.0	100%	0.0	-10.0	3.0	69	
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	111	8.0	-26.0	100%	0.0	-10.0	3.0	78	
Dump truck	BS5228 Table C.9/39	1	103	103	8.0	-26.0	50%	-3.0	-5.0	3.0	72	
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66	**Total CNL, dB(A)** **80**
Stage 3 - Construction/ Paving works												
Group 1 - slope works/ retaining wall												
Bar bender and cutter (electric)	CNP 021	1	90	90	8.0	-26.0	100%	0.0	-5.0	3.0	62	
Vibrating Hammer	[Note 1]	1	115	115	8.0	-26.0	100%	0.0	-10.0	3.0	82	
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	-5.0	3.0	72	
Concrete lorry mixer (6m3)	BS5228 Table C.6/23	1	100	100	8.0	-26.0	100%	0.0	-5.0	3.0	72	
Lorry	BS5228 Table C.8/25	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73	
Poker, vibratory, hand-held	BS5228 Table C.6/40	1	98	98	8.0	-26.0	100%	0.0	-5.0	3.0	70	
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66	
Mobile crane	BS5228 Table C.7/118	1	99	99	8.0	-26.0	100%	0.0	-5.0	3.0	71	**Total CNL, dB(A)** **84**
Group 2- paving works												
Asphalt paver	BS5228 Table C.8/24	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73	
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66	
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	8.0	-26.0	100%	0.0	-10.0	3.0	69	
Compactor, vibratory	CNP 050	1	105	105	8.0	-26.0	50%	-3.0	-10.0	3.0	69	
Lorry	BS5228 Table C.8/25	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73	
Road roller	BS5228 Table C.8/30	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73	**Total CNL, dB(A)** **79**
Group 3 - foundation for bridges												
Crane mounted auger	BS5228 Table C.4/37	1	111	111	8.0	-26.0	100%	0.0	-10.0	3.0	78	
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	2	102	105	8.0	-26.0	100%	0.0	-10.0	3.0	72	
Mobile crane	BS5228 Table C.7/118	1	99	99	8.0	-26.0	100%	0.0	-5.0	3.0	71	
Grout Mixer	[Note 1]	1	90	90	8.0	-26.0	100%	0.0	-5.0	3.0	62	
Grout Pump	[Note 1]	1	105	105	8.0	-26.0	100%	0.0	-5.0	3.0	77	
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	-5.0	3.0	72	**Total CNL, dB(A)** **82**
Group 4 - structures/subways/bridges												
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66	
Bar bender and cutter (electric)	CNP 021	1	90	90	8.0	-26.0	100%	0.0	-5.0	3.0	62	
Concrete lorry mixer (6m3)	BS5228 Table C.6/23	1	100	100	8.0	-26.0	100%	0.0	-5.0	3.0	72	
Compactor, vibratory	CNP 050	1	105	105	8.0	-26.0	50%	-3.0	-10.0	3.0	69	
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	8.0	-26.0	100%	0.0	-5.0	3.0	72	
Poker, vibratory, hand-held	BS5228 Table C.6/40	1	98	98	8.0	-26.0	100%	0.0	-5.0	3.0	70	
Lorry	BS5228 Table C.8/25	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73	
Mobile crane	BS5228 Table C.7/118	1	99	99	8.0	-26.0	100%	0.0	-5.0	3.0	71	**Total CNL, dB(A)** **79**
[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf												
NB Group 1 - 4 works will not be conducted simultaneously. Work stages will not overlap.												**Max. =** **84**

Mitigated Construction Noise Impact on	A/NSR01	(Works Type 2 involving resting stations/ Information Kiosk)											
Noise Criterion, Leq (30 min) =	75 dB(A)												
PME	TM or other reference	No. of PME	SWL, dB(A)	Total SWL, dB(A)	Slant dist. From NSR, m	Dist. Corr., dB(A)	% on time	% on time Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	CNL, dB(A)		
Stage 1 - Site Clearance													
Mini excavator	[Note 1]	1	94	94	156.0	-51.8	100%	0.0	-5.0	3.0	40		
Mobile crane	BS5228 Table C.7/118	1	99	99	156.0	-51.8	100%	0.0	-5.0	3.0	45		
Dump truck	BS5228 Table C.9/39	1	103	103	156.0	-51.8	50%	-3.0	-5.0	3.0	46		
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	156.0	-51.8	100%	0.0	-10.0	3.0	46	**Total CNL, dB(A)**	**51**
Stage 2 - Levelling/ Excavation works													
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	156.0	-51.8	100%	0.0	-10.0	3.0	43		
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	2	108	111	156.0	-51.8	100%	0.0	-10.0	3.0	52		
Dump truck	BS5228 Table C.9/39	1	103	103	156.0	-51.8	50%	-3.0	-5.0	3.0	46		
Mini excavator	[Note 1]	1	94	94	156.0	-51.8	100%	0.0	-5.0	3.0	40	**Total CNL, dB(A)**	**54**
Stage 3 - Construction/ Paving works													
Group 1 - slope works/ retaining wall													
Bar bender and cutter (electric)	CNP 021	1	90	90	156.0	-51.8	100%	0.0	-5.0	3.0	36		
Vibrating Hammer	[Note 1]	1	115	115	156.0	-51.8	100%	0.0	-10.0	3.0	56		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	-5.0	3.0	46		
Concrete lorry mixer (6m3)	BS5228 Table C.6/23	1	100	100	156.0	-51.8	100%	0.0	-5.0	3.0	46		
Lorry	BS5228 Table C.8/25	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47		
Poker, vibratory, hand-held	BS5228 Table C.6/40	1	98	98	156.0	-51.8	100%	0.0	-5.0	3.0	44		
Mini excavator	[Note 1]	1	94	94	156.0	-51.8	100%	0.0	-5.0	3.0	40		
Mobile crane	BS5228 Table C.7/118	1	99	99	156.0	-51.8	100%	0.0	-5.0	3.0	45	**Total CNL, dB(A)**	**58**
Group 2- paving works													
Asphalt paver	BS5228 Table C.8/24	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47		
Mini excavator	[Note 1]	1	94	94	156.0	-51.8	100%	0.0	-5.0	3.0	40		
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	156.0	-51.8	100%	0.0	-10.0	3.0	43		
Compactor, vibratory	CNP 050	1	105	105	156.0	-51.8	50%	-3.0	-10.0	3.0	43		
Lorry	BS5228 Table C.8/25	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47		
Road roller	BS5228 Table C.8/30	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47	**Total CNL, dB(A)**	**53**
Group 3 - structures													
Mini excavator	[Note 1]	1	94	94	156.0	-51.8	100%	0.0	-5.0	3.0	40		
Bar bender and cutter (electric)	CNP 021	1	90	90	156.0	-51.8	100%	0.0	-5.0	3.0	36		
Concrete lorry mixer (6m3)	BS5228 Table C.6/23	1	100	100	156.0	-51.8	100%	0.0	-5.0	3.0	46		
Compactor, vibratory	CNP 050	1	105	105	156.0	-51.8	50%	-3.0	-10.0	3.0	43		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	-5.0	3.0	46		
Poker, vibratory, hand-held	BS5228 Table C.6/40	1	98	98	156.0	-51.8	100%	0.0	-5.0	3.0	44		
Lorry	BS5228 Table C.8/25	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47		
Mobile crane	BS5228 Table C.7/118	1	99	99	156.0	-51.8	100%	0.0	-5.0	3.0	45	**Total CNL, dB(A)**	**53**
Group 4- fitting works													
Mobile crane	BS5228 Table C.7/118	1	99	99	156.0	-51.8	100%	0.0	-5.0	3.0	45		
Drill/grinder, hand-held (electric)	CNP 065	3	98	103	156.0	-51.8	100%	0.0	-5.0	3.0	49		
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	156.0	-51.8	100%	0.0	-5.0	3.0	51		
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	156.0	-51.8	100%	0.0	-5.0	3.0	46		
Lorry	BS5228 Table C.8/25	1	101	101	156.0	-51.8	100%	0.0	-5.0	3.0	47	**Total CNL, dB(A)**	**55**
[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf													
NB Group 1 - 4 works will not be conducted simultaneously. Work stages will not overlap.												**Max. =**	**58**

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Mitigated Worst Case Noise Impact, dB(A)	Mitigated Noise Impact, dB(A) Works Type 1						Mitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR01	Village House near Kam Tin River (Possible cumulative noise impact due to cycle track & R5)	G/F	55	0.7	55.0	Y	Y	75	64	60	63		62			-	-	-	-	-	-
		1/F		3.5	55.1				64	60	63		62			-	-	-	-	-	-
		2/F		6.3	55.4				64	60	63		62			-	-	-	-	-	-
	Village House near Kam Tin River (Impact due to Resting Station - R5 only)	G/F	156	0.0	156.0		Y	75	58	-	-	-	-	-	-	51	54	58	53	53	55
		1/F		2.8	156.0				58	-	-	-	-	-	-	51	54	58	53	53	55
		2/F		5.6	156.1				58	-	-	-	-	-	-	51	54	58	53	53	55
A/NSR02	Village House near Kam Tin River	G/F	77	0.7	77.0	Y		75	60	57	60		59			-	-	-	-	-	-
		1/F		3.5	77.1				60	57	60		59			-	-	-	-	-	-
		2/F		6.3	77.3				60	57	60		59			-	-	-	-	-	-
A/NSR03	No.28 Man Yuen Chuen (Possible cumulative noise impact due to cycle track & R6)	G/F	24	1.1	24.0	Y	Y	75	74	67	70	74	69		69	-	-	-	-	-	-
		1/F		3.9	24.3				74	67	70	74	69		69	-	-	-	-	-	-
		2/F		9.5	25.8				74	67	70	74	69		69	-	-	-	-	-	-
	No.28 Man Yuen Chuen (Impact due to Resting Station - R6 only)	G/F	94	0.1	94.0		Y	75	62	-	-	-	-	-	-	55	58	62	57	57	59
		1/F		2.9	94.0				62	-	-	-	-	-	-	55	58	62	57	57	59
		2/F		8.5	94.4				62	-	-	-	-	-	-	55	58	62	57	57	59
A/NSR04	Wong Chan Sook Ying Memorial School	G/F	97	1.0	97.0	Y		70	62	55	58	62	57			-	-	-	-	-	-
		2/F		6.6	97.2				62	55	58	62	57			-	-	-	-	-	-
		4/F		12.2	97.8				62	55	58	62	57			-	-	-	-	-	-
	Wong Chan Sook Ying Memorial School (Examination Period)	G/F	97	1.0	97.0	Y		65	62	55	58	62	57			-	-	-	-	-	-
		2/F		6.6	97.2				62	55	58	62	57			-	-	-	-	-	-
		4/F		12.2	97.8				62	55	58	62	57			-	-	-	-	-	-
A/NSR04a	No. 10 Yau Pok Road	G/F	60	0.7	60.0	Y		75	66	59	62	66	61			-	-	-	-	-	-
		1/F		3.5	60.1				66	59	62	66	61			-	-	-	-	-	-
		2/F		6.3	60.3				66	59	62	66	61			-	-	-	-	-	-
A/NSR05	Bethel High School	G/F	80	0.3	80.0	Y		70	64	57	60	64	59			-	-	-	-	-	-
		1/F		3.1	80.1				64	57	60	64	59			-	-	-	-	-	-
		3/F		14.3	81.3				64	57	60	64	59			-	-	-	-	-	-
	Bethel High School (Examination Period)	G/F	80	0.3	80.0	Y		65	64	57	60	64	59			-	-	-	-	-	-
		1/F		3.1	80.1				64	57	60	64	59			-	-	-	-	-	-
		3/F		14.3	81.3				64	57	60	64	59			-	-	-	-	-	-
A/NSR06	House in Fairview Park	G/F	37	0.9	37.0	Y		75	71	64	67	71	66			-	-	-	-	-	-
		1/F		3.7	37.2				71	64	67	71	66			-	-	-	-	-	-
		2/F		9.3	38.2				70	63	66	70	65			-	-	-	-	-	-
A/NSR07	No. 53 Castle Peak Road - Mai Po (NB: distance from retaining wall is 66 m)	G/F	12	0.9	12.0	Y		75	76	73	76	66	75			-	-	-	-	-	-
A/NSR08	No.1, Yau Mei San Tsuen (Possible cumulative noise impact due to cycle track & R7) (NB: distance from retaining wall is 80 m)	G/F	21	0.5	21.0	Y	Y	75	72	69	72	64	71			-	-	-	-	-	-
		1/F		3.3	21.3				72	68	71	64	70			-	-	-	-	-	-
		2/F		6.1	21.9				72	68	71	64	70			-	-	-	-	-	-
	No.1, Yau Mei San Tsuen (Impact due to Resting Station - R7 only)	G/F	95	1.0	95.0		Y	75	62	-	-	-	-	-	-	55	58	62	57	57	59
		1/F		3.8	95.1				62	-	-	-	-	-	-	55	58	62	57	57	59
		2/F		6.6	95.2				62	-	-	-	-	-	-	55	58	62	57	57	59

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Mitigated Worst Case Noise Impact, dB(A)	Mitigated Noise Impact, dB(A) Works Type 1						Mitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR09	House in Green Crest	G/F	123	3.4	123.0	Y		75	56	53	56		55			-	-	-	-	-	-
		1/F		6.2	123.2				56	53	56		55			-	-	-	-	-	-
		2/F		9.0	123.3				56	53	56		55			-	-	-	-	-	-
A/NSR10	House in Royal Palms	G/F	123	0.0	123.0	Y		75	60	53	56	60	55			-	-	-	-	-	-
		1/F		2.8	123.0				60	53	56	60	55			-	-	-	-	-	-
		2/F		5.6	123.1				60	53	56	60	55			-	-	-	-	-	-
A/NSR11	House B15 in Maple Gardens (NB: distance from retaining wall is 138 m)	G/F	86	5.2	86.2	Y		75	59	56	59	59	58			-	-	-	-	-	-
		1/F		8.0	86.4				59	56	59	59	58			-	-	-	-	-	-
		2/F		10.8	86.7				59	56	59	59	58			-	-	-	-	-	-
A/NSR11a	House C1, Casa Paradizo	G/F	70	5.2	70.2	Y		75	65	58	61	65	60			-	-	-	-	-	-
		1/F		8.0	70.5				65	58	61	65	60			-	-	-	-	-	-
		2/F		10.8	70.8				65	58	61	65	60			-	-	-	-	-	-
A/NSR12	No.159 Mai Po San Tsuen (NB: distance from retaining wall is 60 m)	G/F	8	0.7	8.0	Y		75	80	77	80	66	79			-	-	-	-	-	-
		1/F		3.5	8.7				79	76	79	66	78			-	-	-	-	-	-
		2/F		6.3	10.2				78	75	78	66	77			-	-	-	-	-	-
A/NSR13	No. 1C Mai Po Lo Wai	G/F	12	1.2	12.1	Y		75	80	73	76	80	75			-	-	-	-	-	-
		1/F		4.0	12.7				80	73	76	80	75			-	-	-	-	-	-
		2/F		6.8	13.8				79	72	75	79	74			-	-	-	-	-	-
A/NSR13a	Yeung Hau Temple (NB: distance from retaining wall is 70 m)	G/F	15	1.2	15.1	Y		70	74	71	74	65	73			-	-	-	-	-	-
A/NSR14	No.111 Tsing Lung Tsuen	G/F	80	-0.1	80.0	Y	Y	75	64	57	60	64	59			-	-	-	-	-	-
		1/F		2.7	80.0				64	57	60	64	59			-	-	-	-	-	-
		2/F		8.3	80.4				64	57	60	64	59			-	-	-	-	-	-
	No.111 Tsing Lung Tsuen (Impact due to Resting Station - R8 only)	G/F	285	-0.1	285.0		Y	75	53	-	-	-	-	-	-	46	49	53	48	48	50
		1/F		2.7	285.0				53	-	-	-	-	-	-	46	49	53	48	48	50
		2/F		8.3	285.1				53	-	-	-	-	-	-	46	49	53	48	48	50
A/NSR15	No. 88 Yan Shau Wai (NB: distance from retaining wall is 123 m)	G/F	72	0.4	72.0	Y		75	61	58	61	60	60			-	-	-	-	-	-
		1/F		3.2	72.1				61	58	61	60	60			-	-	-	-	-	-
		2/F		6.0	72.3				61	58	61	60	60			-	-	-	-	-	-
A/NSR16	No. 68N Tung Chan Wai (NB: distance from retaining wall is 175 m)	G/F	70	2.5	70.0	Y		75	61	58	61	57	60			-	-	-	-	-	-
		1/F		5.3	70.2				61	58	61	57	60			-	-	-	-	-	-
		2/F		8.1	70.5				61	58	61	57	60			-	-	-	-	-	-
A/NSR17	No. 78 Tung Chan Wai (NB: distance from retaining wall is 185 m)	G/F	67	2.2	67.0	Y		75	62	59	62	57	61			-	-	-	-	-	-
		1/F		5.0	67.2				62	59	62	57	61			-	-	-	-	-	-
		2/F		7.8	67.5				61	58	61	57	60			-	-	-	-	-	-

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

NSR Label	Descriptions	Floor	Distance, metre			Subject to noise from Works Type		Noise Criteria, dB(A)	Mitigated Worst Case Noise Impact, dB(A)	Mitigated Noise Impact, dB(A) Works Type 1						Mitigated Noise Impact, dB(A) Works Type 2					
			NSR to Site Boundary	Vert. dist	Slant dist.	1	2			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]	[1]	[2]	[3-1]	[3-2]	[2-3-3]	[2-3-4]
Existing Noise Sensitive Uses																					
A/NSR18	B15 of Europa Garden	G/F	67	2.9	67.1	Y		75	62	59	62		61			-	-	-	-	-	-
		1/F		5.7	67.2				62	59	62		61			-	-	-	-	-	-
		2/F		8.5	67.5				61	58	61		60			-	-	-	-	-	-
A/NSR19	Block 2, Dills Corner Garden	G/F	6	1.1	6.1	Y		75	82	79	82		81			-	-	-	-	-	-
		1/F		3.9	7.2				81	78	81		80			-	-	-	-	-	-
A/NSR20	Ku Tung Public Oi Wah School	G/F	150	0.7	150.0	Y		70	59	52	55	59	54			-	-	-	-	-	-
		1/F		3.5	150.0				59	52	55	59	54			-	-	-	-	-	-
		2/F		6.3	150.1				59	52	55	59	54			-	-	-	-	-	-
	Ku Tung Public Oi Wah School (Examination Period)	G/F	150	0.7	150.0	Y		65	59	52	55	59	54			-	-	-	-	-	-
		1/F		3.5	150.0				59	52	55	59	54			-	-	-	-	-	-
		2/F		6.3	150.1				59	52	55	59	54			-	-	-	-	-	-
A/NSR21	Home of Loving Faithfulness (NB: distance from retaining wall is 72m)	G/F	13	2.0	13.1	Y		75	76	73	76	65	75			-	-	-	-	-	-
		1/F		4.8	13.8				75	72	75	65	74			-	-	-	-	-	-
		2/F		7.6	15.0				75	72	75	65	74			-	-	-	-	-	-
A/NSR22	No.D2A Ho Sheung Heung	G/F	84	0.9	84.0	Y	Y	75	65	57	60	64	59			-	-	-	-	-	-
		1/F		3.7	84.1				65	57	60	64	59			-	-	-	-	-	-
		2/F		6.5	84.3				65	57	60	64	59			-	-	-	-	-	-
	No.D2A Ho Sheung Heung (Impact due to Resting Station - R9 and Information Kiosk only)	G/F	161	0.9	161.0		Y	75	58	-	-	-	-	-	-	51	54	58	53	53	55
		1/F		3.7	161.0				58	-	-	-	-	-	-	51	54	58	53	53	55
		2/F		6.5	161.1				58	-	-	-	-	-	-	51	54	58	53	53	55
A/NSR23	No. C110 Tsung Pak Long Village	G/F	24	1.0	24.0	Y		75	74	67	70	74	69	72	69	-	-	-	-	-	-
		1/F		3.8	24.3				74	67	70	74	69	72	69	-	-	-	-	-	-
		2/F		9.4	25.8				74	67	70	74	69	72	69	-	-	-	-	-	-
Planned Noise Sensitive Uses																					
A/NSR_P01a	"CDA" site as in Kam Tin North OZP No. S/YL-KTN/7	G/F	260	1.1	260.0	Y		75	54	47	50	54	49			-	-	-	-	-	-
		1/F		3.9	260.0				54	47	50	54	49			-	-	-	-	-	-
A/NSR_P01	Application no.: A/DPA/YL-NSW/012, Approved Use - Golf Course and Residential Development	G/F	275	0.5	275.0	Y		75	53	46	49	53	48			-	-	-	-	-	-
		1/F		3.3	275.0				53	46	49	53	48			-	-	-	-	-	-
		2/F		6.1	275.1				53	46	49	53	48			-	-	-	-	-	-
A/NSR_P02	Application No.: A/YL-MP/156, Approved Use - Houses with Ancillary Club House and Recreational Facilities	G/F	85	0.1	85.0	Y		75	63	56	59	63	58			-	-	-	-	-	-
		1/F		2.9	85.0				63	56	59	63	58			-	-	-	-	-	-
		2/F		5.7	85.2				63	56	59	63	58			-	-	-	-	-	-
A/NSR_P03	Application No.: A/YL-MP/146, Approved Uses - Residential Development	G/F	82	-1.0	82.0	Y		75	64	57	60	64	59			-	-	-	-	-	-
		1/F		1.8	82.0				64	57	60	64	59			-	-	-	-	-	-
		2/F		4.6	82.1				64	57	60	64	59			-	-	-	-	-	-
A/NSR_P04	Application No.: A/NE-KTS/228-1, Approved Use - Houses	G/F	60	-0.4	60.0	Y		75	66	59	62	66	61			-	-	-	-	-	-
		1/F		2.4	60.0				66	59	62	66	61			-	-	-	-	-	-
		2/F		5.2	60.2				66	59	62	66	61			-	-	-	-	-	-

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

NSR Label	Descriptions	Floor	Distance, metre			Noise Criteria, dB(A)	Mitigated Worst Case Noise Impact, dB(A)	Mitigated Noise Impact, dB(A) Works Type 1					
			NSR to Site Boundary	Vert. dist	Slant dist.			[1]	[2]	[3-1]	[3-2]	[1-3-3]	[1-3-4]
Existing Noise Sensitive Uses													
A/NSR07	No. 53 Castle Peak Road - Mai Po (NB: distance from retaining wall is 66 m)	G/F	12	0.9	12.0	75	73	73	72	66	69		
A/NSR12	No.159 Mai Po San Tsuen	G/F	8	0.7	8.0	75	73	72	72		73		
		1/F		3.5	8.7		72	71	71		72		
		2/F		6.3	10.2		71	70	70		71		
A/NSR13	No. 1C Mai Po Lo Wai	G/F	12	1.2	12.1	75	75	73	72	75	69		
		1/F		4.0	12.7		75	73	72	75	69		
		2/F		6.8	13.8		74	72	71	74	68		
A/NSR13a	Yeung Hau Temple (NB: distance from retaining wall is 70m)	G/F	15	1.2	15.1	70	70	66	70	65	67		
A/NSR20	Block 2, Dills Corner Garden	G/F	6	1.1	6.1	75	75	74	74		75		
		1/F		3.9	7.2		74	73	73		74		
A/NSR22	Home of Loving Faithfulness (NB: distance from retaining wall is 72m)	G/F	13	2.0	13.1	75	73	73	72	65	69		
		1/F		4.8	13.8		73	73	72	65	69		
		2/F		7.6	15.0		70	66	70	64	68		

Works Type: [1] Site clearance; [2] levelling/ excavation; [3-1] Slope works/ retaining wall; [3-2] Paving; [1-3-3] Foundation for bridges; [1-3-4] Structure/ subway/ bridge; [2-3-3] Structures; [2-3-4] Fitting

Mitigated Construction Noise Impact on No. 53 Castle Peak Road – Mai Po	A/NSR07	(Works type 1 associated with new cycle tracks. No works for bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	**75 dB(A)**										
PME	**TM or other reference**	**No. of PME**	**SWL, dB(A)**	**Total SWL, dB(A)**	**Horizontal dist. From NSR, m**	**Dist. Corr., dB(A)**	**% on time**	**% on time Corr., dB(A)**	**Screening Corr., dB(A)**	**Façade Corr., dB(A)**	**CNL, dB(A)**
Stage 2 - Levelling/ Excavation works											
Sub-group A											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	12.0	-29.6	100%	0.0	-10.0	3.0	65
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	108	108	12.0	-29.6	100%	0.0	-10.0	3.0	71
										Total	72
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	12.0	-29.6	100%	0.0	-5.0	3.0	71
Sub-group C											
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Stage 3 - Construction/ Paving works											
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group B											
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group E											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	12.0	-29.6	100%	0.0	-10.0	3.0	65
Compactor, vibratory	CNP 050	1	105	105	12.0	-29.6	50%	-3.0	-10.0	3.0	65
										Total	**68**

[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Mitigated Construction Noise Impact on No.159 Mai Po San Tsuen	A/NSR12	(Works type 1 associated with new cycle tracks. No works for retaining wall/ bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	75 dB(A)										
PME	TM or other reference	No. of PME	SWL, dB(A)	Total SWL, dB(A)	Horizontal dist. From NSR, m	Dist. Corr., dB(A)	% on time	% on time Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	CNL, dB(A)
Stage 1 - Site Clearance											
Sub-group A											
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66
Sub-group B											
Mobile crane	BS5228 Table C.7/118	1	99	99	8.0	-26.0	100%	0.0	-5.0	3.0	71
Sub-group C											
Dump truck	BS5228 Table C.9/39	1	103	103	8.0	-26.0	50%	-3.0	-5.0	3.0	72
Sub-group D											
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	8.0	-26.0	100%	0.0	-10.0	3.0	72
Stage 2 - Levelling/ Excavation works											
Sub-group A											
Road ripper, excavator mounted	[Note 1]	1	105	105	8.0	-26.0	100%	0.0	-10.0	3.0	72
										Total	72
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	8.0	-26.0	50%	-3.0	-5.0	3.0	72
Sub-group C											
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66
Stage 3 - Construction/ Paving works											
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73
Sub-group B											
Mini excavator	[Note 1]	1	94	94	8.0	-26.0	100%	0.0	-5.0	3.0	66
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	8.0	-26.0	100%	0.0	-5.0	3.0	73
Sub-group E											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	8.0	-26.0	100%	0.0	-10.0	3.0	69
Compactor, vibratory	CNP 050	1	105	105	8.0	-26.0	50%	-3.0	-10.0	3.0	69
										Total	**72**

[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Mitigated Construction Noise Impact on No. 1C Mai Po Lo Wai	A/NSR13	(Works type 1 associated with new cycle tracks. No works for bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	**75 dB(A)**										
PME	**TM or other reference**	**No. of PME**	**SWL, dB(A)**	**Total SWL, dB(A)**	**Horizontal dist. From NSR, m**	**Dist. Corr., dB(A)**	**% on time**	**% on time Corr., dB(A)**	**Screening Corr., dB(A)**	**Façade Corr., dB(A)**	**CNL, dB(A)**
Stage 2 - Levelling/ Excavation works											
Sub-group A										**Total**	**72**
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	12.0	-29.6	100%	0.0	-10.0	3.0	65
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	108	108	12.0	-29.6	100%	0.0	-10.0	3.0	71
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	12.0	-29.6	100%	0.0	-5.0	3.0	71
Sub-group C											
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Stage 3 - Construction/ Paving works											
Group 1 - slope works/ retaining wall											
Sub-group A										**Total**	**69**
Bar bender and cutter (electric)	CNP 021	1	90	90	12.0	-29.6	100%	0.0	-5.0	3.0	58
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	12.0	-29.6	100%	0.0	-5.0	3.0	68
Sub-group B										**Total**	**75**
Crane mounted auger	BS5228 Table C.4/37	1	111	111	12.0	-29.6	100%	0.0	-10.0	3.0	74
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Generator, silenced, 75 dB(A) at 7 m	CNP 102	1	100	100	12.0	-29.6	100%	0.0	-5.0	3.0	68
Sub-group C											
Mobile crane	BS5228 Table C.7/118	1	99	99	12.0	-29.6	100%	0.0	-5.0	3.0	67
Sub-group D											
Lorry	BS5228 Table C.8/25	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group E										**Total**	**70**
Concrete lorry mixer (6m3)	BS5228 Table C.6/23	1	100	100	12.0	-29.6	100%	0.0	-5.0	3.0	68
Poker, vibratory, hand-held	BS5228 Table C.6/40	1	98	98	12.0	-29.6	100%	0.0	-5.0	3.0	66
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group B											
Mini excavator	[Note 1]	1	94	94	12.0	-29.6	100%	0.0	-5.0	3.0	62
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	12.0	-29.6	100%	0.0	-5.0	3.0	69
Sub-group E										**Total**	**68**
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	12.0	-29.6	100%	0.0	-10.0	3.0	65
Compactor, vibratory	CNP 050	1	105	105	12.0	-29.6	50%	-3.0	-10.0	3.0	65
[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf											

Mitigated Construction Noise Impact on Yeung Hau Temple	A/NSR13a	(Works type 1 associated with new cycle tracks. No works for bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	70 dB(A)										
PME	TM or other reference	No. of PME	SWL, dB(A)	Total SWL, dB(A)	Horizontal dist. From NSR, m	Dist. Corr., dB(A)	% on time	% on time Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	CNL, dB(A)
Stage 1 - Site Clearance											
Sub-group A											
Mini excavator	[Note 1]	1	94	94	15.0	-31.5	100%	0.0	-5.0	3.0	60
Sub-group B											
Mobile crane	BS5228 Table C.7/118	1	99	99	15.0	-31.5	100%	0.0	-5.0	3.0	65
Sub-group C											
Dump truck	BS5228 Table C.9/39	1	103	103	15.0	-31.5	50%	-3.0	-5.0	3.0	66
Sub-group D											
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	15.0	-31.5	100%	0.0	-10.0	3.0	66
Stage 2 - Levelling/ Excavation works											
Sub-group A											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	15.0	-31.5	100%	0.0	-10.0	3.0	63
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	108	108	15.0	-31.5	100%	0.0	-10.0	3.0	69
										Total	70
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	15.0	-31.5	50%	-3.0	-5.0	3.0	66
Sub-group C											
Mini excavator	[Note 1]	1	94	94	15.0	-31.5	100%	0.0	-5.0	3.0	60
Stage 3 - Construction/ Paving works											
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	15.0	-31.5	100%	0.0	-5.0	3.0	67
Sub-group B											
Mini excavator	[Note 1]	1	94	94	15.0	-31.5	100%	0.0	-5.0	3.0	60
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	15.0	-31.5	100%	0.0	-5.0	3.0	67
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	15.0	-31.5	100%	0.0	-5.0	3.0	67
Sub-group E											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	15.0	-31.5	100%	0.0	-10.0	3.0	63
Compactor, vibratory	CNP 050	1	105	105	15.0	-31.5	50%	-3.0	-10.0	3.0	63
										Total	**66**

[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Mitigated Construction Noise Impact on Block 2, Dills Corner Garden	A/NSR20	(Works type 1 associated with new cycle tracks. No works for retaining wall/ bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	75 dB(A)										
PME	TM or other reference	No. of PME	SWL, dB(A)	Total SWL, dB(A)	Horizontal dist. From NSR, m	Dist. Corr., dB(A)	% on time	% on time Corr., dB(A)	Screening Corr., dB(A)	Façade Corr., dB(A)	CNL, dB(A)
Stage 1 - Site Clearance											
Sub-group A											
Mini excavator	[Note 1]	1	94	94	6.0	-23.5	100%	0.0	-5.0	3.0	68
Sub-group B											
Mobile crane	BS5228 Table C.7/118	1	99	99	6.0	-23.5	100%	0.0	-5.0	3.0	73
Sub-group C											
Dump truck	BS5228 Table C.9/39	1	103	103	6.0	-23.5	50%	-3.0	-5.0	3.0	74
Sub-group D											
Hand-held electric circular saw	BS5228 Table C.7/75	1	105	105	6.0	-23.5	100%	0.0	-10.0	3.0	74
Stage 2 - Levelling/ Excavation works											
Sub-group A											
Road ripper, excavator mounted	[Note 1]	1	105	105	6.0	-23.5	100%	0.0	-10.0	3.0	74
										Total	74
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	6.0	-23.5	50%	-3.0	-5.0	3.0	74
Sub-group C											
Mini excavator	[Note 1]	1	94	94	6.0	-23.5	100%	0.0	-5.0	3.0	68
Stage 3 - Construction/ Paving works											
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	6.0	-23.5	100%	0.0	-5.0	3.0	75
Sub-group B											
Mini excavator	[Note 1]	1	94	94	6.0	-23.5	100%	0.0	-5.0	3.0	68
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	6.0	-23.5	100%	0.0	-5.0	3.0	75
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	6.0	-23.5	100%	0.0	-5.0	3.0	75
Sub-group E											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	6.0	-23.5	100%	0.0	-10.0	3.0	71
Compactor, vibratory	CNP 050	1	105	105	6.0	-23.5	50%	-3.0	-10.0	3.0	71
										Total	**74**

[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Mitigated Construction Noise Impact on Home of Loving Faithfulness	A/NSR22	(Works type 1 associated with new cycle tracks. No works for bridge/ subway in the works area nearby)									
Noise Criterion, Leq (30 min) =	**75 dB(A)**										
PME	**TM or other reference**	**No. of PME**	**SWL, dB(A)**	**Total SWL, dB(A)**	**Horizontal dist. From NSR, m**	**Dist. Corr., dB(A)**	**% on time**	**% on time Corr., dB(A)**	**Screening Corr., dB(A)**	**Façade Corr., dB(A)**	**CNL, dB(A)**
Stage 2 - Levelling/ Excavation works											
Sub-group A											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	13.0	-30.3	100%	0.0	-10.0	3.0	65
Breaker, hand-held, mass > 10kg and < 20kg	CNP 024	1	108	108	13.0	-30.3	100%	0.0	-10.0	3.0	71
										Total	72
Sub-group B											
Dump truck	BS5228 Table C.9/39	1	103	103	13.0	-30.3	100%	0.0	-5.0	3.0	71
Sub-group C											
Mini excavator	[Note 1]	1	94	94	13.0	-30.3	100%	0.0	-5.0	3.0	62
Stage 3 - Construction/ Paving works											
Group 2- paving works											
Sub-group A											
Asphalt paver	BS5228 Table C.8/24	1	101	101	13.0	-30.3	100%	0.0	-5.0	3.0	69
Sub-group B											
Mini excavator	[Note 1]	1	94	94	13.0	-30.3	100%	0.0	-5.0	3.0	62
Sub-group C											
Lorry	BS5228 Table C.8/25	1	101	101	13.0	-30.3	100%	0.0	-5.0	3.0	69
Sub-group D											
Road roller	BS5228 Table C.8/30	1	101	101	13.0	-30.3	100%	0.0	-5.0	3.0	69
Sub-group E											
Air compressor, air flow > 10m3/min and <= 30m3/min	CNP 002	1	102	102	13.0	-30.3	100%	0.0	-10.0	3.0	65
Compactor, vibratory	CNP 050	1	105	105	13.0	-30.3	50%	-3.0	-10.0	3.0	65
										Total	**68**

[Note 1] – Details extracted from EPD website: http://www.epd.gov.hk/epd/english/application_for_licences/guidance/files/OtherSWLe.pdf

Appendix 9-1

Botanical Species List

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Tree	*Acacia auriculiformis*	p		2					1
Tree	*Acacia confusa*	p	1	2	2				2
Tree	*Acacia maginum*	p		2					
Tree	*Acronychia pedunculata*	vc	2						
Tree	*Albizia lebbeck*	c		3					
Tree	*Aleurites moluccana*	p	2	2					
Tree	*Aleurites moluccana*	p		3					
Tree	*Anona squamosa*	c			2		1		
Tree	*Antidesma bunius*	c	2						
Tree	*Aporosa dioica*	vc	3						
Tree	*Araucaria heterophylla*	p	1	1					
Tree	*Archidendron lucida*	c	2						
Tree	*Archontophoenix alexandrea*	p		2					
Tree	*Ardisia quinquegona*	vc	2						
Tree	*Artocarpus heterophyllus*	c			1				
Tree	*Bambusa spp.*	p	2	2					
Tree	*Bambusa tuldoides*	p		2					
Tree	*Bambusa ventricosa*	p		1					
Tree	*Bambusa vulgaris*	p		2					
Tree	*Bauhinia purpurea*	p	1	3	2				
Tree	*Bauhinia variegata*	p	1	3		1			
Tree	*Bischofia javanica*	c	2	2	1				
Tree	*Bombax malabaricum*	p	2	3	1				
Tree	*Bridelia tomentosa*	vc	3	2		1	1		1
Tree	*Callistemon rigidus*	p		2					
Tree	*Callistemon viminalis*	p		2					
Tree	*Carica papaya*	p	1	1	2	1	1		3
Tree	*Caryota mitis*	p		2					
Tree	*Cassia siamea*	c		2					
Tree	*Cassia surattensis*	p		2					1
Tree	*Casuarina equisetifolia*	p	1	2		1	1		1

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Tree	*Celtis tetrandra*	c	3	2	2	1			1
Tree	*Chrysalidocarpus lutescens*	p		3					
Tree	*Cinnamomum camphora*	c	2	1	2				
Tree	*Cinnamomum parthenoxylon*	c	*1*	2					
Tree	*Citrus sp*	p	1	1	3	1			1
Tree	*Clausena lansium*	c	1	1	3	1			2
Tree	*Cleistocalyx operculata*	c	2	2		2			
Tree	*Crateva religiosa*	p		2					
Tree	*Cratoxylum cochinchinense*	vc	2						
Tree	*Delonix regia*	p	1	2					
Tree	*Dimocarpus longan*	p	2	2	3	2			2
Tree	*Diospyros erianthe*	vc	*1*						
Tree	*Endospermum chinense*	rest	*1*						
Tree	*Eriobotrya japonica*	p		2					
Tree	*Erythrina crista-galli*	c		2					
Tree	*Erythrina speciosa*	p		3					
Tree	*Eucalyptus citriodora*	p	1	3					
Tree	*Eucalyptus robusta*	p	2	3					
Tree	*Ficus elastica*	p	1	1					
Tree	*Ficus fistulosa*	c	2					1	
Tree	*Ficus hirta*	c	2	1					
Tree	*Ficus hispida*	c	2	2	2	2	2		2
Tree	*Ficus microcarpa*	c	2	2	1				
Tree	*Ficus variegata*	c	2	1				1	
Tree	*Ficus virens*	c	2	2					
Tree	*Garcinia oblongifolia*	c	1						
Tree	*Glochidion hirsutum*	c	2						
Tree	*Gossampinus malabarica*	p		2					
Tree	*Hibiscus tiliaceous*	c		3					
Tree	*Homalium cochinchinensis*	c	2						
Tree	*Lagerstroemia speciosa*	p		3					

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Tree	*Leucaena leucocephala*	vc	1	2	2	2	3		2
Tree	*Liquidambar ormasana*	c		2					
Tree	*Litchi chinensis*	p	2	1	3	1			3
Tree	*Litsea cubeba*	c	2						
Tree	*Litsea glutinosa*	vc	3						
Tree	*Livistonia chinensis*	p		3					
Tree	*Lophostemon conferta*	p	1	3					
Tree	*Macaranga tanarius*	c	2	3	3	2	3		
Tree	*Mallotus paniculata*	vc	2						
Tree	*Mangifera indica*	c		1	1				1
Tree	*Melaleuca leucadendron*	p	1	3					
Tree	*Melia azedarach*	c	2	2	2	2	2		2
Tree	*Michelia alba*	p		2					
Tree	*Microcos paniculata*	c	2						
Tree	*Musa paradisiaca*	c		1	3	1	2		2
Tree	*Nerium indicum*	p		2					
Tree	*Phoenix roebelenii*	p		3					
Tree	*Phyllanthus emblica*	vc	2						
Tree	*Pinus massoniana*	c	1						
Tree	*Plterospermum heterophyllum*	rest	2	1					
Tree	*Psidium guajava*	c		1	2	1	1		2
Tree	*Rapanea neriifolia*	c							
Tree	*Ravenala madagascariensis*	p		1					
Tree	*Rhus chinensis*	c	2						
Tree	*Rhus succedanea*	c	2						
Tree	*Roystonea regia*	p		1					
Tree	*Salix babylonica*	p		2	1	1			1
Tree	*Sapium discolor*	vc	2	2					
Tree	*Sapium sebiferum*	c	3		2	1	1		
Tree	*Saurauia tristyla*	c	2			1			
Tree	*Schefflera octophylla*	vc	3						

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Tree	*Scolopia chinenise*	c	1						
Tree	*Sonneratia caseolaris*	rest						2	
Tree	*Spathodea campanulata*	p		1					
Tree	*Sterculia lanceolata*	vc	3						
Tree	*Syzygium jambos*	c	2	2	1				
Tree	*Syzygium levinei*	c							
Tree	*Thuja orientalis*	p		2					
Tree	*Trema tomentosa*	c	1	1	2	1	1		
Tree	*Virburnum odoratissimum*	c		2					
Tree	*Zanthoxylum avicennae*	c	1						
Shrub	*Alchornea trewioides*	vc	2	2	2	2	2		
Shrub	*Ardisia crenata*	c	2						
Shrub	*Breynia fruticosa*	vc	2						
Shrub	*Cassia occidentalis*	vc		2			1		1
Shrub	*Daphniphyllum calycinum*	c	2						
Shrub	*Daphniphyllum oldhami*	C	2						
Shrub	*Diplospora dubia*	c	2						
Shrub	*Euonymus nitidus*	vc	2						
Shrub	*Ficus variolosa*	vc	2						
Shrub	*Glochidion eriocarpum*	c	3						
Shrub	*Helicteres angustifolia*	c	2						
Shrub	*Ilex asprella*	vc	3						
Shrub	*Ilex pubescens*	vc	2						
Shrub	*Lantana camara*	vc	2	2	2	2	2		2
Shrub	*Ligustrum sinense*	c	2	2	1	2	1		
Shrub	*Litsea rotundifolia*	vc	3						
Shrub	*Ludwigia octovalvis*	c			2	1			2
Shrub	*Maesa japonica*	c	3	1					
Shrub	*Melastoma candidum*	vc	2	2					2
Shrub	*Phyllanthus cochinchinensis*	vc	2						
Shrub	*Phyllanthus urinaria*	c	1	2	2	2	3		

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Shrub	*Psychotria rubra*	vc	3						
Shrub	*Rhaphiolepis indica*	vc	3	3					
Shrub	*Rhapis excelsa*	c	1	2					
Shrub	*Rhodomyrtus tomentosa*	vc	2	2					
Shrub	*Ricinus communis*	rest		1	2	1	1		1
Shrub	*Sarcandra glabra*	vc	2						
Shrub	*Schefflera arboricolar*	p		3					
Shrub	*Sesbania cannabina*	c			2		2		2
Shrub	*Sida acuta*	c		2	2		1		
Shrub	*Sida rhombifolia*	c		2	1		1		
Shrub	*Solanum torvum*	C		2	2		2		
Shrub	*Triumfetta bartramia*	vc	1	2	2	1	2		
Shrub	*Urena lobata*	c		2	2	1	2		
Shrub	*Aegiceras corniculatum*	c						2	
Shrub	*Aglaia odorata*	p		2	1		1		
Shrub	*Aglaonema modestum*	p		2					
Shrub	*Allamanda neriifolia*	c		3					
Shrub	*Alpinia zerumbet "Variegata"*	p		2					
Shrub	*Asparagus densiflorus*	p		2					
Shrub	*Avicennia marina*	c						3	
Shrub	*Calliandra haematocephala*	p		2					
Shrub	*Camellia sp*	p		2					
Shrub	*Clerodendrum thomsonae*	p		2					
Shrub	*Codiaeum variegatum*	p		2					
Shrub	*Cordyline terminalis*	p		2	1				
Shrub	*Cuphea hyssopifolia*	p		2					
Shrub	*Desmodium gigantium*	c			1		2		1
Shrub	*Hibiscus rosa-sinensis*	p		2					
Shrub	*Ixora chinensis*	p		2					
Shrub	*Jasmimum sambac*	c		2	1				
Shrub	*Kandelia obovata*	c						2	

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Shrub	*Lumnitzera racemosa*	c						2	
Shrub	*Melastoma sanguineum*	c	2	2					
Shrub	*Murraya paniculata*	c		2	1				
Shrub	*Nerium indicum*	c		3					
Shrub	*Phyllanthus cochinchinensis*	vc	2						
Shrub	*Pittosporum tobira*	c		2					
Shrub	*Rhoeo discolor*	p		3					
Shrub	*Ruranta repens*	c		2					
Shrub	*Vinca rosea*	c		2	1	1	1		
Herb	*Achyranthes aspera*	c		2	2	2	2		
Herb	*Adiantum flabellulatum*	c	1						
Herb	*Ageratum conyzoides*	c	1	3	2	2	2		3
Herb	*Allium fistulosum*	p			2				
Herb	*Alocasia cucullata*	c		3	2	1			2
Herb	*Alocasia macrorrhiza*	VC	3	2	2	2	1		
Herb	*Alopecurus aequalis*	c			1				
Herb	*Alpinia zerumbet*	vc	1						
Herb	*Alternanthera sessiles*	c			2	2			3
Herb	*Amaranthus viridis*	vc		1	2		1		2
Herb	*Apium graveolens*	p			2				
Herb	*Apluda mutica*	c			3	1			2
Herb	*Arundinella setosa*	vc	2						
Herb	*Asparagus cochinchinensis*	c	2	3					
Herb	*Aster baccharoides*	vc	2						
Herb	*Azolla pinnata*	r							
Herb	*Bacopa monnieri*	c			1				
Herb	*Bidens pilosa*	vc	2	2	3	2	3		3
Herb	*Blechnum orientale*	c	1						
Herb	*Bothriochloa ischaemum*	c		2	3	2	2		
Herb	*Brachia mutica*	c			2	1	2		3
Herb	*Brassica alboglabra*	p			2				

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Herb	*Brassica chinensis*	p			2				
Herb	*Brassica parachinensis*	p			2				
Herb	*Capsella bursa-pastoris*	c			2				
Herb	*Cardamine flexuosa*	c			2				
Herb	*Celosia argentea*	vc		2	2		2		1
Herb	*Cenchrus echinatus*	vc	1	1	2		1		1
Herb	*Centella asiatica*	vc	2	2	2	1	1		2
Herb	*Cerbera manghas*	c						2	
Herb	*Chamaesyce thymifolia*	vc			2				
Herb	*Chenopodium serotinum*	c		1	2		1		3
Herb	*Chloris bartata*	vc		2	3	2	2		
Herb	*Coix lachryma-jobi*	c			2				1
Herb	*Colocasia esculenta*	c		2	3				2
Herb	*Conyza canadensis*	vc	1	2	2	1	2		2
Herb	*Coronopus didymus*	c			1				
Herb	*Crinum asiaticum*	rest		2					
Herb	*Crotolaria mucronata*	c			2				1
Herb	*Cyclosorus acuminatus*	vc			2	2	2	2	
Herb	*Cyclosorus interruptus*	c			2	2			2
Herb	*Cyclosorus parasiticus*	vc			2	2	2		
Herb	*Cynodon dactylon*	vc		2	3		2		2
Herb	*Cyperus alternifolius*	c			1	1	1	1	2
Herb	*Cyperus difformis*	vc			1				2
Herb	*Cyperus haspan*	c			2				2
Herb	*Cyperus imbricatus*	c			2				2
Herb	*Cyperus iria*	c			3	2			3
Herb	*Cyperus malaccensis*	VC			1	2			
Herb	*Cyperus pilosus*	c			2				2
Herb	*Cyperus rotundus*	vc		2	3	2	2		
Herb	*Cyrtococcum patens*	VC	2						
Herb	*Dactyloctenium aegyptiacum*	VC		2	2		2		

Key

r	Rare	1	Occasional
rest	Restricted	2	Frequent
c	Common	3	Common
vc	Very Common	4	Abundant
p	Planted	5	Very abundant

* Rarity follows Xing, F., Ng, S-c. & Chau, L.K.C. (2000). Gymnosperms and Angiosperms of Hong Kong. Memoirs of the Hong Kong Natural History Society 23: 21-136.

Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Herb	*Datura metel*	rest		1					
Herb	*Desmodium heterophyllum*	c	2	1					
Herb	*Dicranopteris pedata*	vc	1						
Herb	*Digitaria ciliaris*	vc		2	2		3		
Herb	*Echinochloa colona*	c			2	2			
Herb	*Echinochloa crusgalli*	vc			2	2			
Herb	*Eclipta prostrata*	c			2	1	2		2
Herb	*Eichhornia crassipes*	vc			1				2
Herb	*Elephantopus tomemtosa*	c	1	2					
Herb	*Eleusine indica*	vc	1	2	2	1	2		
Herb	*Emilia sonchifolia*	vc	1	3	2	2	2		2
Herb	*Eupatorium catarium*	vc		2	2		3		2
Herb	*Excoecaria agallocha*	c						2	
Herb	*Fimbristylis aestivalis*	c							1
Herb	*Fimbristylis dichotoma*	c			2		2		
Herb	*Hedyotis acutangular*	c	*1*						
Herb	*Hedyotis corymbosa*	vc			2	2	2		2
Herb	*Hemistepta lyrata*	rest			2				
Herb	*Impatiens chinensis*	c			2				
Herb	*Imperata cylindrica*	vc	1	2	2		2		2
Herb	*Ixeris japonica*	c			1	2			
Herb	*Juncus effusus*	c			2		1		2
Herb	*Kyllinga breviflora*	c			1				2
Herb	*Lactuca chinensis*	c			1		2		
Herb	*Lactuca saliva*	p			2				
Herb	*Leersia hexandra*	c			2				2
Herb	*Lemna minor*	c				1			1
Herb	*Limnophila aromatica*	rest			1				2
Herb	*Lindernia anagalis*	c			2				2
Herb	*Lindernia crustaceae*	rest			2	1			2
Herb	*Liriope spicata*	c	2						

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Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Herb	*Lophatherum gracile*	c	2						
Herb	*Lycium chinense*	p			2				
Herb	*Malvastrum coromandelinum*	c			1	1	2		
Herb	*Melinis repens*	vc	1		2	2	2		
Herb	*Miscanthus sinensis*	vc		1		2	2		
Herb	*Nasturtium officinale*	c			3	2			2
Herb	*Neyraudia reyraudiana*	vc	1		1		2		2
Herb	*Oenanthe javanica*	c			3	2			2
Herb	*Oxalis corniculata*	vc	2	2	2	2	2		2
Herb	*Oxalis corymbosa*	vc		1	2	2	2		2
Herb	*Panicum maximum*	vc		2			2		
Herb	*Panicum paludosum*	c			2	2	1		3
Herb	*Paspalum conjugatum*	c			2		2		2
Herb	*Paspalum dilatatum*	c					2		
Herb	*Paspalum paspaloides*	c			2	2	2		3
Herb	*Pennisetum alopecuroides*	C			2	1	2		1
Herb	*Pennisetum purpureum*	vc			2	1	2		1
Herb	*Phytolacca acinosa*	rest			1				1
Herb	*Polygonum barbatum*	c			2	2			2
Herb	*Polygonum chinense*	vc	2	2	3	2			2
Herb	*Polygonum lapthifolium*	c			2	2			
Herb	*Ranunculus sceleratus*	vc			2	2	1		2
Herb	*Rhynoscopa rubra*	vc							2
Herb	*Rhynoscopa rugosa*	rest			2				2
Herb	*Rorippa indica*	c			2				
Herb	*Rumex japonicus*	c			1	1	1		3
Herb	*Rumex maritimus*	c			2	2			3
Herb	*Saccharum officinarum*	p			2				
Herb	*Sagittaria trifolia*	rest			1				
Herb	*Scoparia dulcis*	c			2	1	1		1
Herb	*Siplanthes paniculata*	c			2				

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Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Herb	*Solanum americanum*	vc	2	2	2	2	2		2
Herb	*Sonchus oleraceus*	vc			2				
Herb	*Sporobolus indicus*	vc			2		1		
Herb	*Stellaria media*	c			2				
Herb	*Synedrella nodiflora*	vc		1			2		
Herb	*Tadehagi triquetrum*	c	1				2		
Herb	*Tectaria subtriphylla*	c	*1*						
Herb	*Thalia dealbata*	p							1
Herb	*Tridax procumbens*	vc			2		2		
Herb	*Typha angustifolia*	c			1	2	1		2
Herb	*Xanthium strumarium*	c		2	2		1		
Herb	*Youngia japonica*	vc		2	2	1	2		
Herb	*Zea mays*	p			1				
Climber	*Alternanthera philoxeroides*	c			2	1			2
Climber	*Alyxia sinensis*	c	1						
Climber	*Arachis hypogaea*	p							
Climber	*Bauhinia blakeana*	p		2					
Climber	*Bauhinia championii*	c	*2*						
Climber	*Bauhinia glacua*	p		2					
Climber	*Bougainvillea glabra "Variegata"*	p		2					
Climber	*Byettnera aspera*	vc	1						
Climber	*Calamus tetradactylus*	c	2						
Climber	*Cansjera rheedii*	rest	1						
Climber	*Cassytha filiformis*	vc	2	2	2		1		2
Climber	*Clerodendrum inerme*	c						3	
Climber	*Commelina diffusa*	c		2	3	3	2		3
Climber	*Cucumis sativus*	p			2				
Climber	*Cuscuta chinensis*	c		2	2	2	2		
Climber	*Dalbergia hancei*	c	*2*						
Climber	*Desmos chinensis*	c	2						
Climber	*Embelia laeta*	vc	*1*						

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Form	*Botanical Name*	Rarity*	Secondary Woodland	Plantation	Cultivation	Water	Wasteland	Mangrove	Marsh/Pond
Climber	*Ficus pumila*	vc	2		1				
Climber	*Gnetum luofuense*	vc	2						
Climber	*Heterosmilax japonica var. gaudichaudiana*	c		2	2				
Climber	*Ipomoea aquatica*	c			3	3	1		3
Climber	*Ipomoea batatas*	p			3				
Climber	*Ipomoea cairica*	vc	2	3	3	2	3		3
Climber	*Ludwigia adscendens*	c							2
Climber	*Lycopersicon esculentum*	p			1				
Climber	*Lygodium japonicum*	c	2						2
Climber	*Lygodium scandens*	c	2				3		
Climber	*Mikania micrantha*	vc	2	3	2	2	3		3
Climber	*Mimosa pudica*	vc		1	1		3		
Climber	*Morinda umbellata*	c							
Climber	*Paederia scandens*	vc	2	2	2		3		
Climber	*Passiflora foetida*	c			1	1	2		
Climber	*Psychotria serpens*	vc	2						
Climber	*Pueraria lobata*	vc	2	2	2	2	2		2
Climber	*Pueraria phaseoloides*	vc		2			2		2
Climber	*Pyrostegia ignea*	p		2					
Climber	*Rourea microphylla*	c	2						
Climber	*Rubus reflexus*	vc	1						
Climber	*Senecio scandens*	c	2				2		
Climber	*Smilax china*	vc	2						
Climber	*Tetracera asiatica*	vc	2						
Climber	*Uvaria microcarpa*	c	2						
Climber	*Wedelia chinensis*	c	2	2	2	2	2		2
Climber	*Wedelia trilobata*	c	2	2				3	

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Appendix 9-2

Ornithological Species List

Table A9-2-1 Total List of Bird Species Seen Within the Study Area during Various Surveys

Species	Scientific Name	Principle Status*1	IUCN Red List	Conservation Status*2	KT	CPR	LV
Great Cormorant	*Phalacrocorax carbo*	W		PRC	x		
Grey Heron	*Ardea cinera*	W		PRC	x	x	x
Great Egret	*Egretta alba*	P		PRC	x	x	x
Little Egret	*Egretta garzetta*	P		PRC	x	x	x
Cattle Egret	*Bubulcus ibis*	P		(LC)	x		x
Chinese Pond Heron	*Ardeola bacchus*	P		PRC	x	x	x
Black-crowned Night Heron	*Nycticorax nycticorax*	P		(LC)	x		
Eurasian Spoonbill	*Platalea leucorodia*	W		LC	x		
Black-faced Spoonbill	*Platalea minor*	W	EN	PGC	x		
Eurasian Wigeon	*Anas penelope*	W		RC	x		
Common Teal	*Anas crecca*	W		RC	x		
Northern Pintail	*Anas acuta*	W		RC	x		
Garganey	*Anas querquedula*	M,W		-	x		
Northern Shoveler	*Anas clypeata*	W		RC	x		
Tufted Duck	*Aythya fuligula*	W		LC	x		
Black Kite	*Milvus migrans*	W, R		(RC)	x	x	x
Eastern Marsh Harrier	*Circus spilonotus*	W		LC	x		
Besra	*Accipiter virgatus*	R		-	x	x	
Common Buzzard	*Buteo buteo*	W		-	x	x	x
Greater Spotted Eagle	*Aquila clanga*	W	VU	GC	x	x	
Bonelli's Eagle	*Hieraaetus fasciatus*	R		(RC)	x		
Common Kestrel	*Falco tinnunculus*	AM, W		-	x		x
Ruddy-breasted Crake	*Porzana fusca*	M, W		LC			x

Key

KT = Kam Tin River and Ngau Tam Mei Section
CPR = Castle Peak Road Section – Mai Po, San Tin + Kwu Tung
LV = Long Valley Section, Sheung Yue River and Shek Sheung River
X = denotes bird seen in this section on at least one occasion

*1 = data taken from Carey *et al.* (2001)

E = Escape captive bird
M = Passage migrant
R = Resident
Su = Summer visitor
W = Winter visitor
? = Possible

*2 = data taken from Fellowes *et al.* (2002)

GC = Global concern
RC = Regional concern
LC = Local concern
PGC= Potential global concern
PRC= Potential regional concern

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

Species	Scientific Name	Principle Status*1	IUCN Red List	Conservation Status*2	KT	CPR	LV
White-breasted Waterhen	*Amaurornis phoenicurus*	R		-	x		x
Common Moorhen	*Gallinula chloropus*	R		-	x		x
Greater Painted Snipe	*Rostratula benghalensis*	M,R		LC			x
Black-winged Stilt	*Himantopus himantopus*	W		RC	x	x	x
Pied Avocet	*Recurvirostra avosetta*	W		RC	x		x
Grey-headed Lapwing	*Vanellus cinereus*	W		LC	x		
Little Ringed Plover	*Charadrius dubius*	W, R		(LC)	x	x	x
Common Greenshank	*Tringa nebularia*	M, W		RC			x
Green Sandpiper	*Tringa ochropus*	W		-	x	x	x
Wood Sandpiper	*Tringa glareola*	M, W		LC	x	x	x
Common Sandpiper	*Actitis hypoleucos*	M, W		-	x	x	x
Common Snipe	*Gallinago gallinago*	W		-	x		x
Snipe sp.	*Gallinago sp.*			-			x
Temminck's Stint	*Calidris temminckii*	M, W		LC		x	
Black-headed Gull	*Larus ribibundus*	W		PRC	x		
Rock Dove	*Columba livra (feral)*	R		-	x	x	x
Oriental Turtle Dove	*Streptopelia orientalis*	W			x		x
Spotted Dove	*Streptopelia chinensis*	R			x	x	x
Rose-ringed Parakeet	*Psittacula krameri*	R					x
Plaintive Cuckoo	*Cacomantis merulinus*	Su, R					x
Common Koel	*Eudynamys scolopacea*	Su, R				x	x
Little Swift	*Apus affinis*	R, SpM			x	x	x
Pied Kingfisher	*Ceryle rudis*	R		(LC)	x	x	x
Common Kingfisher	*Alcedo atthis*	Am, P			x	x	x
White-throated Kingfisher	*Halcyon smyrnensis*	Am, P		(LC)	x	x	x

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Species	Scientific Name	Principle Status*1	IUCN Red List	Conservation Status*2	KT	CPR	LV
Black-capped Kingfisher	*Halcyon pileata*	AM, W		(LC)	x		
Barn Swallow	*Hirundo rustica*	SpM, Su			x	x	x
Red-rumped Swallow	*Hirundo daurica*	M			x	x	x
Yellow Wagtail	*Motacilla flava*	M, W			x	x	x
Grey Wagtail	*Motacilla cinerea*	W			x	x	x
White Wagtail	*Motacilla alba*	W, R			x	x	x
Richard's Pipit	*Anthus richardi*	W, R			x	x	x
Olive-backed Pipit	*Anthus hodgsoni*	W			x	x	x
Red-throated Pipit	*Anthus cervinus*	M,W		LC			x
Red-whiskered Bulbul	*Pycnonotus flammeus*	R			x	x	x
Chinese Bulbul	*Pycnonotus sinesis*	R			x	x	x
Sooty-headed Bulbul	*Pycnonotus aurigaster*	R			x		x
Long-tailed Shrike	*Lanius schach*	R			x	x	x
Siberian Rubythroat	*Luscinia calliope*	W					x
Bluethroat	*Luscinia svecica*	W		LC			x
Oriental Magpie Robin	*Copsychus saularis*	R			x	x	x
Daurian Redstart	*Phoenicurus auroreus*	W			x		x
Common Stonechat	*Saxicola torquata*	W, M			x	x	x
Japanese Thrush	*Turdus cardis*	M, W					x
Common Blackbird	*Turdus merula*	W, M			x		x
Grey-backed Thrush	*Turdus hortulorum*	W			x		x
Eyebrowed Thrush	*Turdus obscurus*	M			x		
Masked Laughingthrush	*Garrulax perspicillatus*	R			x	x	x
Zitting Cisticola	*Cisticola juncidis*	W		LC	x		x
Yellow-bellied Prinia	*Prinia flaviventris*	R			x		x
Plain Prinia	*Prinia inornata*	R			x	x	x

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Species	Scientific Name	Principle Status*1	IUCN Red List	Conservation Status*2	KT	CPR	LV
Common Tailorbird	*Orthotomus sutorius*	R			x	x	x
Dusky Warbler	*Phylloscopus fuscatus*	W			x	x	x
Pallas's Leaf Warbler	*Phylloscopus proregulus*	W					x
Yellow-browed Warbler	*Phylloscopus inornatus*	W			x	x	x
Great Tit	*Parus major*	R			x	x	x
Scarlet-backed Flowerpecker	*Dicaeum cruentatum*	R					x
Fork-tailed Sunbird	*Aethopyga christinae*	R				x	
Japanese White-eye	*Zosterops japonicus*	R, ? W			x	x	x
Little Bunting	*Emberiza pusilla*	W					x
Black-faced Bunting	*Emberiza spodocephala*	M, W			x		x
Scaly-breasted Munia	*Lonchura punctulata*	R			x	x	x
Eurasian Tree Sparrow	*Passer montanus*	R			x	x	x
Red-billed Starling	*Sturnus sericeus*	W		GC	x		x
White-cheeked Starling	*Sturnus cineraceus*	A		PRC	x		
Black-collared Starling	*Sturnus nigricollis*	R			x		x
White-shouldered Starling	*Sturnus sinesis*	M, W, Su		(LC)	x	x	x
Common Myna	*Acridotheres tristis*	R				x	x
Crested Myna	*Acridotheres cristatellus*	R			x	x	x
Black Drongo	*Cicrurus macrocercus*	M, Su			x		x
Blue Magpie	*Urocissa erythrorhyncha*	R					x
Common Magpie	*Pica pica*	R			x	x	x
Large-billed Crow	*Corvus macrorynchos*	R			x	x	x
Collared Crow	*Corvus torquatus*	R		LC	x	x	x
Yellow-fronted Canary	*Serinus flaviventris*	E				x	

.

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Appendix 12-1

Preliminary Tree Survey

Appendix 12-1 Preliminary Tree Survey

SECTION 1 (Castle Peak Road - Tam Mi, Mai Po)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
1-T007	*Callistemon viminalis*	串錢柳	110	4	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T008	*Celtis sinensis*	朴	700	11.2	15	Fair	Fair	Medium	Low	Retain	CE22/2006/MP/T/0003A
1-T040	*Ficus virens var. sublanceolata*	大葉榕	720	8	8	Fair	Poor	Medium	High	Retain	CE22/2006/MP/T/0003A
1-T041	*Melaleuca quinquenevia*	白千層	780	7	9	Fair	Good	High	High	Retain	CE22/2006/MP/T/0003A
1-T101	*Celtis sinensis*	朴	330	4	7	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0003A
1-T107	*Bauhinia blakeana*	洋紫荊	130	4	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T108	*Bauhinia blakeana*	洋紫荊	130	8	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
*1-T113	*Leucaena leucocephala*	銀合歡	210	7	8	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T114	*Ficus superba var. japonica*	筆管榕	320	10	8	Poor	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T115	*Hibiscus tiliaceus*	黃槿	330	10	8	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T116	*Hibiscus tiliaceus*	黃槿	230	6	8	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T117	*Hibiscus tiliaceus*	黃槿	130	6	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T118	*Hibiscus tiliaceus*	黃槿	200	6	8	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T119	*Hibiscus tiliaceus*	黃槿	230	4	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T120	*Hibiscus tiliaceus*	黃槿	200	6	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T121	*Hibiscus tiliaceus*	黃槿	340	6	10	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T122	*Hibiscus tiliaceus*	黃槿	370	4	10	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T123	*Hibiscus tiliaceus*	黃槿	430	4	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T124	*Hibiscus tiliaceus*	黃槿	230	4	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T125	*Hibiscus tiliaceus*	黃槿	220	6	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T126	*Hibiscus tiliaceus*	黃槿	320	10	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T127	*Eucalyptus camaldulensis*	赤桉	300	4	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T128	*Eucalyptus camaldulensis*	赤桉	200	4	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T129	*Eucalyptus camaldulensis*	赤桉	110	2	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T130	*Eucalyptus camaldulensis*	赤桉	130	2	8	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T131	*Eucalyptus camaldulensis*	赤桉	230	6	16	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T132	*Eucalyptus camaldulensis*	赤桉	200	3	4	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T133	*Eucalyptus camaldulensis*	赤桉	130	5	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T134	*Eucalyptus camaldulensis*	赤桉	210	5	17	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T135	*Eucalyptus camaldulensis*	赤桉	200	5	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T136	*Eucalyptus camaldulensis*	赤桉	230	6	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 1 (Castle Peak Road - Tam Mi, Mai Po)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
1-T137	*Cassia surattensis*	黃槐	110	3	5	Fair	Poor	Low	Medium	Transplant	CE22/2006/MP/T/0003A
1-T138	*Bauhinia blakeana*	洋紫荊	120	4	7	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T139	*Albizia lebbek*	大葉合歡	290	9	14	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T140	*Albizia lebbek*	大葉合歡	370	8	13	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T141	*Bauhinia blakeana*	洋紫荊	130	6	9	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T142	*Bauhinia blakeana*	洋紫荊	130	4	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T143	*Bauhinia blakeana*	洋紫荊	130	5	9	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T144	*Melaleuca quinquenevia*	白千層	110	2	7	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
1-T145	*Dimocarpus longan*	龍眼	130	2	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0003A
1-T146	*Artocarpus macrocarpus*	波羅蜜	100	2	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T147	*Artocarpus macrocarpus*	波羅蜜	100	1	3	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T148	*Dimocarpus longan*	龍眼	140	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0003A
1-T149	*Citrus maxima*	柚	140	2	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T150	*Morus alba*	桑	130	3	4	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
1-T151	*Casaurina equisetifolia*	木麻黃	200	7	15	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T152	*Acacia auriculiformis*	耳果相思	150	3	2	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T153	*Acacia auriculiformis*	耳果相思	240	3	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T154	*Acacia auriculiformis*	耳果相思	240	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T155	*Casaurina equisetifolia*	木麻黃	130	4	3	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T156	*Acacia auriculiformis*	耳果相思	150	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T157	*Acacia auriculiformis*	耳果相思	150	5	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T158	*Acacia auriculiformis*	耳果相思	140	4	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T159	*Acacia auriculiformis*	耳果相思	130	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T160	*Acacia auriculiformis*	耳果相思	150	4	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T161	*Acacia auriculiformis*	耳果相思	240	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
*1-T162	*Leucaena leucocephala*	銀合歡	95	3	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
1-T163	*Eucalyptus camaldulensis*	赤桉	140	6	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T164	*Eucalyptus camaldulensis*	赤桉	140	6	10	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T165	*Hibiscus tiliaceus*	黃槿	240	6	11	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T166	*Eucalyptus camaldulensis*	赤桉	450	8	13	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T167	*Eucalyptus camaldulensis*	赤桉	110	5	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 1 (Castle Peak Road - Tam Mi, Mai Po)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
1-T168	*Eucalyptus camaldulensis*	赤桉	170	5	10	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T169	*Eucalyptus camaldulensis*	赤桉	270	3	7	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T170	*Eucalyptus camaldulensis*	赤桉	260	3	8	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T171	*Eucalyptus camaldulensis*	赤桉	250	4	12	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T172	*Eucalyptus camaldulensis*	赤桉	250	7	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T173	*Albizia lebbek*	大葉合歡	150	2	4	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T174	*Eucalyptus camaldulensis*	赤桉	160	3	3	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T175	*Eucalyptus camaldulensis*	赤桉	220	2	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T176	*Eucalyptus camaldulensis*	赤桉	270	3	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T177	*Eucalyptus camaldulensis*	赤桉	170	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T178	*Eucalyptus camaldulensis*	赤桉	150	3	6	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
1-T179	*Eucalyptus camaldulensis*	赤桉	240	2	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T180	*Eucalyptus camaldulensis*	赤桉	170	2	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T181	*Eucalyptus camaldulensis*	赤桉	240	2	12	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T182	*Eucalyptus camaldulensis*	赤桉	200	2	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T183	*Eucalyptus camaldulensis*	赤桉	240	3	12	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T184	*Eucalyptus camaldulensis*	赤桉	190	2	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T185	*Eucalyptus camaldulensis*	赤桉	220	2	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T186	*Eucalyptus camaldulensis*	赤桉	200	2	9	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T187	*Eucalyptus camaldulensis*	赤桉	320	3	10	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0003A
1-T188	*Ficus microcarpus*	細葉榕	170	2	6	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0003A
1-T189	*Hibiscus tiliaceus*	黃槿	270	3	9	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
1-T201	*Albizia lebbeck*	大葉合歡	470	13	15	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0003A
1-T202	*Ficus microcarpa*	細葉榕	500	5	15	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
1-T203	*Albizia julibrissin*	合歡	600	8	15	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0003A
1-T204	*Mangifera indica*	芒果	800	5	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
1-T205	*Albizia julibrissin*	合歡	900	10	15	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0003A

Tree numbers not used:
1-T001 to 1-T006, 1-T009 to 1-T039, 1-T042 to 1-T100, 1-T102 to 1-T106, 1-T109 to 1-T112, 1-T190 to 1-T200

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-I Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T025	*Acacia auriculiformis*	耳果相思	210	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T057	*Leucaena leucocephala*	銀合歡	130	7	13	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T073	*Ficus microcarpa*	細葉榕	490	7	12	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
# 2-T074	*Ficus microcarpa*	細葉榕	1980	10	13	Fair	Fair	High	High	Retain	CE22/2006/MP/T/0003A
2-T076	*Ficus microcarpa*	細葉榕	860	7.2	15	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
* 2-T079	*Leucaena leucocephala*	銀合歡	110	4.5	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T080	*Leucaena leucocephala*	銀合歡	240	5.2	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T084	*Leucaena leucocephala*	銀合歡	110	3.4	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T085	*Leucaena leucocephala*	銀合歡	230	5	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T087	*Leucaena leucocephala*	銀合歡	120	2.8	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T088	*Bombax ceiba*	木棉	200	6.1	12	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
* 2-T090	*Leucaena leucocephala*	銀合歡	190	7.1	13	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T091	*Bombax ceiba*	木棉	170	6	11	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
* 2-T092	*Leucaena leucocephala*	銀合歡	580	7	9	Poor	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T093	*Leucaena leucocephala*	銀合歡	160	6.7	11	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T094	*Bombax ceiba*	木棉	160	4	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
* 2-T105	*Leucaena leucocephala*	銀合歡	170	6.4	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T106	*Leucaena leucocephala*	銀合歡	150	3.8	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T108	*Syzygium jambos*	蒲桃	480	12.1	12	Fair	Fair	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T109	*Bombax ceiba*	木棉	270	6.3	15	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0003A
2-T111	*Melia azedarach*	楝	320	7.1	15	Fair	Poor	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T112	*Hibiscus tiliaceus*	黃槿	320	10.1	15	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T113	*Hibiscus tiliaceus*	黃槿	300	13	11	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T114	*Ficus superba var. japonica*	筆管榕	130	10.5	7	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T115	*Cinnamomum camphora*	樟	830	10.9	17	Good	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T116	*Albizia lebbek*	大葉合歡	350	17.1	17	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T117	*Melia azedarach*	楝	480	12.4	17	Fair	Fair	High	Medium	Transplant	CE22/2006/MP/T/0003A
2-T118	*Bombax ceiba*	木棉	190	8.1	9	Fair	Poor	Medium	High	Fell	CE22/2006/MP/T/0003A
# 2-T119	*Chrysalidocarpus lutescens*	散尾葵	1100	6	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T120	*Chrysalidocarpus lutescens*	散尾葵	890	4	11	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T121	*Chrysalidocarpus lutescens*	散尾葵	390	3	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T122	*Chrysalidocarpus lutescens*	散尾葵	390	5	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T123	*Michelia alba*	白蘭	190	3.8	5	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T125	*Dead Tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0003A
2-T126	*Casaurina equisetifolia*	木麻黃	340	11	15	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T127	*Albizia lebbek*	大葉合歡	340	7.3	15	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T128	*Lophostemon confertus*	紅膠木	190	6	9	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T129	*Albizia lebbek*	大葉合歡	380	5.1	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T130	*Albizia lebbek*	大葉合歡	520	14.7	15	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T131	*Acacia auriculiformis*	耳果相思	140	5.6	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T132	*Albizia lebbek*	大葉合歡	360	9.3	11	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T134	*Albizia lebbek*	大葉合歡	870	20.3	12	Good	Poor	Medium	Medium	Retain	CE22/2006/MP/T/0003A
2-T135	*Macaranga tanarius*	血桐	180	5.6	7	Fair	Fair	Low	Low	Retain	CE22/2006/MP/T/0003A
2-T136	*Celtis sinensis*	朴	190	6.2	8	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T137	*Aleurites moluccana*	石栗	420	12.7	12	Good	Fair	High	High	Retain	CE22/2006/MP/T/0003A
2-T138	*Celtis sinensis*	朴	340	12.8	8	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T139	*Celtis sinensis*	朴	620	17.9	13	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T140	*Celtis sinensis*	朴	190	5.6	9	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T141	*Celtis sinensis*	朴	320	7.5	11	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T142	*Celtis sinensis*	朴	420	14.5	11	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T143	*Bauhinia blakeana*	洋紫荊	120	4.6	4	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0003A
2-T144	*Bauhinia blakeana*	洋紫荊	230	6.6	6	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0003A
2-T145	*Bauhinia blakeana*	洋紫荊	140	9.6	7	Fair	Poor	Low	Medium	Retain	CE22/2006/MP/T/0003A
2-T146	*Bauhinia purpurea*	紅花羊蹄甲	170	6	7	Fair	Poor	Low	Medium	Retain	CE22/2006/MP/T/0003A
2-T147	*Celtis sinensis*	朴	720	9.8	12	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T148	*Celtis sinensis*	朴	760	10	14	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T149	*Celtis sinensis*	朴	750	11.1	13	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T150	*Hibiscus tiliaceus*	黃槿	350	5.3	6	Fair	Poor	Low	Medium	Retain	CE22/2006/MP/T/0003A
2-T151	*Celtis sinensis*	朴	480	11.2	11	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T152	*Celtis sinensis*	朴	590	14.3	11	Good	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T153	*Hibiscus tiliaceus*	黃槿	290	9.6	7	Fair	Fair	Low	Medium	Retain	CE22/2006/MP/T/0003A
2-T154	*Lagerstroemia speciosa*	大花紫薇	150	5.2	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T157	*Bauhinia variegata*	宮粉羊蹄甲	280	9.6	9	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T158	*Celtis sinensis*	朴	150	5.2	9	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T159	*Celtis sinensis*	朴	420	13	9	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T160	*Celtis sinensis*	朴	140	4.4	8	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T161	*Dead Tree*	-	-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0004A
2-T162	*Acacia auriculiformis*	耳果相思	230	6.1	11	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T163	*Acacia auriculiformis*	耳果相思	220	7	11	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T164	*Acacia auriculiformis*	耳果相思	190	5	11	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T165	*Acacia auriculiformis*	耳果相思	190	2.2	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T166	*Acacia auriculiformis*	耳果相思	160	6.2	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T167	*Macaranga tanarius*	血桐	360	10.6	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T168	*Dimocarpus longan*	龍眼	180	4	4	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T169	*Macaranga tanarius*	血桐	190	9	6	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T170	*Macaranga tanarius*	血桐	240	9.4	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T171	*Celtis sinensis*	朴	140	6.8	7	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T172	*Ficus hispida*	對葉榕	160	7.4	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T173	*Ficus hispida*	對葉榕	160	7.4	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T174	*Celtis sinensis*	朴	320	10.8	10	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T175	*Cratoxylum cochinchinensis*	黃牛木	210	5.5	9	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
# 2-T176	*Ficus superba var. japonica*	筆管榕	1700	15	15	Good	Fair	High	High	Retain	CE22/2006/MP/T/0004A
2-T177	*Melaleuca quinquenevia*	白千層	210	3.7	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T178	*Melaleuca quinquenevia*	白千層	170	2.8	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T179	*Melaleuca quinquenevia*	白千層	250	3.7	9	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T180	*Melaleuca quinquenevia*	白千層	160	4.5	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T181	*Melaleuca quinquenevia*	白千層	160	4.2	9	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T182	*Melaleuca quinquenevia*	白千層	190	4.6	11	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T183	*Melaleuca quinquenevia*	白千層	180	4.4	11	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T184	*Melaleuca quinquenevia*	白千層	210	4.7	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T185	*Chukrasia tabularia*	麻楝	140	6	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T186	*Eucalyptus citriodora*	檸檬桉	240	6.1	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T187	*Chukrasia tabularia*	麻楝	210	5.5	11	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T188	*Eucalyptus citriodora*	檸檬桉	280	9.1	16	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T189	*Chukrasia tabularia*	麻楝	90	5.1	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T190	*Eucalyptus citriodora*	檸檬桉	230	4	11	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T191	*Spathodea campanulata*	火焰木	140	3.6	9	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T192	*Chukrasia tabularia*	麻楝	180	5.3	9	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T193	*Chukrasia tabularia*	麻楝	170	6.2	9	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T194	*Eucalyptus citriodora*	檸檬桉	240	6.2	18	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T195	*Chukrasia tabularia*	麻楝	120	5.5	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T196	*Eucalyptus citriodora*	檸檬桉	150	5.8	18	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T197	*Chukrasia tabularia*	麻楝	200	5.5	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T198	*Hibiscus tiliaceus*	黃槿	360	10.2	12	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T199	*Dead Tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T200	*Hibiscus tiliaceus*	黃槿	320	9.7	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T201	*Hibiscus tiliaceus*	黃槿	300	12.2	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T202	*Hibiscus tiliaceus*	黃槿	140	4	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T203	*Hibiscus tiliaceus*	黃槿	250	12.5	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T204	*Khaya senegalensis*	非洲楝	140	4.4	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T205	*Bauhinia blakeana*	洋紫荊	130	4	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T206	*Khaya senegalensis*	非洲楝	250	5.5	15	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T207	*Bauhinia blakeana*	洋紫荊	180	4.4	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T208	*Bauhinia blakeana*	洋紫荊	150	5.2	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T209	*Albizia lebbek*	大葉合歡	340	8.8	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T210	*Albizia lebbek*	大葉合歡	360	5.5	11	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T211	*Albizia lebbek*	大葉合歡	370	13	12	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T212	*Albizia lebbek*	大葉合歡	360	6.3	12	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T213	*Mangifera indica*	芒果	190	6.5	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T214	*Mangifera indica*	芒果	250	5.7	12	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T215	*Albizia lebbek*	大葉合歡	290	8	12	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T216	*Macaranga tanarius*	血桐	230	7	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
* 2-T217	*Leucaena leucocephala*	銀合歡	200	10	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
* 2-T218	*Leucaena leucocephala*	銀合歡	310	11.1	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T219	*Mangifera indica*	芒果	180	5.4	9	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T220	*Mangifera indica*	芒果	140	3.9	10	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0004A
2-T221	*Dead Tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0004A
2-T222	*Mangifera indica*	芒果	130	2	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T223	*Macaranga tanarius*	血桐	170	6.1	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T224	*Bauhinia blakeana*	洋紫荊	220	7	9	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T225	*Roystonea regia*	王棕	200	5	9	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T226	*Roystonea regia*	王棕	300	6	9	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T227	*Livistona chinensis*	蒲葵	220	2.5	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T228	*Livistona chinensis*	蒲葵	240	3	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T229	*Ravenala madagascariensis*	旅人蕉	380	5.1	9	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T230	*Roystonea regia*	王棕	280	5.3	9	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T231	*Roystonea regia*	王棕	390	6.4	9	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T232	*Roystonea regia*	王棕	360	6.5	11	Good	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
2-T233	*Ravenala madagascariensis*	旅人蕉	290	7.6	9	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T234	*Cinnamomum camphora*	樟	520	15.3	12	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T235	*Eucalyptus citriodora*	檸檬桉	240	8.8	25	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T236	*Eucalyptus citriodora*	檸檬桉	190	7.8	16	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T237	*Eucalyptus citriodora*	檸檬桉	190	5.3	11	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T238	*Eucalyptus citriodora*	檸檬桉	210	6.7	16	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T239	*Eucalyptus citriodora*	檸檬桉	230	9.1	17	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T240	*Eucalyptus citriodora*	檸檬桉	200	10.5	17	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T241	*Eucalyptus citriodora*	檸檬桉	100	2.5	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T242	*Eucalyptus citriodora*	檸檬桉	100	5	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T243	*Eucalyptus citriodora*	檸檬桉	110	3.2	12	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T244	*Eucalyptus citriodora*	檸檬桉	190	4.8	23	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T245	*Eucalyptus citriodora*	檸檬桉	180	6.5	20	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T246	*Eucalyptus citriodora*	檸檬桉	190	5.6	23	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T247	*Eucalyptus citriodora*	檸檬桉	220	6.2	23	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T248	*Eucalyptus citriodora*	檸檬桉	170	7.7	18	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T249	*Eucalyptus citriodora*	檸檬桉	250	8.4	20	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T250	*Eucalyptus citriodora*	檸檬桉	170	3.3	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T251	*Eucalyptus citriodora*	檸檬桉	190	2.5	20	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T252	*Eucalyptus citriodora*	檸檬桉	180	3.1	18	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T253	*Eucalyptus citriodora*	檸檬桉	190	3.6	22	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T254	*Eucalyptus citriodora*	檸檬桉	190	5.4	25	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T255	*Eucalyptus citriodora*	檸檬桉	210	4.4	18	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T256	*Eucalyptus citriodora*	檸檬桉	220	6.5	12	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T257	*Eucalyptus citriodora*	檸檬桉	330	7.1	15	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0004A
2-T258	*Eucalyptus citriodora*	檸檬桉	270	6.1	15	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T259	*Celtis sinensis*	朴	470	18	10	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T301	*Acacia auriculiformis*	耳果相思	160	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T302	*Macaranga tanarius*	血桐	160	6	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T303	*Acacia auriculiformis*	耳果相思	230	6	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T304	*Acacia auriculiformis*	耳果相思	156	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T305	*Bauhinia purpurea*	紅花羊蹄甲	100	8	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T306	*Hibiscus tiliaceus*	黃槿	140	6	3	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T307	*Bauhinia purpurea*	紅花羊蹄甲	115	3	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T308	*Ficus hispida*	對葉榕	130	5	4	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
2-T309	*Morus alba*	桑	180	4	7	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T310	*Bauhinia purpurea*	紅花羊蹄甲	100	3	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T311	*Salix babylonica*	垂柳	170	6	7	Fair	Fair	Medium	Low	Retain	CE22/2006/MP/T/0003A
2-T312	*Ficus elastica*	印度橡樹	380	7	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0003A
2-T313	*Ficus elastica*	印度橡樹	400	8	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T314	*Citrus maxima*	柚	160	3	4	Fair	Fair	Low	Low	Transplant	CE22/2006/MP/T/0003A
2-T315	*Chukrasia tabularia*	麻楝	160	4	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
* 2-T316	*Leucaena leucocephala*	銀合歡	160	4	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T317	*Clausena lansium*	黃皮	100	7	12	Fair	Fair	Low	Low	Transplant	CE22/2006/MP/T/0003A
2-T318	*Acacia auriculiformis*	耳果相思	300	7	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T319	*Albizia lebbek*	大葉合歡	280	8	11	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T320	*Melia azedarach*	楝	250	6	13	Fair	Poor	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
* 2-T321	*Leucaena leucocephala*	銀合歡	160	1	2	Poor	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T322	*Albizia lebbek*	大葉合歡	240	5	11	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T323	*Acacia confusa*	台灣相思	270	6	11	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T324	*Albizia lebbek*	大葉合歡	180	5	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
2-T325	*Ficus microcarpa*	細葉榕	160	6	11	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0003A
2-T326	*Acacia auriculiformis*	耳果相思	100	4	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T327	*Leucaena leucocephala*	銀合歡	140	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T328	*Albizia lebbek*	大葉合歡	200	5	9	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T329	*Albizia lebbek*	大葉合歡	140	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
* 2-T330	*Leucaena leucocephala*	銀合歡	120	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T331	*Leucaena leucocephala*	銀合歡	100	4	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T332	*Leucaena leucocephala*	銀合歡	150	3	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
* 2-T333	*Leucaena leucocephala*	銀合歡	150	3	3	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T334	*Albizia lebbek*	大葉合歡	120	4	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T335	*Albizia lebbek*	大葉合歡	172	7	11	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T337	*Albizia lebbek*	大葉合歡	120	3	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T338	*Melia azedarach*	楝	120	3	7	Fair	Poor	Medium	Medium	Transplant	CE22/2006/MP/T/0003A
* 2-T339	*Leucaena leucocephala*	銀合歡	140	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T340	*Artocarpus macrocarpus*	波羅蜜	150	2	5	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0003A
2-T341	*Cinnamomum camphora*	樟	240	8	12	Good	Fair	High	Low	Retain	CE22/2006/MP/T/0003A
2-T342	*Litchi chinensis*	荔枝	150	3	4	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0003A
2-T343	*Macaranga tanarius*	血桐	500	5	6	Fair	Poor	Low	Low	Retain	CE22/2006/MP/T/0003A
2-T344	*Macaranga tanarius*	血桐	100	8	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T345	*Macaranga tanarius*	血桐	100	6	7	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T346	*Macaranga tanarius*	血桐	120	7	7	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T347	*Macaranga tanarius*	血桐	110	6	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T348	*Macaranga tanarius*	血桐	110	6	8	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T349	*Macaranga tanarius*	血桐	190	10	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T350	*Macaranga tanarius*	血桐	140	8	6	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T351	*Macaranga tanarius*	血桐	150	6	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T352	*Macaranga tanarius*	血桐	200	6	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T353	*Celtis sinensis*	朴	360	10	6	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T354	*Celtis sinensis*	朴	300	10	10	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T355	*Celtis sinensis*	朴	520	12	12	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T356	*Macaranga tanarius*	血桐	230	8	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T357	*Acacia auriculiformis*	耳果相思	190	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T358	*Celtis sinensis*	朴	-	7	9	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T359	*Celtis sinensis*	朴	250	10	12	Good	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T360	*Hibiscus tiliaceus*	黃槿	240	7	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T361	*Melia azedarach*	楝	180	3	8	Fair	Poor	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T362	*Hibiscus tiliaceus*	黃槿	160	6	5	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T363	*Melaleuca quinquenevia*	白千層	600	7	16	Good	Fair	High	High	Retain	CE22/2006/MP/T/0004A
2-T364	*Microcos paniculata*	布渣葉	110	6	7	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T365	*Melaleuca quinquenevia*	白千層	500	11	14	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T366	*Celtis sinensis*	朴	150	6	10	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0004A
2-T367	*Melaleuca quinquenevia*	白千層	350	6	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T368	*Melaleuca quinquenevia*	白千層	220	7	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T369	*Melaleuca quinquenevia*	白千層	300	7	13	Good	Fair	High	High	Retain	CE22/2006/MP/T/0004A
2-T370	*Melaleuca quinquenevia*	白千層	450	6	14	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T371	*Celtis sinensis*	朴	250	8	12	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T372	*Celtis sinensis*	朴	220	7	11	Fair	Poor	Medium	Low	Retain	CE22/2006/MP/T/0004A
2-T373	*Melaleuca quinquenevia*	白千層	600	8	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T376	*Ficus virens var. sublanceolata*	大葉榕	400	10	13	Good	Good	High	High	Retain	CE22/2006/MP/T/0004A
2-T377	*Ficus microcarpa*	細葉榕	200	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T378	*Ficus microcarpa*	細葉榕	220	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T379	*Ficus microcarpa*	細葉榕	110	5	5	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T380	*Ficus microcarpa*	細葉榕	180	3	5	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T381	*Ficus microcarpa*	細葉榕	250	5	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T382	*Ficus microcarpa*	細葉榕	130	3	5	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T383	*Ficus microcarpa*	細葉榕	150	3	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T384	*Ficus microcarpa*	細葉榕	150	3	5	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T385	*Ficus microcarpa*	細葉榕	200	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T386	*Ficus microcarpa*	細葉榕	180	3	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T387	*Ficus microcarpa*	細葉榕	200	5	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T388	*Ficus microcarpa*	細葉榕	150	3	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T389	*Ficus microcarpa*	細葉榕	230	6	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T390	*Ficus microcarpa*	細葉榕	180	7	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T391	*Ficus microcarpa*	細葉榕	200	8	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T392	*Ficus microcarpa*	細葉榕	200	7	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T393	*Albizia lebbek*	大葉合歡	350	7	12	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T394	*Albizia lebbek*	大葉合歡	260	6	12	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T395	*Bauhinia blakeana*	洋紫荊	170	6	8	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T396	*Melaleuca quinquenevia*	白千層	180	4	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T397	*Livistona chinensis*	蒲葵	160	2	3	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T398	*Roystonea regia*	王棕	190	4	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T399	*Melaleuca quinquenevia*	白千層	200	3	7	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T400	*Melaleuca quinquenevia*	白千層	200	3	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T401	*Melaleuca quinquenevia*	白千層	210	3	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T402	*Melaleuca quinquenevia*	白千層	210	2	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T403	*Melaleuca quinquenevia*	白千層	200	2	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T404	*Melaleuca quinquenevia*	白千層	200	2	7	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T405	*Roystonea regia*	王棕	280	3	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T406	*Macaranga tanarius*	血桐	110	5	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0004A
2-T407	*Eucalyptus citriodora*	檸檬桉	160	5	13	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T408	*Eucalyptus citriodora*	檸檬桉	230	5	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0004A
2-T415	*Melaleuca quinquenevia*	白千層	320	6	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0004A
2-T429	*Bauhinia blakeana*	洋紫荊	160	7	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
2-T430	*Bauhinia blakeana*	洋紫荊	150	3	4	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T431	*Bauhinia blakeana*	洋紫荊	160	5	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0004A
2-T488	*Macaranga tanarius*	血桐	180	8	5	Poor	Poor	Low	Low	Fell	CE22/2006/MP/T/0003A
2-T489	*Cinnamomum aromaticm*	陰香	110	4	4	Fair	Poor	Medium	Medium	Fell	CE22/2006/MP/T/0003A
2-T490	*Delonix regia*	鳳凰木	600	15	15	Good	Good	High	High	Transplant	CE22/2006/MP/T/0003A
2-T491	*Syzygium firmum*	海蒲桃	110	3	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
2-T492	*Macaranga tanarius*	血桐	180	2	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
2-T493	*Macaranga tanarius*	血桐	200	3	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 2 (Castle Peak Road - Mai Po, San Tin)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
2-T494	*Celtis sinensis*	朴	400	5	5	Fair	Poor	Medium	Medium	Fell	CE22/2006/MP/T/0012A
2-T495	*Macaranga tanurius*	血桐	210	5	6	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
2-T496	*Cinnamomum aromaticm*	陰香	150	3	4	Fair	Poor	Medium	Medium	Fell	CE22/2006/MP/T/0012A
2-T497	*Macaranga tanarius*	血桐	140	5	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
2-T498	*Macaranga tanarius*	血桐	120	5	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
2-T499	*Macaranga tanarius*	血桐	130	6	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A

Tree numbers not used:
2-T001 to 2-T024, 2-T026 to 2-T056, 2-T058 to 2-T072, 2-T075, 2-T077, 2-T078, 2-T081 to 2-T083, 2-T089, 2-T095 to 2-T104, 2-T110, 2-T133, 2-T155, 2-T156, 2-T260 to 2-T300, 2-T336, 2-T374, 2-T375, 2-T409 to 2-T414, 2-T416 to 2-T428, 2-T432 to 2-T487

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T051	*Casaurina equisetifolia*	木麻黃	300	9.6	23	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T052	*Casaurina equisetifolia*	木麻黃	280	5.8	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T053	*Casaurina equisetifolia*	木麻黃	290	4.5	22	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T054	*Casaurina equisetifolia*	木麻黃	220	10.1	24	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T055	*Casaurina equisetifolia*	木麻黃	270	9.9	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T071	*Cinnamomum camphora*	樟	120	4.1	9	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T072	*Casaurina equisetifolia*	木麻黃	320	13.3	22	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T073	*Ficus supera var. japonica*	雀榕	350	8.7	7	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T074	*Casaurina equisetifolia*	木麻黃	290	9.8	22	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T075	*Ficus supera var. japonica*	雀榕	240	10.1	7	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0005A
* 3-T076	*Leucaena leucocephala*	銀合歡	340	10.6	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T077	*Cinnamomum camphora*	樟	150	2.4	6	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T078	*Cinnamomum camphora*	樟	140	3.1	8	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T079	*Cinnamomum camphora*	樟	140	5.1	9	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T080	*Ficus benjamina*	垂葉榕	420	5.2	9	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T081	*Ficus benjamina*	垂葉榕	400	5.9	9	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T082	*Ficus benjamina*	垂葉榕	560	11.1	8	Fair	Fair	Medium	High	Retain	CE22/2006/MP/T/0005A
3-T083	*Ficus benjamina*	垂葉榕	590	9.4	10	Fair	Poor	Low	High	Retain	CE22/2006/MP/T/0005A
3-T084	*Ficus benjamina*	垂葉榕	720	13.5	10	Fair	Fair	Medium	High	Retain	CE22/2006/MP/T/0005A
3-T085	*Ficus benjamina*	垂葉榕	620	14.2	10	Fair	Fair	Medium	High	Retain	CE22/2006/MP/T/0005A
* 3-T086	*Leucaena leucocephala*	銀合歡	150	6.8	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
* 3-T087	*Leucaena leucocephala*	銀合歡	160	7.1	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T088	*Casaurina equisetifolia*	木麻黃	240	4.2	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T089	*Casaurina equisetifolia*	木麻黃	230	2.4	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T090	*Casaurina equisetifolia*	木麻黃	180	2.4	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T091	*Casaurina equisetifolia*	木麻黃	100	8.1	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T092	*Casaurina equisetifolia*	木麻黃	140	11.7	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T093	*Casaurina equisetifolia*	木麻黃	260	4.8	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T094	*Casaurina equisetifolia*	木麻黃	170	2.7	13	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T095	*Casaurina equisetifolia*	木麻黃	100	2	11	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T096	*Casaurina equisetifolia*	木麻黃	110	6.2	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T097	*Casaurina equisetifolia*	木麻黃	200	5.8	11	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T098	*Casaurina equisetifolia*	木麻黃	160	2.6	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T099	*Casaurina equisetifolia*	木麻黃	160	5.1	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A

Note:
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Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T100	*Casaurina equisetifolia*	木麻黃	220	4.1	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T101	*Casaurina equisetifolia*	木麻黃	230	5.8	14	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T102	*Casaurina equisetifolia*	木麻黃	180	3	11	Fair	Poor	Low	Luw	Fell	CE22/2006/MP/T/0005A
3-T103	*Casaurina equisetifolia*	木麻黃	130	5.3	11	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T104	*Casaurina equisetifolia*	木麻黃	170	5.4	13	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T105	*Casaurina equisetifolia*	木麻黃	130	6.3	9	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T106	*Casaurina equisetifolia*	木麻黃	150	6.6	13	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T107	*Casaurina equisetifolia*	木麻黃	240	6.3	15	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T108	*Casaurina equisetifolia*	木麻黃	140	5.5	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T109	*Casaurina equisetifolia*	木麻黃	160	2.5	13	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T110	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T111	*Casaurina equisetifolia*	木麻黃	230	5	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T112	*Casaurina equisetifolia*	木麻黃	210	6.9	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T113	*Casaurina equisetifolia*	木麻黃	240	5.4	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T114	*Casaurina equisetifolia*	木麻黃	250	6.2	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T115	*Casaurina equisetifolia*	木麻黃	180	8.3	15	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T116	*Casaurina equisetifolia*	木麻黃	250	5.5	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T117	*Casaurina equisetifolia*	木麻黃	230	5.3	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T137	*Casaurina equisetifolia*	木麻黃	310	3.8	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T138	*Casaurina equisetifolia*	木麻黃	280	3.6	24	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T139	*Casaurina equisetifolia*	木麻黃	140	4.2	22	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T140	*Casaurina equisetifolia*	木麻黃	210	3.3	24	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T141	*Casaurina equisetifolia*	木麻黃	200	4.1	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T142	*Casaurina equisetifolia*	木麻黃	260	3.6	21	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T143	*Casaurina equisetifolia*	木麻黃	250	3.7	21	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T144	*Casaurina equisetifolia*	木麻黃	240	6.2	19	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T145	*Ficus microcarpa*	細葉榕	180	4.8	13	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
* 3-T146	*Leucaena leucocephala*	銀合歡	190	4.2	14	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T147	*Ficus microcarpa*	細葉榕	190	3.7	14	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T148	*Chukrasia tabularia*	麻楝	160	3.3	13	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T150	*Melaleuca quinquenevia*	白千層	180	3.4	17	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T151	*Melaleuca quinquenevia*	白千層	170	3	16	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T152	*Chukrasia tabularia*	麻楝	320	3.5	20	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T153	*Melaleuca quinquenevia*	白千層	210	3.3	17	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T154	*Melaleuca quinquenevia*	白千層	170	2.9	18	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T155	*Ficus benjamina*	垂葉榕	240	3.2	18	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T156	*Melaleuca quinquenevia*	白千層	220	3.8	13	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T157	*Melaleuca quinquenevia*	白千層	230	3.5	14	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T158	*Melaleuca quinquenevia*	白千層	190	3.7	16	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T159	*Melaleuca quinquenevia*	白千層	230	4	14	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T160	*Ficus microcarpa*	細葉榕	220	3.8	12	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T161	*Chukrasia tabularia*	麻楝	230	5.8	14	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T162	*Melaleuca quinquenevia*	白千層	270	7.3	15	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T163	*Melaleuca quinquenevia*	白千層	230	6.2	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T164	*Melaleuca quinquenevia*	白千層	180	5.9	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T165	*Melaleuca quinquenevia*	白千層	170	2	5	Poor	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T166	*Casaurina equisetifolia*	木麻黃	140	2.8	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T167	*Casaurina equisetifolia*	木麻黃	160	3.7	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T168	*Casaurina equisetifolia*	木麻黃	170	3.5	19	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T169	*Casaurina equisetifolia*	木麻黃	180	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T170	*Casaurina equisetifolia*	木麻黃	200	6.2	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T171	*Casaurina equisetifolia*	木麻黃	120	3.8	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T172	*Casaurina equisetifolia*	木麻黃	170	4	25	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T173	*Casaurina equisetifolia*	木麻黃	170	3.9	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T174	*Casaurina equisetifolia*	木麻黃	240	4	18	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T175	*Casaurina equisetifolia*	木麻黃	200	5.8	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T176	*Casaurina equisetifolia*	木麻黃	230	3.7	19	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T177	*Casaurina equisetifolia*	木麻黃	170	2.9	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T178	*Casaurina equisetifolia*	木麻黃	180	3.6	20	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T179	*Casaurina equisetifolia*	木麻黃	230	4.8	18	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T180	*Casaurina equisetifolia*	木麻黃	180	4.4	22	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T181	*Casaurina equisetifolia*	木麻黃	140	3.3	20	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T182	*Casaurina equisetifolia*	木麻黃	150	3	18	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T183	*Casaurina equisetifolia*	木麻黃	170	4.2	4	Poor	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T184	*Casaurina equisetifolia*	木麻黃	150	4	18	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T185	*Casaurina equisetifolia*	木麻黃	200	4.9	26	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T186	*Casaurina equisetifolia*	木麻黃	180	3.2	22	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T187	*Casaurina equisetifolia*	木麻黃	220	4.1	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T188	*Casaurina equisetifolia*	木麻黃	260	3.9	13	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T189	*Casaurina equisetifolia*	木麻黃	200	4.5	15	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T190	*Casaurina equisetifolia*	木麻黃	210	4.6	19	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T191	*Casaurina equisetifolia*	木麻黃	150	2.9	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T192	*Casaurina equisetifolia*	木麻黃	160	3.4	14	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T193	*Casaurina equisetifolia*	木麻黃	130	3.7	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T194	*Casaurina equisetifolia*	木麻黃	130	6.3	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T195	*Casaurina equisetifolia*	木麻黃	160	5.4	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T196	*Casaurina equisetifolia*	木麻黃	140	5.6	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T197	*Casaurina equisetifolia*	木麻黃	140	5.4	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T198	*Casaurina equisetifolia*	木麻黃	140	5.2	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T199	*Casaurina equisetifolia*	木麻黃	190	6.8	24	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T200	*Casaurina equisetifolia*	木麻黃	240	5.2	14	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T201	*Casaurina equisetifolia*	木麻黃	180	5.4	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T202	*Casaurina equisetifolia*	木麻黃	120	5.2	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T203	*Casaurina equisetifolia*	木麻黃	200	8.9	26	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T204	*Casaurina equisetifolia*	木麻黃	130	6.4	20	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T205	*Casaurina equisetifolia*	木麻黃	170	5.6	22	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T206	*Casaurina equisetifolia*	木麻黃	160	7.2	23	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T207	*Melia azedarach*	楝	420	8.2	20	Fair	Fair	High	Medium	Transplant	CE22/2006/MP/T/0005A
3-T208	*Casaurina equisetifolia*	木麻黃	180	4.8	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T209	*Casaurina equisetifolia*	木麻黃	370	5.4	32	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T210	*Casaurina equisetifolia*	木麻黃	230	4.4	32	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T211	*Casaurina equisetifolia*	木麻黃	290	5	22	Fair	Good	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T212	*Acacia confusa*	台灣相思	160	5	20	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T213	*Casaurina equisetifolia*	木麻黃	330	2.9	35	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T214	*Casaurina equisetifolia*	木麻黃	150	5.6	33	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T215	*Casaurina equisetifolia*	木麻黃	280	6.8	25	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
*3-T216	*Leucaena leucocephala*	銀合歡	230	6.2	26	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T217	*Cinnamomum camphora*	樟	270	5.4	28	Fair	Poor	Medium	low	Fell	CE22/2006/MP/T/0005A
3-T218	*Casaurina equisetifolia*	木麻黃	300	6.9	30	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T219	*Casaurina equisetifolia*	木麻黃	290	6	28	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T220	*Casaurina equisetifolia*	木麻黃	390	5.7	32	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T221	*Melaleuca quinquenevia*	白千層	130	2.4	16	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T222	*Cassia surattensis*	黃槐	140	7.7	15	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T223	*Casaurina equisetifolia*	木麻黃	350	8.1	35	Fair	Good	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T224	*Casaurina equisetifolia*	木麻黃	270	6.9	30	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T225	*Casaurina equisetifolia*	木麻黃	280	6.3	32	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T226	*Casaurina equisetifolia*	木麻黃	290	7.5	30	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T227	*Casaurina equisetifolia*	木麻黃	240	8.2	30	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T228	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T229	*Casaurina equisetifolia*	木麻黃	270	5.4	34	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T230	*Casaurina equisetifolia*	木麻黃	190	7.6	31	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T231	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T232	*Unknown*	未確認	130	4.8	22	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T233	*Acacia confusa*	台灣相思	250	2.9	29	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T234	*Casaurina equisetifolia*	木麻黃	280	3.4	35	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T235	*Melaleuca quinquenevia*	白千層	390	4.5	36	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T236	*Melaleuca quinquenevia*	白千層	130	4.4	12	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T237	*Melaleuca quinquenevia*	白千層	220	6.5	13	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T238	*Cassia surattensis*	黃槐	190	4.2	14	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T239	*Bombax ceiba*	木棉	110	3.1	3	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T240	*Casaurina equisetifolia*	木麻黃	150	7.8	19	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T241	*Casaurina equisetifolia*	木麻黃	270	8.5	29	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T242	*Casaurina equisetifolia*	木麻黃	300	6.5	28	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T243	*Acacia confusa*	台灣相思	560	14.2	30	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T244	*Acacia confusa*	台灣相思	420	8.1	32	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T245	*Roystonea regia*	王棕	430	9.2	17	Good	Fair	High	High	Retain	CE22/2006/MP/T/0005A
3-T276	*Cinnamomum burmannii*	陰香	140	5.8	15	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T277	*Cinnamomum burmannii*	陰香	150	6.2	17	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T278	*Cinnamomum burmannii*	陰香	130	5.5	14	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T279	*Cinnamomum burmannii*	陰香	130	5.7	15	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T280	*Liquidambar formosana*	楓香	280	4.9	18	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T281	*Cinnamomum burmannii*	陰香	140	5.6	14	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T283	*Liquidambar formosana*	楓香	270	7.2	16	Fair	Good	High	Low	Retain	CE22/2006/MP/T/0005A
3-T284	*Cinnamomum burmannii*	陰香	180	6.8	15	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T285	*Liquidambar formosana*	楓香	290	7.7	16	Fair	Good	High	Low	Retain	CE22/2006/MP/T/0005A
3-T286	*Cinnamomum burmannii*	陰香	200	6.9	12	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A

Note:
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SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T287	*Macaranga tanarius*	血桐	190	6.5	14	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T288	*Ficus microcarpa*	細葉榕	190	8.9	11	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T289	*Melaleuca quinquenevia*	白千層	400	12.1	15	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T290	*Chukrasia tabularia*	麻楝	220	6.6	20	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T291	*Bauhinia blakeana*	洋紫荊	190	4.8	12	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T292	*Melaleuca quinquenevia*	白千層	120	5.6	14	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T293	*Bauhinia blakeana*	洋紫荊	220	4.8	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T294	*Melaleuca quinquenevia*	白千層	160	3.1	15	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T295	*Chukrasia tabularia*	麻楝	230	5.5	16	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T296	*Bauhinia purpurea*	紅花羊蹄甲	180	6.2	13	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T297	*Liquidambar formosana*	楓香	240	8.9	20	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T298	*Liquidambar formosana*	楓香	250	9.1	22	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T299	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T300	*Macaranga tanarius*	血桐	240	15.5	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
* 3-T301	*Leucaena leucocephala*	銀合歡	150	5.6	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T302	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T303	*Ligustrum sinense*	山指甲	100	6.2	6	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T352	*Casaurina equisetifolia*	木麻黃	300	4	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T368	*Cinnamomum camphora*	樟	160	3	12	Fair	Poor	Medium	low	Fell	CE22/2006/MP/T/0005A
3-T369	*Casaurina equisetifolia*	木麻黃	150	6	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T370	*Casaurina equisetifolia*	木麻黃	150	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T371	*Casaurina equisetifolia*	木麻黃	150	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T372	*Casaurina equisetifolia*	木麻黃	110	5	18	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T373	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T374	*Casaurina equisetifolia*	木麻黃	100	2	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T375	*Casaurina equisetifolia*	木麻黃	100	2	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T376	*Casaurina equisetifolia*	木麻黃	100	3	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T377	*Casaurina equisetifolia*	木麻黃	100	3	16	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T378	*Casaurina equisetifolia*	木麻黃	180	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T379	*Casaurina equisetifolia*	木麻黃	150	4	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T380	*Casaurina equisetifolia*	木麻黃	200	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T381	*Casaurina equisetifolia*	木麻黃	170	4	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T382	*Casaurina equisetifolia*	木麻黃	150	4	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T383	*Casaurina equisetifolia*	木麻黃	330	8	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T384	*Casaurina equisetifolia*	木麻黃	380	6	19	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T385	*Casaurina equisetifolia*	木麻黃	150	6	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T386	*Casaurina equisetifolia*	木麻黃	150	6	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T387	*Casaurina equisetifolia*	木麻黃	160	6	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T388	*Casaurina equisetifolia*	木麻黃	150	5	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
*3-T389	*Leucaena leucocephala*	銀合歡	130	7	18	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T390	*Ficus microcarpa*	細葉榕	230	6	12	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T391	*Acacia confusa*	台灣相思	260	6	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T392	*Macaranga tanarius*	血桐	280	10	17	Poor	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T393	*Cinnamomum camphora*	樟	160	2	17	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0005A
3-T394	*Casaurina equisetifolia*	木麻黃	130	2	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T395	*Acacia confusa*	台灣相思	230	6	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T396	*Melia azedarach*	楝	100	3	12	Fair	Poor	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T397	*Macaranga tanarius*	血桐	100	4	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T398	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/MP/T/0005A
3-T399	*Casaurina equisetifolia*	木麻黃	260	4	15	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T400	*Casaurina equisetifolia*	木麻黃	170	5	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T401	*Sterculia lanceolata*	假蘋婆	120	3	10	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0005A
3-T402	*Casaurina equisetifolia*	木麻黃	170	5	17	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T403	*Macaranga tanarius*	血桐	240	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T404	*Casaurina equisetifolia*	木麻黃	210	5	14	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T405	*Casaurina equisetifolia*	木麻黃	260	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T406	*Casaurina equisetifolia*	木麻黃	250	5	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T407	*Melaleuca quinquenevia*	白千層	240	6	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T408	*Cassia surattensis*	黃槐	110	4	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T409	*Psidium guajava*	番石榴	100	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T410	*Bischofia javanica*	秋楓	180	6	10	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0005A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 3 (Castle Peak Road - San Tin, Chau Tau)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
3-T414	*Archontophoenix alexandrae*	假檳榔	200	4	10	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T415	*Clausena lansium*	黃皮	110	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T416	*Ficus hispida*	對葉榕	110	3	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T417	*Chukrasia tabularia*	麻楝	210	4	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T418	*Chukrasia tabularia*	麻楝	200	6	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T419	*Chukrasia tabularia*	麻楝	230	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T420	*Chukrasia tabularia*	麻楝	230	6	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T421	*Dimocarpus longan*	龍眼	120	3	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
* 3-T422	*Leucaena leucocephala*	銀合歡	190	8	12	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T423	*Macaranga tanarius*	血桐	180	9	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T424	*Ficus hispida*	對葉榕	140	6	8	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T425	*Ficus hispida*	對葉榕	150	5	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T426	*Ficus hispida*	對葉榕	160	4	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T427	*Ficus hispida*	對葉榕	180	6	7	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0005A
3-T428	*Ficus hispida*	對葉榕	150	7	8	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0005A
3-T429	*Ficus microcarpa*	細葉榕	210	8	17	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T430	*Ficus microcarpa*	細葉榕	190	7	17	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0005A
3-T431	*Bauhinia blakeana*	洋紫荊	160	4	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T432	*Acacia confusa*	台灣相思	270	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T433	*Bauhinia purpurea*	紅花羊蹄甲	190	6	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T434	*Cassia surattensis*	黃槐	100	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T435	*Bauhinia blakeana*	洋紫荊	110	4	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T436	*Bauhinia blakeana*	洋紫荊	130	5	9	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T437	*Bauhinia blakeana*	洋紫荊	120	6	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T438	*Cassia surattensis*	黃槐	110	6	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0005A
3-T439	*Bauhinia blakeana*	洋紫荊	160	6	12	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
3-T440	*Bauhinia variegata*	宮粉羊蹄甲	130	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0005A
* 3-T441	*Leucaena leucocephala*	銀合歡	240	8	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T448	*Acacia confusa*	台灣相思	210	4	16	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
* 3-T449	*Leucaena leucocephala*	銀合歡	230	8	17	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0005A
3-T450	*Acacia confusa*	台灣相思	300	6	17	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0005A

Tree numbers not used:
3-T001 to 3-T050, 3-T056 to 3-T070, 3-T118 to 3-T136, 3-T246 to 3-T275, 3-T304 to 3-T351, 3-T353 to 3-T367, 3-T411 to 3-T413, 3-T442 to 3-T447

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
* 4-T001	*Leucaena leucocephala*	銀合歡	160	3	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T002	*Leucaena leucocephala*	銀合歡	240	7	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T003	*Leucaena leucocephala*	銀合歡	140	3	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T004	*Leucaena leucocephala*	銀合歡	100	4	4.5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T005	*Leucaena leucocephala*	銀合歡	160	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T006	*Acacia confusa*	台灣相思	100	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T007	*Acacia confusa*	台灣相思	110	3	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T008	*Acacia confusa*	台灣相思	95	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T009	*Acacia confusa*	台灣相思	110	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T010	*Acacia confusa*	台灣相思	120	3	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T011	*Acacia confusa*	台灣相思	140	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T012	*Acacia confusa*	台灣相思	150	4.5	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T013	*Acacia confusa*	台灣相思	110	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T014	*Acacia confusa*	台灣相思	150	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T015	*Acacia confusa*	台灣相思	150	2	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T016	*Leucaena leucocephala*	銀合歡	100	2.5	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T017	*Acacia confusa*	台灣相思	100	2.5	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T018	*Acacia confusa*	台灣相思	120	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T019	*Acacia confusa*	台灣相思	95	2	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T020	*Acacia confusa*	台灣相思	190	4.7	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T021	*Acacia confusa*	台灣相思	120	2	3.5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T022	*Leucaena leucocephala*	銀合歡	100	2	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T023	*Bombax ceiba*	木棉	180	4	8	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T024	*Acacia confusa*	台灣相思	150	7	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T025	*Acacia confusa*	台灣相思	140	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T026	*Acacia confusa*	台灣相思	100	3	7	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T027	*Acacia confusa*	台灣相思	130	4	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T028	*Acacia confusa*	台灣相思	180	7	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T029	*Leucaena leucocephala*	銀合歡	120	3	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T030	*Leucaena leucocephala*	銀合歡	140	8	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T031	*Leucaena leucocephala*	銀合歡	130	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T032	*Leucaena leucocephala*	銀合歡	90	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T033	*Leucaena leucocephala*	銀合歡	110	4	9	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T034	*Leucaena leucocephala*	銀合歡	100	2	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
* 4-T035	*Leucaena leucocephala*	銀合歡	95	2	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
^ 4-T036	*Leucaena leucocephala*	銀合歡	100	2	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T037	*Leucaena leucocephala*	銀合歡	100	3	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T038	*Leucaena leucocephala*	銀合歡	100	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T039	*Leucaena leucocephala*	銀合歡	400	10	12	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T040	*Leucaena leucocephala*	銀合歡	140	2	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T041	*Leucaena leucocephala*	銀合歡	190	2	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T042	*Leucaena leucocephala*	銀合歡	110	2	5	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T043	*Leucaena leucocephala*	銀合歡	120	1.5	4	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T044	*Leucaena leucocephala*	銀合歡	110	2	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T045	*Leucaena leucocephala*	銀合歡	120	1.5	6	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T046	*Leucaena leucocephala*	銀合歡	150	2	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T047	*Leucaena leucocephala*	銀合歡	130	3	8	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T048	*Leucaena leucocephala*	銀合歡	140	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
^ 4-T049	*Leucaena leucocephala*	銀合歡	170	4	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T050	*Melia azedarach*	楝	180	6	7	Fair	Fair	High	Medium	Transplant	CE22/2006/MP/T/0001A
^ 4-T051	*Leucaena leucocephala*	銀合歡	150	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T070	*Bauhinia purpurea*	紅花羊蹄甲	180	4	6	Fair	Poor	Low	Medium	Fell	CE22/2006/MP/T/0001A
4-T071	*Bauhinia purpurea*	紅花羊蹄甲	110	2	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0001A
4-T072	*Bombax ceiba*	木棉	110	1	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T073	*Bombax ceiba*	木棉	95	1	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T074	*Bombax ceiba*	木棉	100	1	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T075	*Ficus microcarpa*	細葉榕	95	1	3	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T076	*Ficus microcarpa*	細葉榕	95	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T077	*Ficus microcarpa*	細葉榕	100	1.5	3.5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T078	*Dimocarpus longan*	龍眼	150	3	6	Poor	Poor	Low	Medium	Fell	CE22/2006/MP/T/0002A
4-T079	*Mangifera indica*	芒果	110	4	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0002A
4-T080	*Mangifera indica*	芒果	120	7	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0002A
4-T081	*Dimocarpus longan*	龍眼	100	7	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0002A
4-T082	*Mangifera indica*	芒果	100	5	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0002A
4-T083	*Bombax ceiba*	木棉	240	6	8	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0002A
4-T084	*Mangifera indica*	芒果	370	10	16	Fair	Good	High	Medium	Transplant	CE22/2006/MP/T/0002A
4-T085	*Eucalyptus citriodora*	檸檬桉	280	7	23	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0002A
4-T086	*Eucalyptus citriodora*	檸檬桉	260	4	22	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0002A
4-T087	*Eucalyptus camaldulensis*	赤桉	320	6	20	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0002A
4-T088	*Celtis sinensis*	朴	360	9	17	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0002A
^ 4-T101	*Leucaena leucocephala*	銀合歡	160	7	10	Fair	Poor	Low	Low	Fell	CE22/2006/MP/T/0001A

Note:
^ - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
SECTION 4 (B - Tai Wo)											
4-T102	*Melaleuca quinquenevia*	白千層	300	3	8	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T103	*Melaleuca quinquenevia*	白千層	310	4	7	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T104	*Melaleuca quinquenevia*	白千層	400	4	9	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T229	*Lophostemon confertus*	紅膠木	200	5	7	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T230	*Lophostemon confertus*	紅膠木	210	4	8	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T231	*Celtis sinensis*	朴	210	5	7	Fair	Poor	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T232	*Pinus elliottii*	愛氏松	230	5	7	Fair	Fair	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T233	*Macaranga tanarius*	血桐	100	4	5	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T234	*Peltophorum pterocarpum*	雙翼豆	400	6	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0009A
4-T235	*Macaranga tanarius*	血桐	120	4	4	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T236	*Macaranga tanarius*	血桐	120	4	5	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T237	*Macaranga tanarius*	血桐	140	4	6	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T238	*Macaranga tanarius*	血桐	160	4	5	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T239	*Eucalyptus robusta*	大葉桉	120	6	6	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T240	*Eucalyptus robusta*	大葉桉	320	6	7	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T241	*Eucalyptus robusta*	大葉桉	400	6	15	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T242	*Eucalyptus robusta*	大葉桉	130	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T243	*Macaranga tanarius*	血桐	210	4	5	Poor	Fair	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T244	*Vernicia montana*	木油樹	190	4	7	Fair	Poor	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T245	*Vernicia montana*	木油樹	210	5	7	Fair	Poor	Medium	Low	Fell	CE22/2006/TW/T/0009A
*4-T246	*Leucaena leucocephala*	銀合歡	240	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T247	*Broussonetia papyrifera*	構	130	6	11	Fair	Fair	High	Low	Retain	CE22/2006/TW/T/0009A
4-T248	*Bauhinia purpurea*	紅花羊蹄甲	150	5	6	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0009A
*4-T249	*Leucaena leucocephala*	銀合歡	140	5	12	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
*4-T250	*Leucaena leucocephala*	銀合歡	200	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T251	*Broussonetia papyrifera*	構	140	6	7	Fair	Poor	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T252	*Broussonetia papyrifera*	構	140	6	7	Fair	Poor	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T253	*Acacia confusa*	台灣相思	250	5	12	Fair	Fair	Medium	Low	Fell	CE22/2006/TW/T/0009A
4-T254	*Dimocarpus longan*	龍眼	120	4	3	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0009A
4-T257	*Dimocarpus longan*	龍眼	180	5	7	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0009A
4-T258	*Mangifera indica*	芒果	220	5	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0009A
4-T259	*Macaranga tanarius*	血桐	150	7	5	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T260	*Dimocarpus longan*	龍眼	260	5	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0009A
4-T261	*Roystonea regia*	王棕	150	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T262	*Roystonea regia*	王棕	150	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T263	*Roystonea regia*	王棕	150	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
4-T264	*Roystonea regia*	王棕	150	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T265	*Roystonea regia*	王棕	150	3	6	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0009A
4-T266	*Ficus elastica*	印度橡樹	400	12	9	Good	Good	High	High	Transplant	CE22/2006/TW/T/0008A
# 4-T267	*Ficus elastica*	印度橡樹	1000	15	10	Good	Good	High	High	Retain	CE22/2006/TW/T/0008A
4-T268	*Macaranga tanarius*	血桐	130	4	4	Poor	Fair	Low	Low	Fell	CE22/2006/TW/T/0008A
4-T269	*Bombax ceiba*	木棉	180	3	6	Fair	Poor	Medium	High	Transplant	CE22/2006/TW/T/0008A
4-T270	*Bombax ceiba*	木棉	180	4	7	Fair	Poor	Medium	High	Transplant	CE22/2006/TW/T/0008A
4-T271	*Bombax ceiba*	木棉	200	6	9	Fair	Fair	Medium	High	Transplant	CE22/2006/TW/T/0008A
4-T290	*Acacia confusa*	台灣相思	300	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T294	*Sterculia lanceolata*	假蘋婆	150	4	7	Fair	Fair	High	Low	Retain	CE22/2006/TW/T/0009A
4-T295	*Acacia confusa*	台灣相思	300	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T296	*Macaranga tanarius*	血桐	210	6	8	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
4-T297	*Lophostemon confertus*	紅膠木	330	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/TW/T/0009A
4-T299	*Macaranga tanarius*	血桐	200	4	5	Fair	Poor	Low	Low	Fell	CE22/2006/TW/T/0009A
# 4-T300	*Ficus elastica*	印度橡樹	1000	18	9	Good	Good	High	High	Retain	CE22/2006/TW/T/0008A
4-T301	*Macaranga tanarius*	血桐	150	8	6	Fair	Fair	Low	Low	Fell	CE22/2006/TW/T/0008A
4-T302	*Macaranga tanarius*	血桐	120	12	5	Fair	Fair	Low	Low	Fell	CE22/2006/TW/T/0008A
4-T303	*Araucaria heterophylla*	異葉南洋杉	150	3	20	Good	Good	High	Low	Retain	CE22/2006/TW/T/0008A
4-T309	*Ficus microcarpa var. pusillifolia*	細葉榕	280	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T310	*Ficus microcarpa var. pusillifolia*	細葉榕	280	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T311	*Ficus microcarpa var. pusillifolia*	細葉榕	300	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T312	*Ficus microcarpa var. pusillifolia*	細葉榕	270	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T313	*Ficus microcarpa var. pusillifolia*	細葉榕	300	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T314	*Ficus microcarpa var. pusillifolia*	細葉榕	180	3	3	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T315	*Ficus microcarpa var. pusillifolia*	細葉榕	270	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T316	*Ficus microcarpa var. pusillifolia*	細葉榕	260	5	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
* 4-T317	*Leucaena*	銀合歡	270	3	5	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0001A
4-T318	*Casuarina equisetifolia*	木麻黃	270	4	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T319	*Casuarina equisetifolia*	木麻黃	300	3	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T320	*Casuarina equisetifolia*	木麻黃	220	5	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T321	*Casuarina equisetifolia*	木麻黃	320	4	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T322	*Casuarina equisetifolia*	木麻黃	100	2	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T323	*Casuarina equisetifolia*	木麻黃	130	2	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T324	*Casuarina equisetifolia*	木麻黃	170	2	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0001A
4-T325	*Ficus microcarpa var. pusillifolia*	細葉榕	240	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T326	*Ficus microcarpa var. pusillifolia*	細葉榕	240	3	3	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T327	*Ficus microcarpa var. pusillifolia*	細葉榕	240	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
4-T328	*Ficus microcarpa var. pusillifolia*	細葉榕	200	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T329	*Ficus microcarpa var. pusillifolia*	細葉榕	250	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T330	*Ficus microcarpa var. pusillifolia*	細葉榕	300	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T331	*Ficus microcarpa var. pusillifolia*	細葉榕	260	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T332	*Ficus microcarpa var. pusillifolia*	細葉榕	300	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T333	*Ficus microcarpa var. pusillifolia*	細葉榕	200	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T334	*Ficus microcarpa var. pusillifolia*	細葉榕	250	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T335	*Ficus microcarpa var. pusillifolia*	細葉榕	280	4	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T336	*Ficus microcarpa var. pusillifolia*	細葉榕	260	5	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T337	*Ficus microcarpa var. pusillifolia*	細葉榕	230	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T338	*Ficus microcarpa var. pusillifolia*	細葉榕	200	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T339	*Ficus microcarpa var. pusillifolia*	細葉榕	180	3	3	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T340	*Ficus microcarpa var. pusillifolia*	細葉榕	240	3	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T341	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T342	*Ficus microcarpa var. pusillifolia*	細葉榕	300	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T343	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	3	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T344	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T345	*Ficus microcarpa var. pusillifolia*	細葉榕	190	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T346	*Ficus microcarpa var. pusillifolia*	細葉榕	220	4		Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T347	*Ficus microcarpa var. pusillifolia*	細葉榕	200	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T348	*Ficus microcarpa var. pusillifolia*	細葉榕	290	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T349	*Ficus microcarpa var. pusillifolia*	細葉榕	220	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T350	*Ficus microcarpa var. pusillifolia*	細葉榕	240	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T351	*Ficus microcarpa var. pusillifolia*	細葉榕	180	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T352	*Ficus microcarpa var. pusillifolia*	細葉榕	220	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T353	*Ficus microcarpa var. pusillifolia*	細葉榕	220	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T354	*Ficus microcarpa var. pusillifolia*	細葉榕	100	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T355	*Ficus microcarpa var. pusillifolia*	細葉榕	100	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T356	*Ficus microcarpa var. pusillifolia*	細葉榕	210	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T357	*Ficus microcarpa var. pusillifolia*	細葉榕	220	4	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T358	*Melaleuca quinquenevia*	白千層	160	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T359	*Melaleuca quinquenevia*	白千層	210	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T360	*Melaleuca quinquenevia*	白千層	250	2	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T361	*Melaleuca quinquenevia*	白千層	220	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T362	*Melaleuca quinquenevia*	白千層	220	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T363	*Melaleuca quinquenevia*	白千層	230	2	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T364	*Melaleuca quinquenevia*	白千層	170	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A

Note:
@ - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
4-T365	*Melaleuca quinquenevia*	白千層	190	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T366	*Melaleuca quinquenevia*	白千層	220	1	4	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T367	*Melaleuca quinquenevia*	白千層	210	2	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T368	*Melaleuca quinquenevia*	白千層	270	2	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T369	*Melaleuca quinquenevia*	白千層	250	2	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T370	*Melaleuca quinquenevia*	白千層	290	2	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T371	*Ficus microcarpa var. pusillifolia*	細葉榕	140	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T372	*Ficus microcarpa var. pusillifolia*	細葉榕	120	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T373	*Ficus microcarpa var. pusillifolia*	細葉榕	180	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T374	*Ficus microcarpa var. pusillifolia*	細葉榕	180	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T375	*Ficus microcarpa var. pusillifolia*	細葉榕	200	1	4	Fair	Poor	High	High	Transplant	CE22/2006/MP/T/0001A
4-T376	*Ficus microcarpa var. pusillifolia*	細葉榕	230	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T377	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T378	*Ficus microcarpa var. pusillifolia*	細葉榕	260	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T379	*Ficus microcarpa var. pusillifolia*	細葉榕	230	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T380	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T381	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T382	*Ficus microcarpa var. pusillifolia*	細葉榕	240	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T383	*Ficus microcarpa var. pusillifolia*	細葉榕	160	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T384	*Ficus microcarpa var. pusillifolia*	細葉榕	160	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T385	*Ficus microcarpa var. pusillifolia*	細葉榕	320	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T386	*Ficus microcarpa var. pusillifolia*	細葉榕	160	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T387	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T388	*Ficus microcarpa var. pusillifolia*	細葉榕	200	1	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T389	*Ficus microcarpa var. pusillifolia*	細葉榕	230	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T390	*Ficus microcarpa var. pusillifolia*	細葉榕	200	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T391	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T392	*Melaleuca quinquenevia*	白千層	220	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T393	*Melaleuca quinquenevia*	白千層	270	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T394	*Melaleuca quinquenevia*	白千層	150	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T395	*Melaleuca quinquenevia*	白千層	190	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T396	*Melaleuca quinquenevia*	白千層	180	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T397	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T398	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T399	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T400	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T401	*Melaleuca quinquenevia*	白千層	250	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 4 (A - Kam Tin River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
4-T402	*Melaleuca quinquenevia*	白千層	200	1	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0001A
4-T403	*Melaleuca quinquenevia*	白千層	200	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T404	*Melaleuca quinquenevia*	白千層	200	1	4	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T405	*Melaleuca quinquenevia*	白千層	200	1	6	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T406	*Melaleuca quinquenevia*	白千層	180	1	6	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T407	*Melaleuca quinquenevia*	白千層	160	1	5	Good	Good	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T408	*Ficus microcarpa var. pusillifolia*	細葉榕	300	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T409	*Ficus microcarpa var. pusillifolia*	細葉榕	250	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T410	*Ficus microcarpa var. pusillifolia*	細葉榕	170	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T411	*Ficus microcarpa var. pusillifolia*	細葉榕	180	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T412	*Ficus microcarpa var. pusillifolia*	細葉榕	180	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T413	*Ficus microcarpa var. pusillifolia*	細葉榕	150	1	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T414	*Ficus microcarpa var. pusillifolia*	細葉榕	290	2	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T415	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T416	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T417	*Ficus microcarpa var. pusillifolia*	細葉榕	160	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T418	*Ficus microcarpa var. pusillifolia*	細葉榕	230	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T419	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T420	*Ficus microcarpa var. pusillifolia*	細葉榕	160	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T421	*Ficus microcarpa var. pusillifolia*	細葉榕	280	3	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T422	*Ficus microcarpa var. pusillifolia*	細葉榕	190	3	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T423	*Ficus microcarpa var. pusillifolia*	細葉榕	160	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T424	*Ficus microcarpa var. pusillifolia*	細葉榕	220	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T425	*Ficus microcarpa var. pusillifolia*	細葉榕	160	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T426	*Ficus microcarpa var. pusillifolia*	細葉榕	190	2	5	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T427	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T428	*Ficus microcarpa var. pusillifolia*	細葉榕	180	2	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0001A
4-T429	*Ficus microcarpa var. pusillifolia*	細葉榕	190	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T430	*Ficus microcarpa var. pusillifolia*	細葉榕	230	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T431	*Ficus microcarpa var. pusillifolia*	細葉榕	200	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A

Tree numbers not used:
4-T089 to 4-T100, 4-T105 to 4-T228, 4-T272 to 4-T289, 4-T291 to 4-T293, 4-T298, 4-T304 to 4-T308
Tree numbers listed in other schedules:
4-T052 to 4-T069 (Resting Station R5)

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T001	*Acacia auriculiformis*	耳果相思	150	3	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T002	*Acacia auriculiformis*	耳果相思	115	2	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T003	*Macaranga tanarius*	血桐	95	5	5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T004	*Macaranga tanarius*	血桐	137	7.5	5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
* 5-T005	*Leucaena leucocephala*	銀合歡	98	3.9	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T006	*Acacia auriculiformis*	耳果相思	114	4	10	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T007	*Acacia auriculiformis*	耳果相思	111	2	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T008	*Ficus virens var. sublanceolata*	大葉榕	96	2.5	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T009	*Ficus virens var. sublanceolata*	大葉榕	97	2.5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T010	*Ficus virens var. sublanceolata*	大葉榕	101	5	6.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T011	*Eucalyptus camaldulensis*	赤桉	126	5	10.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T012	*Acacia auriculiformis*	耳果相思	132	6	6.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T013	*Acacia auriculiformis*	耳果相思	118	6	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T014	*Hibiscus tiliaceus*	黃槿	113	3.5	3.5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T015	*Hibiscus tiliaceus*	黃槿	122	3.5	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T016	*Eucalyptus camaldulensis*	赤桉	169	3.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T017	*Eucalyptus camaldulensis*	赤桉	186	7	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T018	*Eucalyptus camaldulensis*	赤桉	197	7	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T019	*Macaranga tanarius*	血桐	120	5.5	4	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T020	*Eucalyptus camaldulensis*	赤桉	121	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T021	*Eucalyptus camaldulensis*	赤桉	122	2	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T022	*Eucalyptus robusta*	大葉桉	173	3	5	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0006A
5-T023	*Eucalyptus camaldulensis*	赤桉	198	6.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T024	*Macaranga tanarius*	血桐	177	4.5	4.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T025	*Macaranga tanarius*	血桐	126	6	6.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T026	*Acacia auriculiformis*	耳果相思	97	4	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T027	*Macaranga tanarius*	血桐	96	6	6.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T028	*Ficus virens var. sublanceolata*	大葉榕	98	5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T029	*Lophostemon confertus*	紅膠木	96	3.5	4	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T030	*Acacia auriculiformis*	耳果相思	103	5.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T031	*Acacia auriculiformis*	耳果相思	107	3.5	5.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T032	*Eucalyptus camaldulensis*	赤桉	213	6	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T033	*Hibiscus tiliaceus*	黃槿	104	5	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T034	*Acacia auriculiformis*	耳果相思	99	4.7	9	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T035	*Acacia auriculiformis*	耳果相思	112	5	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T036	*Eucalyptus camaldulensis*	赤桉	165	6	9	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0006A
5-T037	*Eucalyptus camaldulensis*	赤桉	150	6	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T038	*Eucalyptus camaldulensis*	赤桉	147	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T039	*Eucalyptus camaldulensis*	赤桉	161	5.5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T040	*Acacia auriculiformis*	耳果相思	109	6.5	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T041	*Eucalyptus camaldulensis*	赤桉	194	6.5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T042	*Eucalyptus camaldulensis*	赤桉	154	4.5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T043	*Eucalyptus camaldulensis*	赤桉	160	5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T044	*Eucalyptus camaldulensis*	赤桉	167	6	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T045	*Acacia auriculiformis*	耳果相思	117	5.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T046	*Acacia auriculiformis*	耳果相思	101	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T047	*Acacia auriculiformis*	耳果相思	122	5.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T048	*Lophostemon confertus*	紅膠木	128	5	7	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0006A
5-T049	*Acacia auriculiformis*	耳果相思	111	5.5	8.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T050	*Acacia auriculiformis*	耳果相思	123	6.5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T051	*Acacia auriculiformis*	耳果相思	118	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T052	*Eucalyptus camaldulensis*	赤桉	189	4.5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T053	*Eucalyptus camaldulensis*	赤桉	172	4.5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T054	*Acacia auriculiformis*	耳果相思	134	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T055	*Lophostemon confertus*	紅膠木	98	5	6	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T056	*Michelia alba*	白蘭	110	4.5	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T057	*Acacia auriculiformis*	耳果相思	168	6	10	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T058	*Acacia auriculiformis*	耳果相思	127	5.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T059	*Acacia auriculiformis*	耳果相思	95	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T060	*Acacia auriculiformis*	耳果相思	147	6	9.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T061	*Acacia mangium*	大葉相思	153	4	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T062	*Acacia mangium*	大葉相思	106	4	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T063	*Acacia mangium*	大葉相思	119	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T064	*Ficus virens var. sublanceolata*	大葉榕	108	2.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T065	*Ficus virens var. sublanceolata*	大葉榕	106	3	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T066	*Acacia mangium*	大葉相思	113	4	3	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T067	*Acacia auriculiformis*	耳果相思	98	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T068	*Acacia mangium*	大葉相思	109	5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T069	*Acacia mangium*	大葉相思	117	5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T070	*Ficus virens var. sublanceolata*	大葉榕	150	4.5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T071	*Ficus virens var. sublanceolata*	大葉榕	129	4	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T072	*Acacia confusa*	台灣相思	118	5.5	4.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T073	*Ficus virens var. sublanceolata*	大葉榕	147	4.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T074	*Ficus virens var. sublanceolata*	大葉榕	124	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T075	*Eucalyptus camaldulensis*	赤桉	165	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T076	*Acacia mangium*	大葉相思	112	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T077	*Acacia mangium*	大葉相思	100	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T078	*Acacia mangium*	大葉相思	103	5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T079	*Eucalyptus camaldulensis*	赤桉	159	5.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T080	*Ficus virens var. sublanceolata*	大葉榕	107	5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T081	*Ficus virens var. sublanceolata*	大葉榕	97	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T082	*Ficus virens var. sublanceolata*	大葉榕	119	5.5	6.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T083	*Eucalyptus citriodora*	檸檬桉	178	4.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T084	*Eucalyptus camaldulensis*	赤桉	172	6	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T085	*Acacia auriculiformis*	耳果相思	132	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T086	*Eucalyptus camaldulensis*	赤桉	154	4.5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T087	*Ficus virens var. sublanceolata*	大葉榕	133	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T088	*Ficus virens var. sublanceolata*	大葉榕	105	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T089	*Eucalyptus camaldulensis*	赤桉	210	6	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T090	*Acacia auriculiformis*	耳果相思	179	6	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T091	*Acacia auriculiformis*	耳果相思	144	5.5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T092	*Acacia auriculiformis*	耳果相思	129	6	8.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T093	*Acacia auriculiformis*	耳果相思	175	5	8.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T094	*Ficus virens var. sublanceolata*	大葉榕	116	4	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T095	*Ficus virens var. sublanceolata*	大葉榕	148	3.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T096	*Acacia auriculiformis*	耳果相思	124	4.5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T097	*Acacia auriculiformis*	耳果相思	107	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T098	*Eucalyptus robusta*	大葉桉	153	5	9.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T099	*Ficus microcarpa*	細葉榕	113	4	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T100	*Eucalyptus camaldulensis*	赤桉	134	4	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T101	*Ficus virens var. sublanceolata*	大葉榕	118	4	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T102	*Eucalyptus camaldulensis*	赤桉	146	6	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T103	*Eucalyptus camaldulensis*	赤桉	115	5	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T104	*Eucalyptus camaldulensis*	赤桉	163	6	10.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T105	*Eucalyptus camaldulensis*	赤桉	174	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T106	*Eucalyptus camaldulensis*	赤桉	208	6	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T107	*Eucalyptus camaldulensis*	赤桉	187	6.5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T108	*Acacia auriculiformis*	耳果相思	135	4	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T109	*Eucalyptus camaldulensis*	赤桉	240	6	11.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T110	*Ficus virens var. sublanceolata*	大葉榕	115	4	4.5	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0006A
5-T111	*Acacia auriculiformis*	耳果相思	201	5.5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T112	*Acacia auriculiformis*	耳果相思	124	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T113	*Ficus virens var. sublanceolata*	大葉榕	120	4.5	6.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T114	*Ficus virens var. sublanceolata*	大葉榕	96	4	6	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0006A
5-T115	*Ficus virens var. sublanceolata*	大葉榕	97	4	7	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T116	*Acacia auriculiformis*	耳果相思	145	5.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T117	*Acacia auriculiformis*	耳果相思	164	6	5.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T118	*Ficus virens var. sublanceolata*	大葉榕	103	3.5	7.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T119	*Acacia auriculiformis*	耳果相思	100	4.5	6.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T120	*Eucalyptus camaldulensis*	赤桉	96	2	7	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0006A
5-T121	*Acacia auriculiformis*	耳果相思	106	5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T122	*Hibiscus tiliaceus*	黃槿	103	4.5	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T123	*Ficus virens var. sublanceolata*	大葉榕	127	5	12	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T124	*Eucalyptus camaldulensis*	赤桉	186	5.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T125	*Ficus virens var. sublanceolata*	大葉榕	169	6	7	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T126	*Ficus virens var. sublanceolata*	大葉榕	184	5.5	8	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T127	*Eucalyptus camaldulensis*	赤桉	102	4	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T128	*Hibiscus tiliaceus*	黃槿	95	3.5	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T129	*Eucalyptus camaldulensis*	赤桉	258	6	13	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T130	*Eucalyptus camaldulensis*	赤桉	183	5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T131	*Eucalyptus camaldulensis*	赤桉	167	5.5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T132	*Acacia auriculiformis*	耳果相思	110	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T133	*Acacia auriculiformis*	耳果相思	99	4.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T134	*Eucalyptus camaldulensis*	赤桉	128	4	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T135	*Acacia auriculiformis*	耳果相思	133	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T136	*Acacia auriculiformis*	耳果相思	137	5.5	8.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T137	*Eucalyptus camaldulensis*	赤桉	105	4	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T138	*Eucalyptus camaldulensis*	赤桉	124	4.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T139	*Acacia auriculiformis*	耳果相思	189	5.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T140	*Acacia auriculiformis*	耳果相思	105	4	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T141	*Acacia auriculiformis*	耳果相思	97	5	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T142	*Eucalyptus citriodora*	檸檬桉	136	4	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T143	*Eucalyptus camaldulensis*	赤桉	173	5	9.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T144	*Acacia auriculiformis*	耳果相思	109	5	11	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T145	*Acacia auriculiformis*	耳果相思	105	5.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T146	*Eucalyptus camaldulensis*	赤桉	154	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T147	*Eucalyptus camaldulensis*	赤桉	177	5.5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T148	*Ficus virens var. sublanceolata*	大葉榕	150	5.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T149	*Ficus virens var. sublanceolata*	大葉榕	155	5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T150	*Eucalyptus camaldulensis*	赤桉	238	4.5	12	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0006A
5-T151	*Eucalyptus camaldulensis*	赤桉	195	5	11	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0006A
5-T174	*Eucalyptus camaldulensis*	赤桉	143	4	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T175	*Eucalyptus camaldulensis*	赤桉	144	4	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T176	*Eucalyptus camaldulensis*	赤桉	147	4.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T177	*Eucalyptus camaldulensis*	赤桉	129	4.5	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T178	*Eucalyptus camaldulensis*	赤桉	148	4.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T179	*Eucalyptus camaldulensis*	赤桉	148	4.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T180	*Eucalyptus camaldulensis*	赤桉	207	5	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T181	*Eucalyptus camaldulensis*	赤桉	135	5	6	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T182	*Eucalyptus camaldulensis*	赤桉	143	4.5	5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T183	*Eucalyptus citriodora*	檸檬桉	178	4	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T184	*Eucalyptus camaldulensis*	赤桉	190	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T185	*Eucalyptus camaldulensis*	赤桉	198	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T186	*Eucalyptus camaldulensis*	赤桉	188	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T187	*Eucalyptus camaldulensis*	赤桉	246	6	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T188	*Eucalyptus camaldulensis*	赤桉	138	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T189	*Acacia auriculiformis*	耳果相思	143	4	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T190	*Acacia auriculiformis*	耳果相思	102	5	5.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T191	*Acacia mangium*	大葉相思	116	4	5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T192	*Ficus virens var. sublanceolata*	大葉榕	124	4	4.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T193	*Acacia auriculiformis*	耳果相思	130	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T194	*Acacia auriculiformis*	耳果相思	182	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T195	*Ficus virens var. sublanceolata*	大葉榕	98	5	5	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T196	*Ficus virens var. sublanceolata*	大葉榕	114	5	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T197	*Ficus virens var. sublanceolata*	大葉榕	109	4.5	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T198	*Acacia mangium*	大葉相思	122	4.5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T199	*Eucalyptus citriodora*	檸檬桉	182	5	11	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T200	*Ficus virens var. sublanceolata*	大葉榕	96	4	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T201	*Ficus virens var. sublanceolata*	大葉榕	100	5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T202	*Ficus virens var. sublanceolata*	大葉榕	107	3	5.5	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T203	*Eucalyptus camaldulensis*	赤桉	214	5.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T204	*Ficus virens var. sublanceolata*	大葉榕	101	4.5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T205	*Eucalyptus camaldulensis*	赤桉	218	5.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T206	*Eucalyptus camaldulensis*	赤桉	170	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T207	*Eucalyptus camaldulensis*	赤桉	166	5	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T208	*Eucalyptus camaldulensis*	赤桉	184	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T209	*Eucalyptus citriodora*	檸檬桉	161	5.5	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T210	*Eucalyptus camaldulensis*	赤桉	155	5	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T211	*Ficus virens var. sublanceolata*	大葉榕	98	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T212	*Acacia auriculiformis*	耳果相思	102	4	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T213	*Ficus virens var. sublanceolata*	大葉榕	169	5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T214	*Acacia auriculiformis*	耳果相思	147	5	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T215	*Ficus virens var. sublanceolata*	大葉榕	103	5	6	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T216	*Acacia auriculiformis*	耳果相思	153	4.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T217	*Ficus virens var. sublanceolata*	大葉榕	96	4	7	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T218	*Ficus virens var. sublanceolata*	大葉榕	104	4	7	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T219	*Ficus virens var. sublanceolata*	大葉榕	129	4	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T220	*Acacia auriculiformis*	耳果相思	97	5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T221	*Ficus virens var. sublanceolata*	大葉榕	96	4.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T222	*Acacia auriculiformis*	耳果相思	95	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T223	*Eucalyptus camaldulensis*	赤桉	197	5	10	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T224	*Eucalyptus camaldulensis*	赤桉	164	5	9.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T225	*Acacia auriculiformis*	耳果相思	154	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T226	*Acacia auriculiformis*	耳果相思	123	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T227	*Acacia auriculiformis*	耳果相思	105	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T228	*Acacia auriculiformis*	耳果相思	154	5	7.6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T229	*Acacia auriculiformis*	耳果相思	140	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T230	*Acacia auriculiformis*	耳果相思	137	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T231	*Acacia auriculiformis*	耳果相思	169	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T243	*Acacia auriculiformis*	耳果相思	127	5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T244	*Acacia auriculiformis*	耳果相思	130	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T245	*Acacia auriculiformis*	耳果相思	122	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T246	*Ficus virens var. sublanceolata*	大葉榕	97	3.5	3.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T247	*Acacia auriculiformis*	耳果相思	168	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T248	*Acacia auriculiformis*	耳果相思	150	4.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T249	*Acacia auriculiformis*	耳果相思	111	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T250	*Acacia auriculiformis*	耳果相思	97	4.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T251	*Acacia confusa*	台灣相思	111	3.5	6	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T252	*Acacia confusa*	台灣相思	99	4	5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T253	*Acacia auriculiformis*	耳果相思	185	4.5	9	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T254	*Acacia auriculiformis*	耳果相思	118	5	9	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T255	*Acacia auriculiformis*	耳果相思	109	4	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T256	*Acacia auriculiformis*	耳果相思	190	5	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T257	*Ficus microcarpa*	細葉榕	125	4.5	4.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T258	*Acacia confusa*	台灣相思	154	4	4.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T259	*Ficus virens var. sublanceolata*	大葉榕	122	4.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T260	*Ficus microcarpa*	細葉榕	117	5	4	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T261	*Ficus microcarpa*	細葉榕	135	4.5	5	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T262	*Acacia auriculiformis*	耳果相思	98	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T263	*Acacia auriculiformis*	耳果相思	128	4.5	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T264	*Acacia auriculiformis*	耳果相思	179	4.5	9	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A

Note:
* - *Leucaena leucocephala*; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T265	*Ficus microcarpa*	細葉榕	240	5.5	6	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T266	*Acacia confusa*	台灣相思	128	5	6.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T267	*Acacia confusa*	台灣相思	112	4.5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T268	*Ficus virens var. sublanceolata*	大葉榕	105	4	4	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T269	*Acacia auriculiformis*	耳果相思	111	5	7	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T270	*Acacia auriculiformis*	耳果相思	146	4.5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T271	*Ficus virens var. sublanceolata*	大葉榕	103	4.5	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T272	*Ficus microcarpa*	細葉榕	98	4.5	5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T273	*Ficus microcarpa*	細葉榕	105	3.5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T274	*Acacia auriculiformis*	耳果相思	172	5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T275	*Acacia auriculiformis*	耳果相思	105	4.5	5.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T276	*Acacia confusa*	台灣相思	130	4.5	5.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T277	*Ficus virens var. sublanceolata*	大葉榕	107	5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T278	*Acacia auriculiformis*	耳果相思	135	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T279	*Acacia auriculiformis*	耳果相思	140	5.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T280	*Acacia auriculiformis*	耳果相思	155	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T281	*Ficus microcarpa*	細葉榕	98	3.5	4.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T282	*Acacia confusa*	台灣相思	108	5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T283	*Acacia confusa*	台灣相思	152	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T284	*Acacia auriculiformis*	耳果相思	108	5.5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T285	*Acacia auriculiformis*	耳果相思	142	5	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T286	*Ficus virens var. sublanceolata*	大葉榕	120	5	6	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T287	*Acacia auriculiformis*	耳果相思	120	4.5	8.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T288	*Ficus microcarpa*	細葉榕	110	4	7	Fair	Poor	Medium	High	Transplant	CE22/2006/KW/T/0007A
5-T289	*Acacia auriculiformis*	耳果相思	119	4.5	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T290	*Ficus microcarpa*	細葉榕	112	3.5	5.5	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0007A
5-T291	*Acacia auriculiformis*	耳果相思	99	5	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T292	*Acacia auriculiformis*	耳果相思	160	3.5	9	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T293	*Bischofia javanica*	秋櫻	110	5.5	4.5	Fair	Fair	High	Medium	Transplant	CE22/2006/KW/T/0007A
5-T294	*Acacia auriculiformis*	耳果相思	127	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T295	*Acacia auriculiformis*	耳果相思	154	5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T296	*Acacia auriculiformis*	耳果相思	126	5	8.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T297	*Acacia auriculiformis*	耳果相思	182	6	8.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T298	*Acacia auriculiformis*	耳果相思	188	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T299	*Casaurina equisetifolia*	木麻黃	210	5	13	Fair	Good	Medium	Low	Fell	CE22/2006/KW/T/0007A
* 5-T300	*Leucaena leucocephala*	銀合歡	410	7	15	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
* 5-T301	*Leucaena leucocephala*	銀合歡	145	6	11	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
* 5-T302	*Leucaena leucocephala*	銀合歡	155	7	11	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
* 5-T303	*Leucaena leucocephala*	銀合歡	115	6	10.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
* 5-T304	*Leucaena leucocephala*	銀合歡	100	6	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T310	*Casaurina equisetifolia*	木麻黃	195	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T311	*Cassia siamea*	鐵刀木	205	6	12.5	Fair	Fair	Low	High	Fell	CE22/2006/KW/T/0007A
5-T312	*Cassia siamea*	鐵刀木	170	5.5	12	Fair	Fair	Low	High	Fell	CE22/2006/KW/T/0007A
* 5-T313	*Leucaena leucocephala*	銀合歡	190	4	17	Poor	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T314	*Macaranga tanarius*	血桐	130	3	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T315	*Bischofia javanica*	秋楓	140	4	8	Fair	Fair	High	Medium	Transplant	CE22/2006/KW/T/0006A
* 5-T316	*Leucaena leucocephala*	銀合歡	200	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
* 5-T317	*Leucaena leucocephala*	銀合歡	160	7	12	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
* 5-T318	*Leucaena leucocephala*	銀合歡	290	6	17	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
* 5-T319	*Leucaena leucocephala*	銀合歡	160	6	12	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T320	*Bauhinia purpurea*	紅花羊蹄甲	140	4	16	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T321	*Acacia confusa*	台灣相思	200	6	15	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T322	*Bauhinia purpurea*	紅花羊蹄甲	130	3	6	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T323	*Bauhinia purpurea*	紅花羊蹄甲	130	4	10	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
* 5-T324	*Leucaena leucocephala*	銀合歡	210	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T325	*Bauhinia purpurea*	紅花羊蹄甲	140	4	12	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
* 5-T326	*Leucaena leucocephala*	銀合歡	240	4	17	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T327	*Bauhinia purpurea*	紅花羊蹄甲	130	4	15	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T328	*Bauhinia purpurea*	紅花羊蹄甲	130	4	16	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T329	*Bauhinia purpurea*	紅花羊蹄甲	110	5	10	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T330	*Bauhinia purpurea*	紅花羊蹄甲	150	6	11	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T331	*Bauhinia purpurea*	紅花羊蹄甲	130	5	10	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T332	*Macaranga tanarius*	血桐	110	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T333	*Bauhinia purpurea*	紅花羊蹄甲	160	6	10	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T334	*Bauhinia purpurea*	紅花羊蹄甲	160	7	12	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T335	*Bauhinia purpurea*	紅花羊蹄甲	170	1	3	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T336	*Bauhinia purpurea*	紅花羊蹄甲	150	4	7	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
*5-T337	*Leucaena leucocephala*	銀合歡	240	6	14	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
*5-T338	*Leucaena leucocephala*	銀合歡	410	7	13	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T339	*Bauhinia purpurea*	紅花羊蹄甲	130	4	7	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T340	*Bauhinia purpurea*	紅花羊蹄甲	210	2	6	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
*5-T341	*Leucaena leucocephala*	銀合歡	150	3	6	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T342	*Bauhinia blakeana*	洋紫荊	200	4	4	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T343	*Bauhinia blakeana*	洋紫荊	210	4	4	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
*5-T344	*Leucaena leucocephala*	銀合歡	110	6	8	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T345	*Macaranga tanarius*	血桐	140	5	5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T346	*Cassia surrattensis*	黃槐	140	2	2	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
*5-T347	*Leucaena leucocephala*	銀合歡	360	10	13	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T348	*Dead tree*		-	-	-	-	-	-	-	To be removed	CE22/2006/KW/T/0006A
*5-T349	*Leucaena leucocephala*	銀合歡	280	6	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T350	*Celtis sinensis*	朴	420	10	8	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T351	*Acacia confusa*	台灣相思	510	10	16	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T352	*Albizia lebbek*	大葉合歡	380	10	14	Poor	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T353	*Albizia lebbek*	大葉合歡	480	9	13	Poor	Fair	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T354	*Albizia lebbek*	大葉合歡	260	7	10	Poor	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T355	*Macaranga tanarius*	血桐	270	7	10	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T356	*Macaranga tanarius*	血桐	150	4	10	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T357	*Bauhinia purpurea*	紅花羊蹄甲	110	6	7	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T358	*Bauhinia purpurea*	紅花羊蹄甲	120	3	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T359	*Bauhinia purpurea*	紅花羊蹄甲	140	4	10	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T360	*Macaranga tanarius*	血桐	240	4	12	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T361	*Mangifera indica*	芒果	450	6	12	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T362	*Dimocarpus longan*	龍眼	100	4	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T363	*Spathodea campanulata*	火焰木	130	3	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T364	*Spathodea campanulata*	火焰木	140	3	5	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T365	*Bombax ceiba*	木棉	400	4	10	Fair	Fair	High	High	Transplant	CE22/2006/KW/T/0006A
5-T366	*Macaranga tanarius*	血桐	380	6	10	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0006A
5-T367	*Aleurites moluccana*	石栗	580	4	16	Fair	Fair	Medium	Medium	Retain	CE22/2006/KW/T/0006A
5-T368	*Roystonea regia*	王棕	220	3	15	Fair	Fair	Medium	High	Transplant	CE22/2006/KW/T/0006A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 5 (Castle Peak Road - Kwu Tung, Sheung Yue River, Shek Sheung River)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T369	*Celtis sinensis*	朴	160	1	4	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T370	*Delonix regia*	鳳凰木	370	10	16	Good	Poor	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T371	*Delonix regia*	鳳凰木	340	6	12	Good	Poor	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T372	*Dimocarpus longan*	龍眼	100	1	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/KW/T/0006A
5-T373	*Cinnamomum camphora*	樟	480	10	20	Good	Fair	High	Low	Retain	CE22/2006/KW/T/0006A
5-T374	*Celtis sinensis*	朴	360	10	17	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T375	*Celtis sinensis*	朴	320	6	17	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T377	*Celtis sinensis*	朴	400	6	15	Fair	Fair	High	Low	Retain	CE22/2006/KW/T/0006A
5-T378	*Dimocarpus longan*	龍眼	400	7	13	Good	Fair	High	Medium	Transplant	CE22/2006/KW/T/0006A
5-T379	*Celtis sinensis*	朴	160	2	5	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T380	*Machilus breviflora*	短序潤楠	120	3	4	Fair	Poor	Medium	Low	Retain	CE22/2006/KW/T/0006A
5-T381	*Celtis sinensis*	朴	320	5	9	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T382	*Dimocarpus longan*	龍眼	200	3	7	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T383	*Celtis sinensis*	朴	310	4	10	Fair	Poor	Medium	Low	Fell	CE22/2006/KW/T/0006A
5-T438	*Dimocarpus longan*	龍眼	130	4	8	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0008A
5-T439	*Michelia alba*	白蘭	160	3	4	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0008A
5-T440	*Bauhinia blakeana*	洋紫荊	120	4	5	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0008A
5-T441	*Syzygium jambos*	蒲桃	300	3	4	Fair	Fair	Medium	Low	Fell	CE22/2006/TW/T/0008A
5-T442	*Ficus rumphii*	假菩提樹	470	6	10	Fair	Fair	High	High	Transplant	CE22/2006/TW/T/0008A
5-T443	*Dimocarpus longan*	龍眼	380	3	10	Good	Fair	High	Medium	Transplant	CE22/2006/TW/T/0008A
5-T444	*Ficus rumphii*	假菩提樹	330	2	7	Fair	Fair	High	High	Transplant	CE22/2006/TW/T/0008A
5-T445	*Syzygium jambos*	蒲桃	140	2	7	Fair	Fair	Medium	Low	Fell	CE22/2006/TW/T/0008A
5-T446	*Lagerstroemia speciosa*	大花紫薇	100	3	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0008A
5-T447	*Lagerstroemia speciosa*	大花紫薇	110	3	4	Fair	Poor	Low	Medium	Fell	CE22/2006/TW/T/0008A
5-T448	*Macaranga tanarius*	血桐	180	3	5	Fair	Fair	Low	Low	Fell	CE22/2006/TW/T/0008A
5-T449	*Celtis sinensis*	朴	240	3	5	Fair	Fair	High	Low	Retain	CE22/2006/TW/T/0008A
5-T450	*Syzygium jambos*	蒲桃	330	3	5	Fair	Fair	Medium	Low	Fell	CE22/2006/TW/T/0008A
5-T451	*Bauhinia blakeana*	洋紫荊	150	3	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/TW/T/0008A
5-T452	*Albizia lebbek*	大葉合歡	400	6	12	Fair	Poor	Low	Medium	Fell	CE22/2006/KW/T/0006A
5-T453	*Delonix regia*	鳳凰木	195	5	7	Good	Good	Medium	Medium	Retain	CE22/2006/KW/T/0007A

Tree numbers listed in other schedules:
5-T152 to 5-T173, 5-T232 to 5-T242, 5-T305 to 5-T309 (Education Centre)
5-T384 to 5-T437 (Resting Station R10)

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T001	*Celtis biondii*	紫彈朴	500	6	10	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0004A
7-T002	*Melaleuca quinquenevia*	白千層	210	3	7	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0004A
7-T003	*Melaleuca quinquenevia*	白千層	200	3	7	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0004A
7-T004	*Melaleuca quinquenevia*	白千層	140	2	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0004A
7-T005	*Melaleuca quinquenevia*	白千層	120	2	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0004A
7-T006	*Melaleuca quinquenevia*	白千層	120	2	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0004A
7-T007	*Michelia alba*	白蘭	380	8	8	Good	Fair	High	High	Retain	CE22/2006/MP/T/0004A
7-T008	*Michelia alba*	白蘭	180	4	7	Good	Fair	High	High	Retain	CE22/2006/MP/T/0004A
7-T009	*Celtis biondii*	紫彈朴	140	4	5	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0004A
7-T010	*Celtis biondii*	紫彈朴	290	8	12	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0004A
7-T011	*Celtis biondii*	紫彈朴	530	10	10	Fair	Fair	Medium	Medium	Retain	CE22/2006/MP/T/0004A
7-T012	*Albizia falcataria*	南洋楹	160	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T160	*Albizia falcataria*	南洋楹	90	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T161	*Albizia falcataria*	南洋楹	110	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T162	*Albizia falcataria*	南洋楹	110	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T163	*Albizia falcataria*	南洋楹	120	2	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T164	*Albizia falcataria*	南洋楹	90	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T165	*Albizia falcataria*	南洋楹	90	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T166	*Albizia falcataria*	南洋楹	100	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T167	*Albizia falcataria*	南洋楹	120	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T168	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T169	*Albizia falcataria*	南洋楹	110	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T170	*Albizia falcataria*	南洋楹	100	5	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T171	*Albizia falcataria*	南洋楹	110	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T172	*Artocarpus heterophyllus*	菠蘿蜜	90	3	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T173	*Artocarpus heterophyllus*	菠蘿蜜	100	3	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T174	*Artocarpus heterophyllus*	菠蘿蜜	100	3	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T175	*Artocarpus heterophyllus*	菠蘿蜜	150	4	5	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T176	*Artocarpus heterophyllus*	菠蘿蜜	110	4	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T177	*Albizia falcataria*	南洋楹	100	4	6	Good	Good	Medium	Low	Retain	CE22/2006/MP/T/0012A
7-T178	*Albizia falcataria*	南洋楹	90	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T179	*Albizia falcataria*	南洋楹	120	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T180	*Albizia falcataria*	南洋楹	110	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T181	*Albizia falcataria*	南洋楹	110	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T184	*Albizia falcataria*	南洋楹	110	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T185	*Albizia falcataria*	南洋楹	120	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T186	*Albizia falcataria*	南洋楹	100	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T187	*Albizia falcataria*	南洋楹	100	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T188	*Artocarpus heterophyllus*	菠蘿蜜	170	2	3	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T189	*Mangifera indica*	芒果	160	2	3	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T190	*Mangifera indica*	芒果	130	2	3	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0012A
7-T191	*Albizia falcataria*	南洋楹	110	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T192	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T193	*Albizia falcataria*	南洋楹	110	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T194	*Albizia falcataria*	南洋楹	120	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T195	*Albizia falcataria*	南洋楹	120	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T198	*Albizia falcataria*	南洋楹	150	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T199	*Albizia falcataria*	南洋楹	170	5	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T200	*Hibiscus tiliaceus*	黃槿	240	5	7	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T201	*Hibiscus tiliaceus*	黃槿	210	6	7	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T202	*Melaleuca quinquenevia*	白千層	240	3	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T203	*Melaleuca quinquenevia*	白千層	190	4	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T204	*Melaleuca quinquenevia*	白千層	190	2	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T205	*Melaleuca quinquenevia*	白千層	130	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T206	*Melaleuca quinquenevia*	白千層	180	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T207	*Melaleuca quinquenevia*	白千層	140	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T208	*Acacia auriculiformis*	耳果相思	200	5	7	Good	Good	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T209	*Melaleuca quinquenevia*	白千層	130	2	2	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T210	*Syzygium cumini*	海南蒲桃	170	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T211	*Melia azedarach*	苦楝樹	180	4	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T212	*Melia azedarach*	苦楝樹	150	4	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T213	*Ficus benjamina*	垂葉榕	140	3	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T214	*Hibiscus tiliaceus*	黃槿	200	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T215	*Hibiscus tiliaceus*	黃槿	280	5	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T216	*Hibiscus tiliaceus*	黃槿	190	4	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T217	*Hibiscus tiliaceus*	黃槿	160	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T218	*Hibiscus tiliaceus*	黃槿	180	4	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T219	*Hibiscus tiliaceus*	黃槿	150	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T220	*Hibiscus tiliaceus*	黃槿	200	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T221	*Hibiscus tiliaceus*	黃槿	280	4	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T222	*Hibiscus tiliaceus*	黃槿	390	5	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T223	*Celtis biondii*	紫彈朴	150	5	5	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T224	*Albizia falcataria*	南洋楹	100	2	4	Good	Good	High	Low	Retain	CE22/2006/MP/T/0012A
7-T225	*Celtis biondii*	紫彈朴	170	4	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T226	*Celtis biondii*	紫彈朴	200	3	6	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T227	*Cassia surattensis*	黃槐	130	2	3	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T228	*Cassia surattensis*	黃槐	120	2	3	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T229	*Cassia surattensis*	黃槐	130	2	3	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T230	*Phyllanthus emblica*	餘甘子	130	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T231	*Phyllanthus emblica*	餘甘子	110	2	2	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T232	*Phyllanthus emblica*	餘甘子	120	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T233	*Phyllanthus emblica*	餘甘子	110	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T234	*Phyllanthus emblica*	餘甘子	130	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T235	*Phyllanthus emblica*	餘甘子	110	3	4	Good	Good	Medium	Low	Retain	CE22/2006/MP/T/0012A
7-T236	*Acacia confusa*	台灣相思	140	2	3	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T237	*Cassia surattensis*	黃槐	110	2	2	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T238	*Phyllanthus emblica*	餘甘子	130	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T239	*Phyllanthus emblica*	餘甘子	120	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T240	*Acacia confusa*	台灣相思	160	3	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T241	*Cassia surattensis*	黃槐	120	2	4	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T242	*Cassia surattensis*	黃槐	160	2	3	Fair	Fair	Low	Medium	Fell	CE22/2006/MP/T/0012A
7-T243	*Phyllanthus emblica*	餘甘子	130	3	5	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T244	*Phyllanthus emblica*	餘甘子	140	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T245	*Phyllanthus emblica*	餘甘子	160	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T246	*Acacia confusa*	台灣相思	220	2	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T247	*Melaleuca quinquenevia*	白千層	200	3	5	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T248	*Albizia falcataria*	南洋楹	110	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T249	*Albizia falcataria*	南洋楹	120	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T250	*Albizia falcataria*	南洋楹	150	2	2	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A

Note:
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Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T251	*Albizia falcataria*	南洋楹	110	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T252	*Albizia falcataria*	南洋楹	130	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T253	*Albizia falcataria*	南洋楹	100	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T254	*Albizia falcataria*	南洋楹	110	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T255	*Phyllanthus emblica*	餘甘子	120	2	2	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T256	*Acacia confusa*	台灣相思	130	4	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T257	*Celtis biondii*	紫彈朴	110	2	4	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T258	*Phyllanthus emblica*	餘甘子	150	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T259	*Celtis biondii*	紫彈朴	140	2	3	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T260	*Phyllanthus emblica*	餘甘子	120	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T261	*Albizia falcataria*	南洋楹	110	4	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T262	*Albizia falcataria*	南洋楹	120	2	2	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T263	*Albizia falcataria*	南洋楹	110	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T264	*Albizia falcataria*	南洋楹	110	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T265	*Albizia falcataria*	南洋楹	120	5	8	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T266	*Albizia falcataria*	南洋楹	110	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T267	*Albizia falcataria*	南洋楹	110	2	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T268	*Albizia falcataria*	南洋楹	90	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T269	*Albizia falcataria*	南洋楹	110	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T270	*Albizia falcataria*	南洋楹	130	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T271	*Albizia falcataria*	南洋楹	140	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T272	*Calliandra haematocephata*	紅絨球	110	3	7	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T273	*Albizia falcataria*	南洋楹	100	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T274	*Albizia falcataria*	南洋楹	130	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T275	*Albizia falcataria*	南洋楹	110	3	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T276	*Albizia falcataria*	南洋楹	120	2	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T277	*Albizia falcataria*	南洋楹	120	2	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T278	*Albizia falcataria*	南洋楹	120	2	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T279	*Phyllanthus emblica*	餘甘子	130	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T280	*Phyllanthus emblica*	餘甘子	110	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T281	*Phyllanthus emblica*	餘甘子	110	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T282	*Albizia falcataria*	南洋楹	100	2	4	Good	Good	Medium	Low	Retain	CE22/2006/MP/T/0012A
7-T283	*Jacaranda acutifolia*	藍花楹	110	2	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A

Note:
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Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T284	*Jacaranda acutifolia*	藍花楹	130	2	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T285	*Jacaranda acutifolia*	藍花楹	160	2	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T286	*Phyllanthus emblica*	餘甘子	160	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T287	*Phyllanthus emblica*	餘甘子	140	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T288	*Hibiscus tiliaceus*	黃槿	230	7	9	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T289	*Hibiscus tiliaceus*	黃槿	300	7	9	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T290	*Hibiscus tiliaceus*	黃槿	340	7	9	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T291	*Hibiscus tiliaceus*	黃槿	280	6	8	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T292	*Hibiscus tiliaceus*	黃槿	200	5	8	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T293	*Albizia falcataria*	南洋楹	140	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T294	*Albizia falcataria*	南洋楹	200	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T295	*Jacaranda acutifolia*	藍花楹	120	2	3	Good	Good	Medium	Medium	Fell	CE22/2006/MP/T/0012A
7-T296	*Phyllanthus emblica*	餘甘子	110	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T297	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T298	*Albizia falcataria*	南洋楹	110	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T299	*Phyllanthus emblica*	餘甘子	130	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T300	*Phyllanthus emblica*	餘甘子	140	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T301	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0012A
7-T302	*Calliandra haematocephata*	紅絨球	130	3	5	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T303	*Calliandra haematocephata*	紅絨球	160	3	4	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T304	*Calliandra haematocephata*	紅絨球	200	3	5	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T305	*Jacaranda acutifolia*	藍花楹	120	2	4	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0012A
7-T306	*Albizia falcataria*	南洋楹	110	1	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T307	*Albizia falcataria*	南洋楹	110	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T308	*Albizia falcataria*	南洋楹	150	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T309	*Albizia falcataria*	南洋楹	130	5	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T310	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T311	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T312	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T313	*Albizia falcataria*	南洋楹	110	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T314	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T315	*Albizia falcataria*	南洋楹	150	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T316	*Albizia falcataria*	南洋楹	200	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T317	*Phyllanthus emblica*	餘甘子	130	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T318	*Albizia falcataria*	南洋楹	110	2	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T319	*Albizia falcataria*	南洋楹	160	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T320	*Albizia falcataria*	南洋楹	140	1	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T321	*Phyllanthus emblica*	餘甘子	120	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T322	*Phyllanthus emblica*	餘甘子	120	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T323	*Phyllanthus emblica*	餘甘子	130	3	5	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T324	*Phyllanthus emblica*	餘甘子	140	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T325	*Albizia falcataria*	南洋楹	140	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T326	*Jacaranda acutifolia*	藍花楹	130	2	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T327	*Jacaranda acutifolia*	藍花楹	110	2	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T328	*Jacaranda acutifolia*	藍花楹	150	2	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T329	*Jacaranda acutifolia*	藍花楹	130	2	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T330	*Jacaranda acutifolia*	藍花楹	120	3	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T331	*Jacaranda acutifolia*	藍花楹	90	3	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T332	*Jacaranda acutifolia*	藍花楹	110	3	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T333	*Jacaranda acutifolia*	藍花楹	90	2	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T334	*Jacaranda acutifolia*	藍花楹	90	3	3	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T335	*Jacaranda acutifolia*	藍花楹	120	3	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T336	*Jacaranda acutifolia*	藍花楹	110	4	4	Good	Good	Medium	Medium	Retain	CE22/2006/MP/T/0012A
7-T337	*Phyllanthus emblica*	餘甘子	130	3	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T338	*Acacia confusa*	台灣相思	140	3	6	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T339	*Phyllanthus emblica*	餘甘子	110	3	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T340	*Phyllanthus emblica*	餘甘子	150	3	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T341	*Acacia confusa*	台灣相思	150	4	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T342	*Calliandra haematocephata*	紅絨球	180	4	7	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T343	*Calliandra haematocephata*	紅絨球	160	2	4	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T344	*Syzygium cumini*	海南蒲桃	130	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T345	*Hibiscus tiliaceus*	黃槿	170	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T346	*Hibiscus tiliaceus*	黃槿	220	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T347	*Syzygium cumini*	海南蒲桃	160	2	3	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T348	*Hibiscus tiliaceus*	黃槿	190	2	3	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T349	*Hibiscus tiliaceus*	黃槿	190	2	3	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T350	*Hibiscus tiliaceus*	黃槿	100	2	3	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T351	*Syzygium cumini*	海南蒲桃	130	2	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T352	*Syzygium cumini*	海南蒲桃	120	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T353	*Syzygium cumini*	海南蒲桃	170	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T354	*Syzygium cumini*	海南蒲桃	190	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T355	*Syzygium cumini*	海南蒲桃	120	2	2	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T356	*Syzygium cumini*	海南蒲桃	190	2	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T357	*Ficus benjamina*	垂葉榕	170	2	3	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T358	*Celtis biondii*	紫彈朴	120	2	3	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T359	*Calliandra haematocephata*	紅絨球	160	2	3	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T360	*Calliandra haematocephata*	紅絨球	130	2	4	Fair	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T361	*Syzygium cumini*	海南蒲桃	160	2	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T362	*Syzygium cumini*	海南蒲桃	150	3	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T363	*Melaleuca quinquenevia*	白千層	170	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T364	*Melaleuca quinquenevia*	白千層	170	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T365	*Melaleuca quinquenevia*	白千層	190	2	3	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T366	*Melaleuca quinquenevia*	白千層	140	2	3	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T367	*Melaleuca quinquenevia*	白千層	190	2	4	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T368	*Melaleuca quinquenevia*	白千層	120	2	3	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0012A
7-T369	*Syzygium cumini*	海南蒲桃	140	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T370	*Syzygium cumini*	海南蒲桃	140	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T371	*Syzygium cumini*	海南蒲桃	140	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T372	*Syzygium cumini*	海南蒲桃	180	3	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T373	*Hibiscus tiliaceus*	黃槿	190	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T374	*Hibiscus tiliaceus*	黃槿	230	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T375	*Hibiscus tiliaceus*	黃槿	180	3	4	Good	Good	High	High	Transplant	CE22/2006/MP/T/0012A
7-T376	*Hibiscus tiliaceus*	黃槿	330	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T377	*Hibiscus tiliaceus*	黃槿	180	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T378	*Hibiscus tiliaceus*	黃槿	280	3	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T379	*Hibiscus tiliaceus*	黃槿	230	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T380	*Albizia falcataria*	南洋楹	130	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T381	*Albizia falcataria*	南洋楹	120	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T382	*Albizia falcataria*	南洋楹	150	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T383	*Hibiscus tiliaceus*	黃槿	210	5	7	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T384	*Hibiscus tiliaceus*	黃槿	180	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T385	*Hibiscus tiliaceus*	黃槿	220	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T386	*Hibiscus tiliaceus*	黃槿	200	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T387	*Hibiscus tiliaceus*	黃槿	200	4	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T388	*Hibiscus tiliaceus*	黃槿	190	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T389	*Hibiscus tiliaceus*	黃槿	150	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T390	*Hibiscus tiliaceus*	黃槿	130	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T391	*Acacia confusa*	台灣相思	110	2	4	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0012A
7-T392	*Hibiscus tiliaceus*	黃槿	180	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T393	*Hibiscus tiliaceus*	黃槿	100	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T394	*Hibiscus tiliaceus*	黃槿	150	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T395	*Hibiscus tiliaceus*	黃槿	150	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T396	*Hibiscus tiliaceus*	黃槿	200	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T397	*Phyllanthus emblica*	餘甘子	110	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T398	*Hibiscus tiliaceus*	黃槿	220	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T399	*Hibiscus tiliaceus*	黃槿	220	5	6	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T400	*Ficus benjamina*	垂葉榕	250	3	5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T401	*Ficus benjamina*	垂葉榕	200	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0012A
7-T402	*Hibiscus tiliaceus*	黃槿	100	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0012A
7-T403	*Phyllanthus emblica*	餘甘子	120	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T404	*Albizia falcataria*	南洋楹	140	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T405	*Albizia falcataria*	南洋楹	190	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T406	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0012A
7-T407	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0012A
7-T408	*Phyllanthus emblica*	餘甘子	130	1	2	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T409	*Phyllanthus emblica*	餘甘子	230	6	6	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T410	*Phyllanthus emblica*	餘甘子	130	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T411	*Phyllanthus emblica*	餘甘子	130	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T412	*Phyllanthus emblica*	餘甘子	150	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T413	*Phyllanthus emblica*	餘甘子	110	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T414	*Phyllanthus emblica*	餘甘子	110	2	3	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T415	*Jacaranda acutifolia*	藍花楹	110	2	2	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0012A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T418	*Macaranga tanarius*	血桐	130	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T419	*Macaranga tanarius*	血桐	110	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T420	*Syzygium cumini*	海南蒲桃	160	3	7	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T421	*Syzygium cumini*	海南蒲桃	200	3	8	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T422	*Phyllanthus emblica*	餘甘子	120	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T423	*Phyllanthus emblica*	餘甘子	120	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T424	*Phyllanthus emblica*	餘甘子	140	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T425	*Phyllanthus emblica*	餘甘子	130	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T426	*Syzygium cumini*	海南蒲桃	240	4	6	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0012A
7-T427	*Casuarinn equiestifolia*	木麻黃	310	6	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
7-T428	*Casuarinn equiestifolia*	木麻黃	250	6	9	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
7-T429	*Casuarinn equiestifolia*	木麻黃	300	6	10	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0005A
7-T430	*Albizia falcataria*	南洋楹	260	3	8	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0005A
7-T431	*Albizia falcataria*	南洋楹	120	3	6	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0005A
7-T432	*Albizia falcataria*	南洋楹	120	2	3	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0005A
7-T433	*Albizia falcataria*	南洋楹	370	3	5	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0005A
7-T434	*Albizia falcataria*	南洋楹	140	2	4	Good	Good	High	Low	Transplant	CE22/2006/MP/T/0005A
7-T435	*Syzygium cumini*	海南蒲桃	220	4	8	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0005A
7-T436	*Macaranga tanarius*	血桐	190	3	5	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0005A
7-T437	*Syzygium jambos*	蒲桃	110	2	4	Good	Good	Medium	Low	Fell	CE22/2006/MP/T/0005A
7-T438	*Melia azedarach*	苦楝樹	140	2	5	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0005A
7-T439	*Ficus microcarpa*	細葉榕	110	1	3	Good	Good	High	High	Transplant	CE22/2006/MP/T/0005A
7-T440	*Melia azedarach*	苦楝樹	200	3	6	Good	Good	High	Medium	Transplant	CE22/2006/MP/T/0005A
7-T441	*Albizia lebbeck*	大葉合歡	120	3	4	Good	Good	High	High	Retain	CE22/2006/MP/T/0005A
7-T442	*Albizia lebbeck*	大葉合歡	170	2	4	Good	Good	High	High	Retain	CE22/2006/MP/T/0005A
7-T458	*Albizia falcataria*	南洋楹	150	4	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T459	*Albizia falcataria*	南洋楹	220	5	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T460	*Albizia falcataria*	南洋楹	150	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T461	*Albizia falcataria*	南洋楹	140	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T462	*Albizia falcataria*	南洋楹	140	4	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T463	*Albizia falcataria*	南洋楹	120	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T464	*Albizia falcataria*	南洋楹	130	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T465	*Albizia falcataria*	南洋楹	130	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T466	*Albizia falcataria*	南洋楹	150	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T467	*Ficus benjamina*	垂葉榕	330	5	8	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T468	*Ficus benjamina*	垂葉榕	210	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T469	*Ficus benjamina*	垂葉榕	300	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T470	*Ficus benjamina*	垂葉榕	280	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T471	*Ficus benjamina*	垂葉榕	250	4	8	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T472	*Ficus benjamina*	垂葉榕	310	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T473	*Ficus benjamina*	垂葉榕	170	3	5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T474	*Ficus benjamina*	垂葉榕	400	4	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T475	*Ficus benjamina*	垂葉榕	200	3	5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T476	*Ficus benjamina*	垂葉榕	210	3	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T477	*Ficus benjamina*	垂葉榕	280	2	5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T478	*Ficus benjamina*	垂葉榕	270	3	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T479	*Ficus benjamina*	垂葉榕	250	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T480	*Ficus benjamina*	垂葉榕	400	5	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T481	*Ficus benjamina*	垂葉榕	260	4	7	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T482	*Ficus benjamina*	垂葉榕	120	3	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T483	*Ficus benjamina*	垂葉榕	330	5	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T484	*Albizia falcataria*	南洋楹	190	5	8	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T485	*Albizia falcataria*	南洋楹	190	5	8	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T486	*Albizia falcataria*	南洋楹	130	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T487	*Albizia falcataria*	南洋楹	130	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T488	*Albizia falcataria*	南洋楹	400	7	10	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T489	*Albizia falcataria*	南洋楹	260	6	10	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T490	*Albizia falcataria*	南洋楹	120	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T491	*Albizia falcataria*	南洋楹	130	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T492	*Albizia falcataria*	南洋楹	140	3	6	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T493	*Albizia falcataria*	南洋楹	170	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T494	*Albizia falcataria*	南洋楹	150	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T495	*Albizia falcataria*	南洋楹	180	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T496	*Albizia falcataria*	南洋楹	130	2	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T497	*Albizia falcataria*	南洋楹	120	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T498	*Albizia falcataria*	南洋楹	140	2	3	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T499	*Albizia falcataria*	南洋楹	130	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T500	*Albizia falcataria*	南洋楹	190	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T501	*Albizia falcataria*	南洋楹	110	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T502	*Albizia falcataria*	南洋楹	150	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T503	*Jacaranda acutifolia*	藍花楹	110	2	3	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T504	*Albizia falcataria*	南洋楹	150	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T505	*Jacaranda acutifolia*	藍花楹	130	2	4	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T506	*Jacaranda acutifolia*	藍花楹	260	3	4	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T507	*Albizia falcataria*	南洋楹	110	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T508	*Acacia confusa*	台灣相思	200	3	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
7-T509	*Albizia falcataria*	南洋楹	170	3	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T510	*Jacaranda acutifolia*	藍花楹	130	2	4	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T511	*Albizia falcataria*	南洋楹	110	2	4	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T512	*Acacia confusa*	台灣相思	200	3	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
7-T513	*Albizia falcataria*	南洋楹	110	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T514	*Albizia falcataria*	南洋楹	200	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T515	*Albizia falcataria*	南洋楹	120	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T516	*Acacia auriculiformis*	耳果相思	160	3	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
7-T517	*Acacia auriculiformis*	耳果相思	190	3	6	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
7-T518	*Acacia auriculiformis*	耳果相思	110	2	5	Fair	Fair	Low	Low	Fell	CE22/2006/MP/T/0004A
7-T519	*Albizia falcataria*	南洋楹	250	4	7	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T520	*Albizia falcataria*	南洋楹	120	3	5	Good	Good	Medium	Low	Transplant	CE22/2006/MP/T/0004A
7-T521	*Jacaranda acutifolia*	藍花楹	140	2	3	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T522	*Jacaranda acutifolia*	藍花楹	260	7	9	Good	Good	High	Medium	Retain	CE22/2006/MP/T/0004A
7-T523	*Hibiscus tiliaceus*	黃槿	370	3	5	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T524	*Hibiscus tiliaceus*	黃槿	150	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T525	*Hibiscus tiliaceus*	黃槿	120	2	3	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T526	*Hibiscus tiliaceus*	黃槿	150	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T527	*Hibiscus tiliaceus*	黃槿	130	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T528	*Hibiscus tiliaceus*	黃槿	120	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T529	*Hibiscus tiliaceus*	黃槿	140	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T530	*Hibiscus tiliaceus*	黃槿	120	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A
7-T531	*Hibiscus tiliaceus*	黃槿	150	2	4	Good	Good	Medium	Medium	Transplant	CE22/2006/MP/T/0004A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

SECTION 7 (San Tin Tsuen Road)

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
7-T532	*Bischofia javanica*	秋楓	100	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0004A
7-T533	*Bischofia javanica*	秋楓	110	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0004A
7-T534	*Syzygium cumini*	海南蒲桃	190	4	5	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0004A
7-T535	*Syzygium cumini*	海南蒲桃	100	2	3	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0004A
7-T536	*Syzygium cumini*	海南蒲桃	120	2	4	Fair	Fair	Medium	Low	Fell	CE22/2006/MP/T/0004A
7-T537	*Eucalyptus robusta*	大葉桉	200	5	11	Fair	Fair	High	Medium	Fell	CE22/2006/MP/T/0004A
7-T538	*Eucalyptus robusta*	大葉桉	180	3	9	Fair	Fair	High	Medium	Fell	CE22/2006/MP/T/0004A
7-T539	*Eucalyptus robusta*	大葉桉	100	2	6	Fair	Fair	High	Medium	Fell	CE22/2006/MP/T/0004A
7-T540	*Eucalyptus robusta*	大葉桉	130	3	7	Fair	Fair	High	Medium	Fell	CE22/2006/MP/T/0004A
7-T541	*Salix babylonica*	垂柳	130	3	6	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T542	*Salix babylonica*	垂柳	110	2	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T543	*Salix babylonica*	垂柳	110	2	3	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T544	*Salix babylonica*	垂柳	160	3	5	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T545	*Salix babylonica*	垂柳	130	3	4	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A
7-T546	*Salix babylonica*	垂柳	140	2	3	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0004A

Tree numbers not used:
7-T013 to 7-T159, 7-T182, 7-T183, 7-T196, 7-T197, 7-T416, 7-T417, 7-T443 to 7-T457

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

RESTING STATIONS - R5

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
4-T052	*Eucalyptus camaldulensis*	赤桉	250	3	14	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0001A
4-T053	*Eucalyptus camaldulensis*	赤桉	170	4	12	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0001A
4-T054	*Eucalyptus camaldulensis*	赤桉	210	4	12	Fair	Fair	Low	High	Transplant	CE22/2006/MP/T/0001A
4-T055	*Ficus microcarpa*	細葉榕	210	5	12	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T056	*Ficus microcarpa*	細葉榕	300	7	10	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T057	*Ficus microcarpa*	細葉榕	200	5	10	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T058	*Ficus microcarpa*	細葉榕	160	7	10	Fair	Fair	High	High	Transplant	CE22/2006/MP/T/0001A
4-T059	*Ficus microcarpa*	細葉榕	170	6	8	Fair	Poor	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T060	*Celtis sinensis*	朴	230	4	7	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0001A
4-T061	*Celtis sinensis*	朴	170	2	10	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0001A
4-T062	*Khaya senegalensis*	非洲楝	360	10	15	Fair	Fair	Medium	Medium	Transplant	CE22/2006/MP/T/0001A
4-T063	*Hibiscus tiliaceus*	黃槿	170	4	7	Fair	Poor	Low	Medium	Transplant	CE22/2006/MP/T/0001A
4-T064	*Hibiscus tiliaceus*	黃槿	300	7	8	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0001A
4-T065	*Hibiscus tiliaceus*	黃槿	270	4	7	Fair	Fair	Low	Medium	Transplant	CE22/2006/MP/T/0001A
4-T066	*Melaleuca quinquenevia*	白千層	270	1.5	6	Fair	Fair	Medium	High	Transplant	CE22/2006/MP/T/0001A
4-T067	*Cinnamomum camphora*	樟	200	7	3	Fair	Poor	Medium	Low	Fell	CE22/2006/MP/T/0001A
4-T068	*Cinnamomum camphora*	樟	260	3	7	Fair	Fair	High	Low	Retain	CE22/2006/MP/T/0001A
4-T069	*Melaleuca quinquenevia*	白千層	130	1	0	Fair	Poor	Low	High	Fell	CE22/2006/MP/T/0001A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B

Appendix 12-1 Preliminary Tree Survey

RESTING STATION R9.

Tree No.	Tree Species	Chinese name	DBH	Spread	Height	Health	Form	Amenity / Ecological Value	Species post-transplantation survival rate	Proposed treatment under conflict	Reference Drawing
			(mm)	(m)	(m)	(Good/Fair/Poor)	(Good/Fair/Poor)	(High/Medium/Low)	(High/Medium/Low)	(Retain/Fell/Transplant)	
5-T152	*Eucalyptus camaldulensis*	赤桉	266	6	12	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T153	*Acacia auriculiformis*	耳果相思	136	5.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T154	*Acacia auriculiformis*	耳果相思	146	5	8.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T155	*Eucalyptus camaldulensis*	赤桉	164	5	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T156	*Eucalyptus camaldulensis*	赤桉	163	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T157	*Eucalyptus camaldulensis*	赤桉	137	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T158	*Eucalyptus camaldulensis*	赤桉	164	4.5	8.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T159	*Acacia auriculiformis*	耳果相思	150	5	7.5	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T160	*Eucalyptus camaldulensis*	赤桉	174	4	9.5	Poor	Fair	Low	High	Fell	CE22/2006/KW/T/0007A
5-T161	*Eucalyptus camaldulensis*	赤桉	150	4	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T162	*Eucalyptus camaldulensis*	赤桉	186	4.5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T163	*Eucalyptus camaldulensis*	赤桉	188	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T164	*Acacia auriculiformis*	耳果相思	126	5	9	Fair	Poor	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T165	*Eucalyptus camaldulensis*	赤桉	212	5	9	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T166	*Eucalyptus camaldulensis*	赤桉	179	4.5	8	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T167	*Eucalyptus camaldulensis*	赤桉	154	5	6.5	Fair	Poor	Low	High	Fell	CE22/2006/KW/T/0007A
5-T168	*Eucalyptus camaldulensis*	赤桉	128	4.5	7	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T169	*Eucalyptus camaldulensis*	赤桉	109	3.5	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T170	*Eucalyptus camaldulensis*	赤桉	110	3.5	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T171	*Eucalyptus camaldulensis*	赤桉	115	3	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T172	*Eucalyptus camaldulensis*	赤桉	99	3	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T173	*Eucalyptus camaldulensis*	赤桉	117	3.5	6.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T236	*Acacia auriculiformis*	耳果相思	187	4.5	8	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T237	*Acacia auriculiformis*	耳果相思	125	5	6.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T238	*Eucalyptus camaldulensis*	赤桉	123	4	7.5	Fair	Fair	Low	High	Transplant	CE22/2006/KW/T/0007A
5-T239	*Acacia auriculiformis*	耳果相思	146	4	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T241	*Acacia auriculiformis*	耳果相思	112	4	7.5	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A
5-T242	*Acacia auriculiformis*	耳果相思	106	4	7	Fair	Fair	Low	Low	Fell	CE22/2006/KW/T/0007A

Note:
* - *Leucaena leucocephala* ; # - Potential OVT pursuant to ETWB TCW No. 29/2004, Appendix B