

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

Environmental Impact Assessment

**Environmental Monitoring & Audit (EM&A) Manual
Final**

December 2008

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1. INTRODUCTION

1.1 Background

1.1.1 This Environmental Monitoring and Audit (EM&A) Manual is for the “Construction of Cycle Tracks and the Associated Supporting Facilities from Sha Po Tsuen to Shek Sheung River”.

1.1.2 The Project location is shown on **Figure 1-1** and comprises the following primary works elements:

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.

1.2 Construction Programme

1.2.1 The construction is scheduled to commence in mid 2009 and will be completed by early 2012.

1.3 Purpose of the Manual

1.3.1 The purpose of this EM&A Manual (hereafter refer to as the “Manual”) is to guide the set up of an EM&A programme to ensure compliance with the Environmental Impact Assessment (EIA) study recommendations, to assess the effectiveness of the recommended mitigation measures and to identify any further need for additional mitigation measures or remedial action. This Manual outlines the monitoring and audit programme for both the construction and operational phase of the Project. It aims to provide systematic procedures for monitoring, auditing and minimising environmental impacts associated with the construction and operational phases.

1.3.2 Hong Kong environmental regulations, the *Hong Kong Planning Standards and Guidelines* (HKPSG) and recommendations in the EIA Report for the Project have served as environmental standards and guidelines in the preparation of this Manual. In addition, the EM&A Manual has been prepared in accordance with the requirements stipulated in Annex 21 of the *Technical Memorandum on the EIA Process* (EIAO-TM).

1.3.3 This Manual specifies the environmental monitoring and audit requirements to ensure that the mitigation measures recommended in the EIA are effectively implemented and the whole EM&A programme properly managed.

1.4 Contents

1.4.1 The recommended EM&A programme in this Manual contains the following information:

- Duties of the Contractor, Engineer's Representative (ER), the Environmental Team (ET) and the Independent Environmental Checker (IEC) with and their respective responsibilities with regards to the EM&A requirements during construction;
- Information on project organisation, work schedule and activities;
- Requirements with respect to the work schedule and the necessary EM&A programme to detect the various possible environmental impacts;
- Definition of Action/ Limit Levels and the establishment of Event/ Action Plans;
- Requirements for reviewing potential sources of pollution and assessing working procedures in the event of non-compliance with the environmental criteria;
- Requirements for the presentation of EM&A data and appropriate reporting procedures; and
- Proposed field data forms to be adopted during the various phases of the works.

1.4.2 For the purpose of this Manual, the ET Leader, who shall be responsible for and in charge of the ET, shall refer to the person delegated the role of executing the EM&A requirements.

1.4.3 An Implementation Schedule (IS) of the environmental mitigation measures has been developed and presented in **Appendix 1** in accordance with the requirements of Clause 3.4.12 of the EIA Study Brief.

1.4.4 This Manual shall form the basis and be regarded as an evolving document that should be updated whenever necessary to reflect the EP requirements and activities on-site (e.g. when alternative monitoring locations are proposed). The updated EM&A Manual (if any) shall be certified by ET Leader, verified by IEC and finally submitted to the Engineer's Representative (ER) and EPD for agreement.

2. PROJECT ORGANISATION

2.1 Key Parties and Organisation Chart

2.1.1 Involvement of relevant parties in a collaborative and interactive manner is essential for the implementation of the recommended EM&A programme. The key parties in an EM&A programme include:

- Civil Engineering & Development Department (CEDD) - Project Proponent
- Environmental Protection Department (EPD) - Environmental Authority
- Engineer's Representative (ER) - Scott Wilson Ltd. employed under Agreement No. CE 22/2006 (HY) by CEDD
- The Independent Checker (Environment) (IEC) – to be employed by CEDD
- The Environmental Team (ET) – to be employed preferably by CEDD or the Contractor

- The Contractor

2.1.2 An organisation chart that shows the relationships of the key parties is presented on Page 2-7. Each key party is briefly described in the following sections.

2.1.3 Sufficient and suitably qualified professional and technical staff shall be employed by the respective parties to ensure full compliance with their duties and responsibilities, as required under this EM&A Manual for the whole duration of this Project.

2.2 Civil Engineering & Development Department

2.2.1 Civil Engineering & Development Department (CEDD) is the project proponent and works department and hence will assume overall responsibility for the project. CEDD shall liaise with EPD on environmental issues associated with the project with IEC's advices.

2.3 Environmental Protection Department

2.3.1 Environmental Protection Department (EPD) is the statutory enforcement body for environmental protection matters in Hong Kong.

2.4 Engineer's Representative

2.4.1 The ER shall be responsible for overseeing the operations of the Contractor and the ET. He shall advise, co-ordinate and give instruction when appropriate for efficient implementation of any specific environmental mitigation measures identified by the Contractor, and/or outstanding EM&A works required to be carried out by ET in consultation with the IEC. The ER shall supervise the Contractor's activities and ensure that the requirements in the Environmental Permit (EP), EIA Report, EM&A Manual and other government's standards are fully complied with.

2.4.2 The ER shall inform the Contractor when action is required to reduce impacts in accordance with the Event/Action Plans, and participate in the joint site inspection undertaken by the ET and the Contractor. The ER shall review the EM&A Reports submitted by the ET and follow up the recommendations. He shall ensure that the Contractor is implementing the environmental controls and mitigation measures as set out in the EIA report and EM&A Manual, as well as additional measures necessary for compliance with the relevant environmental standards.

2.4.3 In the event that the ET needs to undertake complaint investigation work, the ER and the Contractor shall adhere to the procedures for carrying out complaint investigation in accordance with Section 11.3 of the Manual, and co-operate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are required following the investigation, the ER shall ensure that the Contractor has carried them out.

2.5 Independent Environmental Checker

2.5.1 The IEC shall be employed by CEDD and advise the ER on environmental issues related to the project. The IEC shall not be in any way an associated body of the ER, the Contractor or the ET for the project. The IEC shall be empowered to audit

from an independent viewpoint the environmental performance during the construction of the Project. The IEC shall be a person who has relevant professional qualifications in environmental control and at least 7 years experience in EM&A and environmental management.

- 2.5.2 The IEC shall be responsible for the duties defined in the Manual, and shall audit the overall EM&A programme, including the implementation of all environmental mitigation measures, submissions required in this Manual, as well as any other relevant submissions required under the Environmental Permit. The IEC shall be responsible for verifying the environmental acceptability of permanent and temporary works, relevant design plans and submissions under the EP. The IEC shall verify the logbook prepared and kept by the ET Leader. The IEC shall notify EPD by fax, within 24 hours of receipt of notification from the ET Leader of any such instance or circumstance or change of circumstances or non-compliance with the EIA Report or the EP, which might affect the monitoring or control of adverse environmental impact.
- 2.5.3 The main duties of the IEC are to carry out independent environmental audit of the project. This shall include, inter alia, the following:
- Review and audit in an independent, objective and professional manner in all aspects of the EM&A programme;
 - Validate and confirm the accuracy of monitoring results, appropriateness of monitoring equipment, monitoring locations with reference to the locations of the nearby sensitive receivers, and monitoring procedures;
 - Carry out random sample check and audit on monitoring data and sampling procedures, etc;
 - Conduct random site inspection (at least once a month);
 - Audit the EIA recommendations and EP requirements against the status of implementation of environmental protection measures on site;
 - Review the effectiveness of environmental mitigation measures and Project environmental performance;
 - On an as needed basis, verify and certify the environmental acceptability of the construction methodology (both temporary and permanent works), relevant design plans and submissions under the environmental permit. Where necessary, the IEC shall agree in consultation with the ET Leader and the Contractor the least impact alternative;
 - Verify investigation results of complaint cases and the effectiveness of corrective measures;
 - Verify EM&A reports submitted and certified by the ET Leader; and
 - Feedback audit results to ER/ ET by signing according to the Event/ Action Plans specified in this Manual.

2.6 Environmental Team

- 2.6.1 An ET headed by an ET Leader shall preferably be appointed by CEDD or the Contractor to carry out the recommended EM&A programme for this project. Neither ET Leader nor ET shall be in any way an associated body of ER, IEC or the Contractor. The ET Leader shall plan, organise and manage the implementation of

the EM&A programme, and ensure that the EM&A works are undertaken to the required standards. The ET Leader shall have relevant professional qualifications in environmental control and possess at least 7 years experience in EM&A and/or environmental management subject to the approval of their employer.

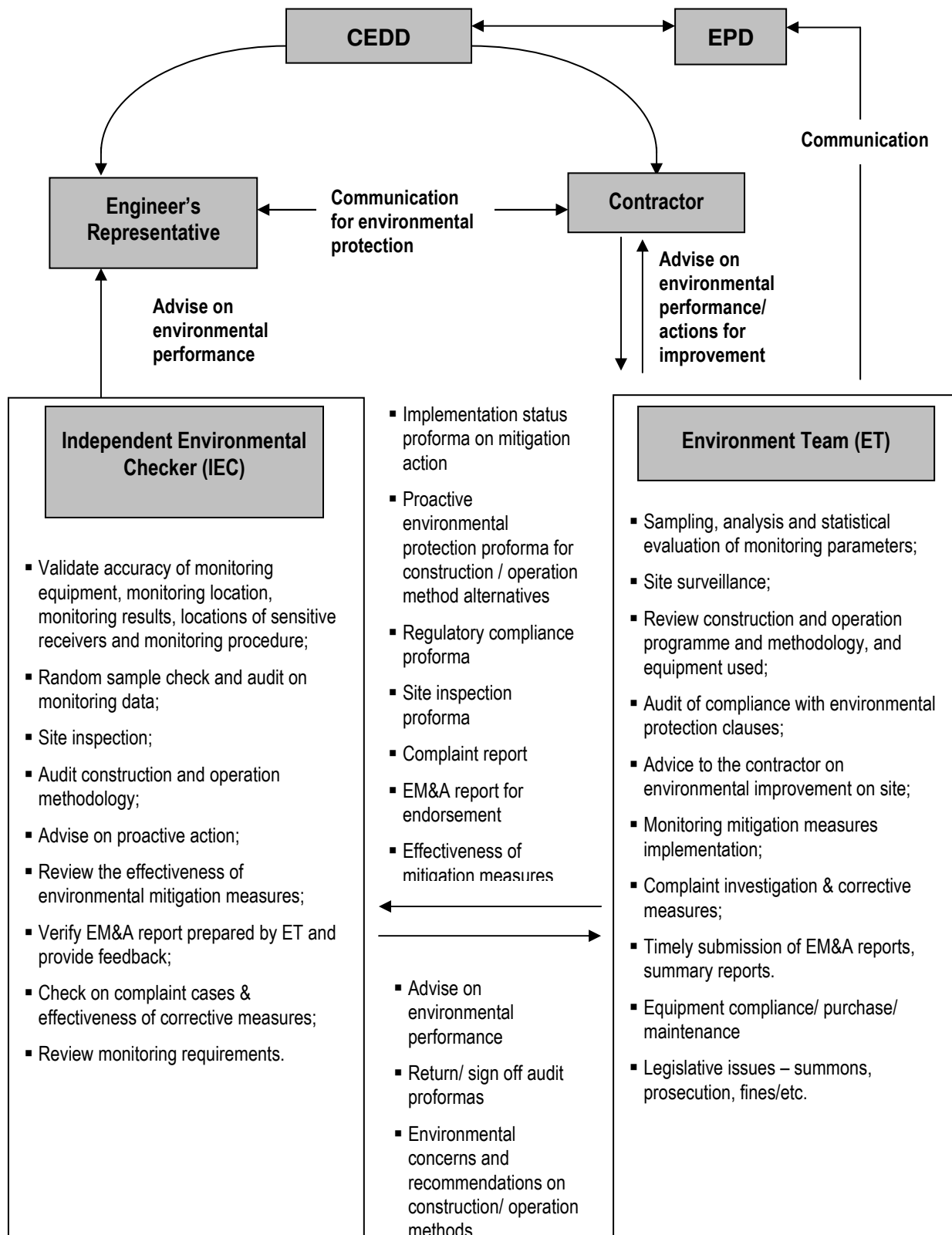
- 2.6.2 The ET Leader shall be responsible for the implementation of the EM&A programme in accordance with the EM&A requirements specified in this Manual and the EP. The ET Leader shall keep a contemporaneous logbook for recording each and every instance or circumstance or change of circumstances that may affect the compliance with the recommendations of the EIA report. This logbook shall be kept readily available for inspection by the IEC, and Director of Environmental Protection (DEP) or his authorised officers.
- 2.6.3 Sufficient and suitably qualified professional and technical staff shall be employed by the respective parties to ensure full compliance with their duties and responsibility, as required under the EM&A programme for the duration of the project.
- 2.6.4 The broad categories of works of the ET comprise the following:
- Sampling, analysis and statistical evaluation of monitoring parameters with reference to the EIA study recommendations and requirements;
 - Environmental site surveillance;
 - Inspection and audit of compliance with environmental protection, and pollution prevention and control regulations;
 - Inspection and audit of compliance with procedures established to enable an effective response to environmental incidents, exceedances or non-compliance;
 - Assess the effectiveness of the environmental mitigation measures implemented;
 - Monitor the implementation of environmental mitigation measures;
 - Monitor compliance with the environmental protection clauses/specifications in the Contract;
 - Review the construction schedule and provide comments as necessary;
 - Review work methodologies which may affect the extent of environmental impact during the construction phase and comment as necessary;
 - Complaint investigation, evaluation and identification of corrective measures;
 - Liaison with the IEC on all environmental performance matters, and timely submission of all relevant EM&A proforma for IEC's approval;
 - Advice to the Contractor on environmental improvement, awareness, enhancement matters, etc. and;
 - Timely submission of the EM&A reports to the Project Proponent and the EPD.
- 2.6.5 In the event of any exceedance in Action/ Limit levels, the ET shall inform the IEC, ER and the Contractor within one working day (Monday to Friday except public holidays) of the occurrence of each and every occurrence, change of circumstances or non-compliance with the EIA Report so that appropriate remedial action can be undertaken by the Contractor promptly.
- 2.6.6 The ET is also responsible for the preparation of the monthly EM&A reports for

submission to IEC, the Contractor and the ER, and through the ER to EPD. The ET shall assist the Contractor and the ER in formulating any necessary corrective actions and/or additional mitigation measures, and liaise with relevant Government Departments where necessary.

2.7 The Contractor

- 2.7.1 The Contractor shall assign an on-site environmental coordinator to oversee Contractor's environmental performance and the implementation of the EM&A duties. The coordinator shall be a person who has relevant professional qualifications in environmental control and is subject to approval by the ER.
- 2.7.2 Upon the commencement of the project, the Contractor's environmental coordinator shall prepare and submit an Environmental Management Plan (EMP) and Waste Management Plan (WMP) for the ER's approval, further to the IEC's verification. The EMP shall comprise of the appropriate extracts from (and references to) ETWB TCW No. 19/2005, the project EIA report, EM&A Manual and other relevant latest government's standards.
- 2.7.3 The Contractor shall participate in the joint site inspection undertaken by the ET. The Contractor shall be responsible for submitting proposals on mitigation measures and providing requested information to the ET in the event of any exceedances in the environmental criteria (Action/ Limit levels) specified in this Manual or other current environmental standards and to rectify unacceptable practices. The Contractor shall discuss with the ET Leader, IEC and ER on any additional mitigation measures identified to be required by the ET and implement the agreed measures to alleviate any identified environmental impact to acceptable levels. The design and implementation of the control and mitigation measures shall be the responsibility of the Contractor.
- 2.7.4 In the event that the ET needs to undertake complaint investigation work, the Contractor and the Engineer shall co-operate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are required following the investigation, the Contractor shall promptly carry out these measures.
- 2.7.5 The Contractor shall report to the ET Leader on the action(s) taken targeting at environmental protection for inclusion in the monthly report to be prepared by the ET.

Organisation Chart



3. AIR QUALITY

3.1 Introduction

3.1.1 Based on the air quality impact assessment in the EIA, it has been identified that no significant impacts would arise from the construction and operation of the Project. With proper implementation of dust control measures required under the *Air Pollution Control (Construction Dust) Regulation* and good site practices as recommended in the EIA report, it would be unlikely that the Project would result in adverse air quality impacts. The ET shall check the Contractor's implementation of air quality control measures to minimize the construction dust emissions during the regular site environmental audits.

3.2 EM&A Requirements During Construction Phase

3.2.1 No specific construction dust monitoring is recommended given the proper implementation of the dust control measures as required under the *Air Pollution Control (Construction Dust) Regulation* and the following mitigation measures.

3.2.2 Regular environmental audits in accordance with Section 11 of this Manual shall be undertaken during the construction works to ensure the proper implementation of the mitigation measures for potential construction dust emissions.

Mitigation Measures

3.2.3 Mitigation measures that are required for controlling dust emissions include:

- 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;
- Restricting heights from which materials are to be dropped, as far as practicable, to minimise the fugitive dust arising from unloading/ loading;
- 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;
- 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;
- Travelling speeds should be controlled to reduce traffic induced dust dispersion and re-suspension within the site from the operating haul trucks;
- Erection of hoarding of not less than 2.4 m high from ground level along the site boundary, where appropriate;
- 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;
- 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.

3.3 EM&A Requirements During Operational Phase

3.3.1 No specific monitoring during the operational phase of the Project is required.

4. NOISE

4.1 Introduction

4.1.1 The noise assessment in the EIA indicated that residual noise impacts are expected from the construction of the Project at three existing NSRs. Noise monitoring during construction phase of the project is therefore recommended.

4.1.2 Regular site audits, outlined in Section 11 of this Manual, will serve to inspect the implementation status of the mitigation measures for any potential noise impacts during the construction of the Project.

4.2 EM&A Requirements During Construction Phase

Noise Parameters

4.2.1 Construction noise level at the proposed noise monitoring stations shall be measured by the ET in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). Noise measurements shall be carried out with an integrating sound level meter using the 'fast' response mode. $L_{eq}(30 \text{ min})$ shall be used as the monitoring parameter for the time period between 07:00-19:00 hours on Monday to Friday except public holidays. For all other time periods, $L_{eq}(5 \text{ min})$ will be employed for comparison with the Noise Control Ordinance (NCO) criteria.

4.2.2 The supplementary information for data auditing statistical results such as L_{10} and L_{90} shall also be obtained for reference.

Monitoring Equipment

4.2.3 As referred to in the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), sound level meters in compliance with the International Electrical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications shall be used for carrying out the noise monitoring.

4.2.4 Immediately prior to and following each noise measurement, the accuracy of the sound level meter will be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration level from before and after the noise measurement agrees to within 1.0 dB. The acoustic calibrator to be used shall meet IEC 942, 1988 Class 1 specifications. Annual calibration of all sound level meters and acoustic calibrators shall be conducted by a laboratory in Hong Kong or the manufacturer in compliance with national standards as recommended by the manufacturer of the sound level meter and acoustic calibrator.

4.2.5 Noise measurements should be made in accordance with standard acoustical principles and practices in relation to weather conditions.

4.2.6 ET Leader is responsible for the availability of monitoring equipments. He/she shall ensure sufficient noise measuring equipments and associated instrumentations are available for carrying out noise monitoring works. All equipment and associated instrumentations shall be clearly labelled, stored and maintained according to the manufacturer's instructions.

Proposed Noise Monitoring Stations

- 4.2.7 Six noise monitoring stations have been recommended for construction noise monitoring. The required noise monitoring stations are provided in **Table 4-1** and their locations are also shown in **Figures 4-1** to **4-3**.

Table 4-1 Selected Construction Noise Monitoring Stations

Noise Monitoring Station	Description
N1	Wong Chan Sook Ying Memorial School
N2	Bethel High School
N3	No. 159 Mai Po San Tsuen
N4	No. 1C Mai Po Lo Wai
N5	Block 2, Dills Corner Garden
N6	Home of Loving Faithfulness

- 4.2.8 Should the status and locations of NSRs be changed after issuing this Manual, the ET Leader shall propose the updated monitoring location(s) and seek approval from ER and agreement from the IEC and EPD of the new proposal.
- 4.2.9 When alternative monitoring location(s) is/are proposed, the monitoring location(s) shall be chosen based on the following criteria:
- At location(s) close to the major site activities which is/are likely to have noise impacts;
 - Close to the NSRs (as defined by the EIAO TM); and
 - For monitoring locations located in the vicinity of the sensitive receivers, care shall be taken to cause minimal disturbance to occupants during monitoring.
- 4.2.10 The monitoring station shall normally be at a point 1 m from the exterior of the building facade and be at a position 1.2 m above the ground.
- 4.2.11 If there is a problem with access to the normal monitoring position, an alternative position may be chosen, and a correction to the measurements shall be made. For reference, a correction of +3 dB(A) shall be made to the free field measurements. The ET Leader shall agree with the IEC on the monitoring position and the corrections adopted. Once the position for the monitoring station is chosen, the impact monitoring shall be carried out at the same position.
- 4.2.12 Noise measurements shall be recorded on a field data sheet together with relevant information including project name, date and time of sampling, monitoring location and parameters, site observations and remarks. A sample field data sheet is attached in **Appendix 2**.

Impact Monitoring

- 4.2.13 The ET shall conduct noise monitoring at the designated monitoring stations. Noise monitoring shall be conducted on a weekly basis when noise-generating activities are underway within 300 m of the proposed monitoring stations. As it is expected that no construction works can be conducted during restricted hours of Noise Control Ordinance (NCO) while meeting the noise criteria, one set of measurement shall be taken between 07:00-19:00 hours on Mondays to Fridays except public

holidays. For any schools near the construction activity, noise monitoring shall be carried out at the monitoring stations for the schools during the school examination periods. The ET Leader shall liaise with the school's personnel and the Examination Authority to ascertain the exact dates and times of all examination periods during the course of the contract.

4.2.14 General construction works carried out during restricted hours are controlled by the Construction Noise Permit (CNP) System, under the NCO. The Contractor shall apply for a CNP and abide by the requirements of the permit should works be necessary in the restricted hours. The ET shall also conduct additional noise monitoring at the designated monitoring station(s) within the restricted hours if stated in the CNP. The frequency and duration of the additional noise monitoring within restricted hours shall be proposed by the ET Leader and approved by the IEC.

4.2.15 In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Event and Action Plan shall be carried out. This additional monitoring shall be continued until the recorded noise levels are rectified or proved to be irrelevant to the construction activities.

Event and Action Plan

4.2.16 The Action and Limit Levels for construction noise are defined in **Table 4-2** below. Should non-compliance of the noise criteria occur, actions in accordance with the Event and Action Plan given in **Table 4-3** should be carried out.

Table 4-2 Action and Limit Levels for Construction Noise Monitoring

Noise Sensitive Uses	0700 to 1900 hours on any day not being a Sunday or general holiday, Leq(30 min), dB(A)	
	Action	Limit
Dwelling	When one documented complaint is received	75
School		70 (65 during examination)

Table 4-3 Event and Action Plan for Construction Noise Monitoring

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level is reached	<ol style="list-style-type: none"> 1. Notify IC(E) and Contractor 2. Carry out investigation 3. Report the results of investigation to the IC(E) and Contractor 4. Discuss with the Contractor and formulate remedial measures 5. Increase monitoring frequency to check mitigation effectiveness 	<ol style="list-style-type: none"> 1. Review the analysed results submitted by the ET 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly 4. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IC(E) 2. Implement noise mitigation proposals
Limit Level is reached	<ol style="list-style-type: none"> 1. Notify IC(E), ER, EPD and Contractor 2. Identify source 3. Repeat measurement to confirm findings 4. Increase monitoring frequency 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented 6. Inform IC(E), ER and EPD the causes & actions taken for the exceedances 7. Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results 8. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 3. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to IC(E) within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated

Noise Mitigation Measures

- 4.2.17 The EIA has recommended the following in order to avoid cumulative noise impacts due to potential concurrent projects in the Project area:
- 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;
 - The contractor shall liaise with the Yuen Long and Kam Tin Sewerage and Sewage Disposal Stage 2 (YLKTSSD2) works Salt Water Supply for North West New Territories and to Yuen Long (NWNTSWS) contractors so as to avoid undertaking works concurrently with the works from YLKTSSD2 project when they are in the close proximity. As a conservative approach, works for the cycle track shall be carried when the works from the YLKTSSD2 project is over 300 m away. The requirements shall be included in the works contracts.
- 4.2.18 The EIA report indicated that construction activities would cause noise exceedance at NSRs. Therefore, appropriate mitigation measures and good site practices are recommended to be properly implemented. The Contractor shall be responsible for the design and implementation for these measures.
- 4.2.19 The mitigation measures recommended in the EIA report are summarized below.
- Adoption of silenced types of PME, which should be in accordance with BS 5228: Part 1, 1997, as proposed in the EIA Report;
 - Use of temporary noise barrier in the form of site hoarding;
 - Use of noise enclosure;
 - The barrier / enclosure material's surface mass shall be in excess of 7 kg/m²;
 - Use of alternative quieter plant such as excavator mounted road ripper instead of handheld breaker during levelling/excavation works.
 - The Contractor should adopt the following good working practices in order to minimise construction noise as far as possible:
 - 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;
 - The Contractor shall observe and comply with the statutory and non-statutory requirements and guidelines;
 - Before commencing any work, the Contractor shall submit to the ER for approval the method of working, equipment and noise mitigation measures intended to be used at the site;
 - The Contractor shall devise and execute working methods to minimise the noise impact on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented;
 - Noisy equipment and noisy activities should be located as far away from the NSRs as is practical.;

- Unused equipment should be turned off. Powered mechanical equipment should be kept to a minimum and the parallel use of noisy equipment / machinery should be avoided;
- Regular maintenance of all plant and equipment;
- Material stockpiles and other structures should be effectively utilised as noise barriers, where practicable; and
- 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.

4.2.20 If the noise levels exceed the limit level after adopting the above measures upon ET Leader's advices, the Contractor shall liaise with the ET Leader on some other mitigation measures, propose them to ER and IEC for approval and carry out the mitigation measures after approval.

4.3 EM&A Requirements During Operational Phase

4.3.1 No specific monitoring during the operational phase of the Project is required.

5. WATER QUALITY

5.1 Introduction

5.1.1 The water quality assessment in the EIA indicated that no adverse impacts on water quality would be expected from the construction phase, with proper implementation of the recommended environmental mitigation measures.

5.1.2 No water quality monitoring is required during the construction phase. However, in order to ensure proper implementation of mitigation measures regular on-site environmental audits through visual site inspection programme are recommended to be carried out during the construction phase.

5.2 EM&A Requirements During Construction Phase

5.2.1 No specific construction water quality monitoring is recommended given the proper implementation of control measures in compliance with the Water Pollution Control Ordinance and its subsidiary regulations. Regular environmental audits in accordance with Section 11 of this Manual shall be undertaken during the construction works to ensure the proper implementation of the mitigation measures for potential construction water quality impact.

5.2.2 The environmental audit shall be undertaken by the ET during construction and shall include a walk over of the active works area and surroundings, in particular the section of the proposed cycle tracks near Kam Tin River, Ngau Tam Mei Main Drainage Channel, Sheung Yue River and Shek Sheung River and fishponds at Mai Po. It shall include: visual inspection of the implementation of the runoff and drainage control measures from the works area; inspections of water quality surrounding the site and the project discharge areas. In particular, any brown coloured water or suspended solids laden discharge shall be noted and considered to be unacceptable., triggering the Event and Action Plan.

5.2.3 The environmental audit shall include a review of the effectiveness of measures to minimise surface runoff and their effectiveness for reducing erosion and retaining suspended solids laden runoff within the site. The following will be included during the review:

- Inspection of the effectiveness of silt removal facilities and erosion and sediment control structures to ensure proper and efficient operation at all times and particularly during rainstorms;
- Inspection of the effectiveness of control measures to prevent soil erosion and sediment laden run-off from stockpiles;
- Inspection of the effectiveness of collection, handling, storage and disposal of materials to ensure they do not enter the nearby stormwater drainage system; and
- Review of the Contractor's compliance with discharge license requirements.

Mitigation Measures

- 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. 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 particularly important for works immediately adjacent to 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;
 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. 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.
 11. All site discharges within Water Control Zones must comply with the terms and conditions of a valid discharge licence issued by EPD.
 12. 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;
 13. The 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.
 14. 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.

15. 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.
16. Oil and grease removal facilities will be provided where appropriate, for example, in area near plant workshop/ maintenance areas; and
17. 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.

5.3 EM&A Requirements during Operational Phase

- 5.3.1 No specific monitoring during the operational phase of the Project is required.

6. WASTE MANAGEMENT

6.1 Introduction

6.1.1 Based on the waste management implication assessed in the EIA report, it has been identified that some construction wastes (including inert and non-inert wastes), chemical waste and general refuse will be generated from the construction activities. Construction and demolition (C&D) waste will be fully reused on site as far as practicable.

6.1.2 Through proper on-site handling and storage (covered containers), reuse (of inert construction wastes) and off-site disposal (via approved waste collectors to approved waste facilities and/or disposal grounds) the generation, handling and disposal of these wastes are not expected to give rise to any adverse environmental impacts. The ET shall check the Contractor's implementation of waste management practices during the regular site environmental audits to ensure wastes are being managed properly.

6.2 EM&A Requirements during Construction Phase

Site Audit / Inspection

6.2.1 Site inspections and supervisions of waste management procedures and auditing of the effectiveness of implemented mitigation measures should be undertaken by the ET 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 the site audits summary shall be presented in the EM&A reports.

Waste Management Practices

6.2.2 An on-site environmental co-ordinator shall be employed by the Contractor. 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.

6.2.3 The overall principles of construction waste management are to reduce waste generation and to reuse and recycle construction waste. The arrangement for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and the recommended mitigation measures are to be described in a WMP.

6.2.4 The WMP will indicate the disposal location(s) of all surplus excavated materials and wastes. A trip ticket system in accordance with ETWB TC (W) No. 31/2004 "Trip Ticket System for Disposal of Construction and Demolition Material" shall be included in the WMP. Surplus excavated materials and wastes shall only be disposed of at designated disposal locations unless otherwise approved by the Director. All measures recommended in the WMP shall be fully and properly implemented by the Contractor throughout the construction period.

Mitigation Measures

6.2.5 The implementation status of the following mitigation measures should be monitored through the site audit programme by the ET:

- To minimize the production of construction waste through careful design, planning, good site management, and control of ordering procedures, segregation and reuse of materials; To arrange for private contractors to collect used formwork materials for reuse;
- To dispose of any chemical wastes such as lubricating oil or solvent in strict accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 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;
- 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;
- To assign a reliable waste collector to collect general refuse generated from the construction site on a daily basis to minimise the potential odour, pest and litter impacts; and
- To identify requirements on proper waste management for implementation during the operation of the project.
- Toolbox talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling.

Good Site Practices

6.2.6 In order to check that the waste control and mitigation measures have been implemented by the Contractor as good site practices, the following shall be included as part of the site inspections and audits:

1. The reuse/recycling of all materials on site shall be investigated prior to treatment/disposal off site;
2. 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 practices;
3. All waste materials shall preferably be sorted on-site into inert and non-inert construction wastes, and where the materials will be recycled or reused these 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).
4. 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;

5. 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".
6. Under the Waste Disposal (Chemical Waste) (General) Regulation, the Contractor shall register with EPD as a Chemical Waste Producer if there is any use of chemicals on site including lubricants, paints, diesel fuel, etc. 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
7. 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;
8. 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;
9. Tool-box talks should be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; and
10. 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.

6.3 EM&A Requirements During Operational Phase

- 6.3.1 Given the nature of use of the Project, there is no EM&A requirement considered necessary during the operational phase.

Waste Management Practices

- 6.3.2 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. LAND CONTAMINATION

7.1 Introduction

7.1.1 The EIA has identified six locations (i.e. Site A to F) within the Project area having a potential of land contamination and recommended for further investigation prior to the works at these locations. Prior to the commencement of site clearance / excavation works at these two locations, a sampling and analysis programme shall be prepared and implemented.

7.2 Land Contamination Assessment

7.2.1 Once Site A to Site F (as shown in **Figures 7-1 and 7-3**) have been vacated or access has been granted, site investigation shall be arranged. The land contamination assessment will include sampling and analysis of soil to confirm the presence and level of contamination (if any), and the quantity of the contaminated soil. The handling and disposal requirements of the excavated materials will be determined based on the land contamination assessment findings by the Project Proponent with disposal at landfill considered as the last resort. Investigation shall also be carried out at the works area of the cycle track section along Castle Peak Road – San Tin near San Sham Road to confirm the arsenic level as it is closest to Lok Ma Chau.

7.2.2 The project Contractor(s) shall engage a qualified land contamination specialist, upon approval by the ER, to prepare the Contamination Assessment Plan(s) (“CAP”) for EPD’s approval prior to the investigation. 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. The results of the sampling works will be reported in a Contamination Assessment Report(s) (“CAR”) and submitted to EPD for approval. Should contamination be identified during the investigation, a Remediation Action Plan(s) (“RAP”) shall also be prepared and submitted to EPD for approval. Remediation measures as recommended in the Car/ RAP shall be fully implemented by the Contractor(s) prior to commencement of works.

7.3 Safety Precautionary Measures

7.3.1 As general precautionary measures, when handling identified contaminated materials, the following control measures should be implemented by the Contractor and the implementation status of the following measures should be monitored through the site audit programme by the ET:

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, 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. ECOLOGY AND FISHERIES

8.1 Introduction

- 8.1.1 The EIA report concluded that 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 given that appropriate mitigation measures and good practices are properly implemented.
- 8.1.2 It also concluded that 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 ecological or fisheries monitoring is required.
- 8.1.3 Regular site audits, detailed in Section 11 of this Manual, will serve to inspect the implementation status of the mitigation measures recommended in the EIA report.

8.2 EM&A Requirements During Construction Phase

Site Audit / Inspection

- 8.2.1 Site inspections and auditing of the effectiveness of implemented mitigation measures should be undertaken by the ET on a regular basis (at least twice a month). In particular, the construction works within the Kam Tin and Long Valley Sections of the Project shall be carried out during the dry season (October to March), and for the section in the vicinity of Mai Po Egretty during the non-breeding season (September to February).

Mitigation Measures

- 8.2.2 Local narrowing of the cycle track (from the standard 4 m to 3 m) shall be implemented to avoid the impact of the cycle track on the single, inactive fishpond edge just outside Mai Po Village (Figure 10-1 of the EIA Report refers).
- 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.
- 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) if possible, to prevent any site run-off to adjacent water channels and fishponds; if not, additional measures shall be provided by the Contractor to demonstrate that site runoff will not affect sensitive receivers. In addition, construction of the Long Valley section would need to be completed during the dry season to avoid the breeding season of Greater Painted-snipes. 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 of the EIA Report), 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.
- 8.2.5 Construction of the section in the vicinity of Mai Po Egretty 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.

- 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 the Mai Po Egrettry. *In situ* compensation planting at the Information Kiosk and R9 should occur to provide continuing function of the bamboo and plantation (see **Figure 8-1**). It is recommended that the Information Kiosk and Resting Station R9 should be designed sympathetically to the natural surroundings. Compensation planting along the Sheung Yue River and Shek Sheung River including at R9 and Information Kiosk could be implemented as appropriate.
- 8.2.7 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. Practice Note for Professional Persons ProPECC PN1/94 – Construction Site Drainage shall be implemented.
- 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 minimise temporary road blockages and to identify the best timing for works along this area.
- 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, oil interceptors 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.
- 8.2.10 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 from human activity. 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

General Good Work Practices

- 8.2.11 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

8.3 EM&A Requirements During Operational Phase

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 Egretty, R9 and planting for screening at meander 8 in Long Valley.

9. CULTURAL HERITAGE

9.1 Introduction

9.1.1 The EIA indicated that no adverse impacts on cultural heritage resources would be expected from the construction or operational phase of the Project. No specific monitoring is required during the construction phase. However, precautionary measures should be implemented to minimize potential impacts during the construction phase.

9.2 Precautionary Measures

9.2.1 It is recommended that care should be taken during the construction stage to report any signs of possible discovery of artefacts.

10. LANDSCAPE AND VISUAL

10.1 Introduction

10.1.1 The EIA has recommended landscape and visual mitigation measures to be undertaken during construction and operation phases of the Project. The implementation and maintenance of landscape mitigation measures should be checked to ensure that they are fully realised and that potential conflicts between the proposed landscape measures and any other project works and operational requirements are resolved at the earliest possible date and without compromise to the intention of the mitigation measures.

10.2 EM&A Requirements

Construction and Operational Audits

10.2.1 Regular audits should be carried out to ensure all the recommended landscape and visual mitigation measures would be effectively implemented.

10.2.2 A qualified Landscape Architect should be employed for the implementation of landscape construction works particularly during site clearance operations when the proposed tree felling and transplanting will take place and subsequent maintenance operations during the 12 month establishment period during the operational stage.

10.2.3 All measures undertaken during the construction stage and the first year of the operational stage shall be audited by the Landscape Architect, as a member of the Environmental Team. This shall be completed on a regular basis to ensure compliance with the intended aims of the EIA. Site inspections should be undertaken at two times a month throughout the construction period and once every quarter during the first year of the operational stage.

Mitigation Measures During Construction

10.2.4 Mitigation measures are recommended in the EIA for construction of the Project, these are provided in **Table 10-1**. Detailed requirements of the mitigation measures are provided in the Implementation Schedule in **Appendix 1**.

Table 10-1 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. 03/2006, '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 minimised 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 12-9P Conceptual Landscape Mater Plan of the EIA Report. 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.
CP6	Coordination with Concurrent Projects - Coordinated implementation program with concurrent projects such as Kam Tin Trunk Sewerage Improvement Works undertaken from DSD to minimise 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.

Mitigation Measures During Operation

10.2.5 Mitigation measures recommended during operational phase of the Project are provided in **Table 10-2**. The Design Concept Drawings of cycle track and associated facilities are presented in **Figures 10-1 to 10-6**, which demonstrates the main landscape and visual mitigation strategies recommended in the EIA. Detailed requirements of the mitigation measures are provided in the Implementation Schedule in **Appendix 1**.

Table 10-2 Operational Phase Mitigation Measures

Mitigation Code	Mitigation Measure
OP1	<p>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:</p> <ol style="list-style-type: none"> 1. Integrated design approach – the alignment of cycle track should be 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 as 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: <ul style="list-style-type: none"> ▪ Directional and full cut off lighting is recommended particularly for recreation and roadside areas to minimise light spillage to the surrounding areas; ▪ Minimise 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.

Mitigation Code	Mitigation Measure
OP2	<p>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 <i>Aleurites moluccana</i>, <i>Bombax malabaricum</i>, <i>Cinnamomum camphora</i>, <i>Ficus bengimina</i>, <i>Ficus microcarpa</i>, <i>Grevillea robusta</i>, are considered. The other ornamental or native species such as <i>Delonix regia</i>, <i>Bauhinia blakeana</i>, <i>Cassia siamea</i>, <i>Cassia surttensis</i>, <i>Celtis sinensis</i> and <i>Microcos paniculata</i> 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</p>
OP3	<p>Compensatory Planting Proposals - Given the works extent is largely limited along existing roadside and channel side areas to minimise 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. Even though 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 and semi-nature stock for feature trees at selected locations. (i.e. approximate 15% 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.</p>
OP4	<p>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.</p>

11. SITE ENVIRONMENTAL AUDIT

11.1 Site Inspection

- 11.1.1 Site inspection provides a direct means to trigger and enforce the specified environmental protection and pollution control measures necessary to comply with the contract specifications. They shall be undertaken regularly and routinely by the ET to inspect the activities at the works site in order to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented by the Contractor in accordance with the EM&A recommendations. With well-defined pollution control and mitigation specifications and a well-established site inspection, deficiency and action reporting system, site inspection is one of the most effective tools to enforce the environmental protection requirements on the site.
- 11.1.2 The ET Leader is responsible for formulation of the environmental site inspection, deficiency and action reporting system, and for carrying out the site inspections under the EM&A works. He/she shall prepare and submit a proposal on the site inspection, deficiency and action reporting procedures within 21 days of the construction contract commencement to the Contractor for agreement and to the ER and IEC for approval. The ET's proposal for rectification would be made known to the IEC.
- 11.1.3 The ET shall conduct a site inspection at least once a week during the construction period of the Project. The areas of inspection shall include, but shall not be limited to, the environmental situation, and pollution control and mitigation measures within the site. It should also review the environmental situation outside the site area that is likely to be affected, directly or indirectly, by the site activities. The ET Leader shall make reference to the following information in conducting the inspection:
- The EIA recommendations and requirements in this Manual on environmental protection and pollution control mitigation measures;
 - On-going results of the EM&A programme;
 - Works progress and programme;
 - Individual works methodology proposals (which shall include proposals on associated pollution control measures);
 - The contract specifications on environmental protection and pollution prevention;
 - The relevant environmental protection and pollution control laws, ProPECC Notes; and
 - Previous site inspection results undertaken by the ET.
- 11.1.4 The Contractor shall update the ET with all relevant information of the contract for him/ her to carry out the site inspections. The inspection results and its associated recommendations on improvements to the environmental protection and pollution control works shall be submitted to the IEC and the Contractor in a site inspection proforma within 24 hours, for reference and for taking immediate action.

11.1.5 The Contractor shall follow the procedures and time frame as stipulated in the environmental site inspection, deficiency and action reporting system formulated by the ET to report on any remedial measures subsequent to the site inspections.

11.1.6 The ET shall conduct ad-hoc site inspections if significant environmental problems are identified. The IEC shall also conduct independent site audits. Inspections may also be required subsequent to receipt of any environmental complaints, or as part of the investigation work, as specified in the Event/Action Plan for environmental monitoring and audit.

11.2 Compliance with Legal and Contractual Requirements

11.2.1 The ET Leader shall review the progress and programme of the works to check that relevant environmental laws have not been violated, and that any foreseeable potential for violating the laws can be prevented.

11.2.2 The Contractor shall regularly copy relevant documents to the ET so that the checking work can be carried out. The documents shall at least include the updated Work Progress Reports, the updated Works Programme, application letters for different license/permits under the environmental protection laws, and all valid licence(s)/permit(s). The site diary shall also be available for the ET's inspection upon his request.

11.2.3 After reviewing the document, the ET Leader shall advise the ER and the Contractor of any non-compliance with the contractual and legislative requirements on environmental protection and pollution control for them to take follow-up actions. If the ET Leader's review concludes that the current status on licence/ permit application and any environmental protection and pollution control preparation works may not cope with the works programme or may result in potential violation of environmental protection and pollution control requirements by the works in due course, he shall also advise the Contractor and the ER accordingly. The review shall be copied to IEC for any follow-up action.

11.2.4 Upon receipt of the advice, the Contractor shall undertake immediate action to remedy the situation. The ER shall check that the Contractor has taken appropriate action in order that the environmental protection and pollution control requirements are fulfilled.

11.3 Environmental Complaints

11.3.1 Complaints reviewed on environmental issues shall be referred to the ET Leader for carrying out complaint investigation procedures. Upon receipt of complaints the ET shall undertake the tasks outlined below.

- Log complaint and date of receipt onto the complaint database and inform the IEC immediately;
- Investigate the complaint to determine its validity, and to assess whether the source of the problem is due to works activities;
- If a complaint is valid and due to works, identify mitigation measures in consultations with the IEC;
- If mitigation measures are required, advise the Contractor accordingly;

- Review the Contractor's implementation of the identified mitigation measures, and the concurrent situation;
- If the complaint is transferred from EPD, submit interim report to EPD on status of the complaint investigation and follow-up action within the time frame assigned by EPD;
- Undertake additional monitoring and audit to verify the complaint if necessary, and ensure that any valid reason for complaint does not recur through proposed amendments to work methods, procedures, machines and/or equipment, etc;
- Report the investigation results and the subsequent actions to the source of complaint. (If the source of complaint is identified through EPD, the results should be reported within the time frame assigned by EPD); and
- Log a record on the complaint, investigation, the subsequent actions and the results in the monthly EM&A reports.

11.3.2 The ET Leader shall immediately notify the ER, IEC, Contractor and EPD of any complaints received and keep him well informed of the actions being taken to settle these complaints.

11.3.3 During the complaint investigation work, the Contractor and ER shall co-operate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified to be required in the investigation in consultation with the IEC, the Contractor shall promptly carry out the measures. The ER shall ensure that the Contractor has implemented the mitigation measures.

11.4 Documentation

11.4.1 All documentation is required to be filed in a traceable and systematically manner and ready for inspection upon request. All EM&A results and findings shall be documented in the EM&A report prepared by the ET and endorsed by IEC prior to circulation to the Contractor, ER and EPD

12. REPORTING

12.1 General

12.1.1 The following reporting requirements are based upon a paper-documented approach. However, the same information shall be provided in an electronic medium upon agreeing the format with the ER and EPD. All the monitoring data shall also be submitted in an agreed electronic format in accordance with the requirements under Annex 21 of the EIAO TM. This would enable a transition from a paper/historic and reactive approach to an electronic/real time proactive approach.

12.2 Monthly EM&A Reports

12.2.1 The results and findings of all EM&A work required in this Manual shall be presented in a monthly EM&A report prepared and certified by the ET Leader. The monthly EM&A reports shall be verified by IEC and then submitted to EPD.

12.2.2 Each EM&A monthly report shall be submitted within 10 working days of the end of each reporting month. The first report is due in the month after the construction commences. The monthly EM&A report shall be submitted to the ER, the Contractor, the IEC and EPD. Before submission of the first EM&A report, the ET Leader shall liaise with the parties on the exact number of copies needed and format of the monthly reports for both hard and soft copy.

12.2.3 The ET Leader shall review the number and location of monitoring stations and parameters to be monitored every 6 months or on a needed basis in order to cater for the changes in surrounding environment and nature of works in progress.

12.3 First Monthly EM&A Report

12.3.1 The first monthly EM&A report shall include at least the following, where applicable:

6. Executive Summary (1-2 pages);
 - Breaches of Action/ Limit levels;
 - Complaint Log;
 - Notifications of any summons and successful prosecutions;
 - Reporting Changes; and
 - Future key issues.
7. Basic Project Information
 - Project organisation including key personnel contact names and telephone numbers;
 - Programme with fine tuning of activities showing the inter-relationship with environmental protection/mitigation measures for the month;
 - Management structure; and
 - Work undertaken during the month.
8. Environmental Status
 - Works undertaken during the month with illustrations (such as location

- of works); and
 - Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations.
9. Summary of EM&A requirements including:
- All monitoring parameters;
 - Environmental quality performance limits (Action/ Limit levels);
 - Event/Action Plans;
 - Environmental mitigation measures, as recommended in the project EIA study final report;
 - Environmental requirements in contract documents;
1. Implementation Status
- Advice on the implementation status of environmental protection and pollution control/ mitigation measures as recommended in the project EIA report, summarised in the updated implementation schedule.
2. Monitoring Results (in both hard and soft copies) together with the following information
- Monitoring methodology;
 - Name of laboratory and types of equipment used and calibration details;
 - Parameters monitored;
 - Monitoring locations;
 - Monitoring date, time, frequency, and duration;
 - Weather conditions during the period;
 - Graphical plots of the monitored parameters in the month annotated against;
 - Major activities being carried out on site during the period;
 - Weather conditions that may affect the results; and
 - Any other factors which might affect the monitoring results;
 - QA/QC results and detection limits;
 - Waste generation and disposal records;
 - All monitoring results should be tabulated with exceedances highlighted for ease of reference; and
 - Compare/contrast and assess the EM&A data with the EIA predictions and provide discussion for any discrepancies.
3. Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions
- Compliance status with the EP under the EIAO and any EP submissions;
 - Record of all non-compliance (exceedances) of the environmental quality performance limits (Action/ Limit levels);

- Record of all complaints received (written or verbal) for each media, including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
 - Record of all notifications of summons and successful prosecutions for breaches of the current environmental protection/ pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, result and summary;
 - Review of the reasons for and the implications of non-compliance, complaints, summons and prosecutions including review of pollution sources and working procedures; and
 - Description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance.
4. Comments, Recommendations and Conclusions
- An account of the future key issues reviewed from the works programme and work method statements;
 - Advice on the solid and liquid waste management status; and
 - Submission of implementation status proforma, proactive environmental protection proforma, regulatory compliance proforma, site inspection proforma, data recovery schedule and complaint log summarising the EM&A of the period.

12.4 Subsequent Monthly EM&A Reports

12.4.1 The subsequent monthly EM&A reports shall include the following:

1. Executive Summary (1-2 pages)
 - Breaches of Action/ Limit levels;
 - Complaint log;
 - Notifications of any summons and successful prosecutions;
 - Reporting changes;
 - Future key issues.
2. Environmental Status
 - Programme with fine tuning of activities showing the inter-relationship with environmental protection/mitigation measures for the month;
 - Work undertaken during the month with illustrations including key personnel contact names and telephone numbers; and
 - Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations.

3. Monitoring Results (in both hard and electronic copies) together with the following information.
 - Monitoring methodology;
 - Types of equipment used and calibration details;
 - Parameters monitored;
 - Monitoring locations;
 - Monitoring date, time, frequency, and duration;
 - Weather conditions during the period;
 - Graphical plots of the monitored parameters in the month annotated against;
 - Major activities being carried out on site during the period;
 - Weather conditions that may affect the results; and
 - Any other factors which might affect the monitoring results;
 - QA/QC results and detection limits;
 - Waste generation and disposal records;
 - All monitoring results should be tabulated with exceedances highlighted for ease of reference; and
 - Compare/contrast and assess the EM&A data with the EIA predictions and provide discussion for any discrepancies.
4. Implementation Status
 - Advice on the implementation status of environmental protection and pollution control/mitigation measures as recommended in the Project EIA report, summarised in the updated implementation schedule.
5. Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions
 - Record of all non-compliance (exceedances) of the environmental quality performance limits (Action/ Limit levels);
 - Record of all complaints received (written or verbal) for each media, including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
 - Record of all notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, result and summary;
 - Review of the reasons for and the implications of non-compliance, complaints, summons and prosecutions including review of pollution sources and working procedures; and
 - A description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance.
6. Comments, Recommendations and Conclusions
 - An account of the future key issues reviewed from the works

programme and work method statements;

- Advice on the solid and liquid waste management status; and
- Submission of implementation status proforma, proactive environmental protection proforma, regulatory compliance proforma, site inspection proforma, data recovery schedule and complaint log summarising the EM&A of the period.

7. Appendix

- Action/ Limit Levels;
- Graphical plots of trends of monitored parameters at key stations over the past four reporting periods for representative monitoring stations annotated against the following:
 - Major activities being carried out on Site during the periods;
 - Weather conditions during the period; and
- Any other factors which might affect the monitoring results
 - Monitoring schedule for the present and next reporting period;
 - Cumulative statistics on complaints, notifications of summons and successful prosecutions; and
 - Outstanding issues and deficiencies.

12.5 Quarterly EM&A Summary Reports

12.5.1 The quarterly EM&A summary report, which should generally be around 5 pages (including about 3 of text and tables and 2 of figures), should contain at least the following listed information. Apart from these, the first quarterly summary report should also confirm that the monitoring work is proving effective and that it is generating data with the necessary statistical power to categorically identify or confirm the absence of impact attributable to the works.

1. Up to half a page executive summary;
2. Basic project information including a synopsis of the project organisation, programme, contacts of key management, and a synopsis of work undertaken during the quarter;
3. A brief summary of EM&A requirements including:
 - Monitoring parameters;
 - Environmental quality performance limits (Action/ Limit levels); and
 - Environmental mitigation measures, as recommended in the project EIA report;
4. Advice on the implementation status of environmental protection and pollution control/mitigation measures, as recommended in the project EIA study report, summarised in the updated implementation schedule, including waste generation and disposal records;
5. Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations;
6. Compliance status with the EP under the EIAO and any EP submissions;

7. Graphical plots of the trends of monitored parameters over the past 4 months (the last month of the previous quarter and the present quarter) for representative monitoring stations annotated against;
 - The major activities being carried out on site during the period;
 - Weather conditions during the period; and
 - Any other factors that might affect the monitoring results.
8. Compare/contrast and assess the EM&A data with the EIA predictions and provide discussion for any discrepancies;
9. Advice on the solid and liquid waste management status;

Comments, Recommendations and Conclusions

10. A summary of non-compliance (exceedances) of the environmental quality performance limits (Action/ Limit levels);
11. A brief review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures;
12. A summary description of the action taken in the event of non-compliance and any follow-up procedures related to earlier non-compliance;
13. A summary record of all complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken;
14. A summary record of all notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislation, locations and nature of the breaches, investigation, follow-up actions taken and results;
15. Comments (e.g. effectiveness and efficiency of the mitigation measures), recommendations (e.g. any improvement in the EM&A programme) and conclusions for the quarter; and
16. Proponent's contacts and any hotline telephone number for the public to make enquiries.

12.6 Final EM&A Summary Report

12.6.1 Timing for completion of the EM&A Programme shall be confirmed by ER in liaison with the IEC. The termination of EM&A programme shall be determined on the following basis:

(a) completion of construction activities and insignificant environmental impacts of the remaining outstanding construction works;

(b) trends analysis to demonstrate the narrow down of monitoring exceedances due to construction activities and the return of ambient environmental conditions; and

(c) no environmental complaint and prosecution involved.

12.6.2 The proposed termination may be required to consult related local community such as village representative/committee and/or District Board and the proposal should be endorsed by the IEC, A/ER and the project proponent prior to final approval from the Director of Environmental Protection.

12.6.3 The final EM&A summary report shall include the following:

1. An executive summary;
2. Basic project information including a synopsis of the project organisation, programme, contacts of key management, and a synopsis of work undertaken during the entire construction phase of the works;
3. A brief summary of EM&A requirements including:
 - Monitoring parameters;
 - Environmental quality performance limits (Action/ Limit levels); and
 - Environmental mitigation measures, as recommended in the project EIA study final report.
4. Advice on the implementation status of environmental protection and pollution control/ mitigation measures, as recommended in the project EIA study report, summarised in the updated implementation status proformas, including waste generation and disposal records;
5. Drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations;
6. Compliance status with the EP under the EIAO and any EP submissions;
7. Graphical plots of the trends of monitored parameters over the period of construction (of the project) for representative monitoring stations annotated against:
 - The major activities being carried out on site during the period;
 - Weather conditions during the period;
 - Any other factors which might affect the monitoring results; and
 - The return of ambient environmental conditions.
8. Compare/contrast and assess the EM&A data with the EIA predictions and annotate with explanation for any discrepancies;
9. Provide clear-cut decisions on the environmental acceptability of the project with reference to the specific impact hypothesis;
10. Advice on the solid and liquid waste management status;
11. A summary of non-compliance (exceedances) of the environmental quality performance limits (Action/ Limit levels);
12. A brief review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures;
13. A summary description of the actions taken in the event of non-compliance and any follow-up procedures related to earlier non-compliance;
14. A summary record of all complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken;
15. Review the monitoring methodology adopted and with the benefit of hindsight, comment on its effectiveness (including cost effectiveness);
16. A summary record of all notification of summons and successful prosecutions for breaches of the current environmental protection/pollution

control legislation, locations and nature of the breaches, investigation, follow-up actions taken and results;

17. Review the practicality and effectiveness of the EIA process and EM&A programme (e.g. effectiveness and efficiency of the mitigation measures);
18. Recommend any improvement in the EM&A programme; and
19. A conclusion to state the return of ambient and/or the predicted scenario as per EIA findings.

12.7 Typical Forms to be Adopted

12.7.1 To facilitate the management of the EM&A programme for the construction of the project, the record forms presented in **Appendix 2** (including those presented in the preceding sections) shall be adopted where applicable during the construction phase of the project. These forms are listed as follows:

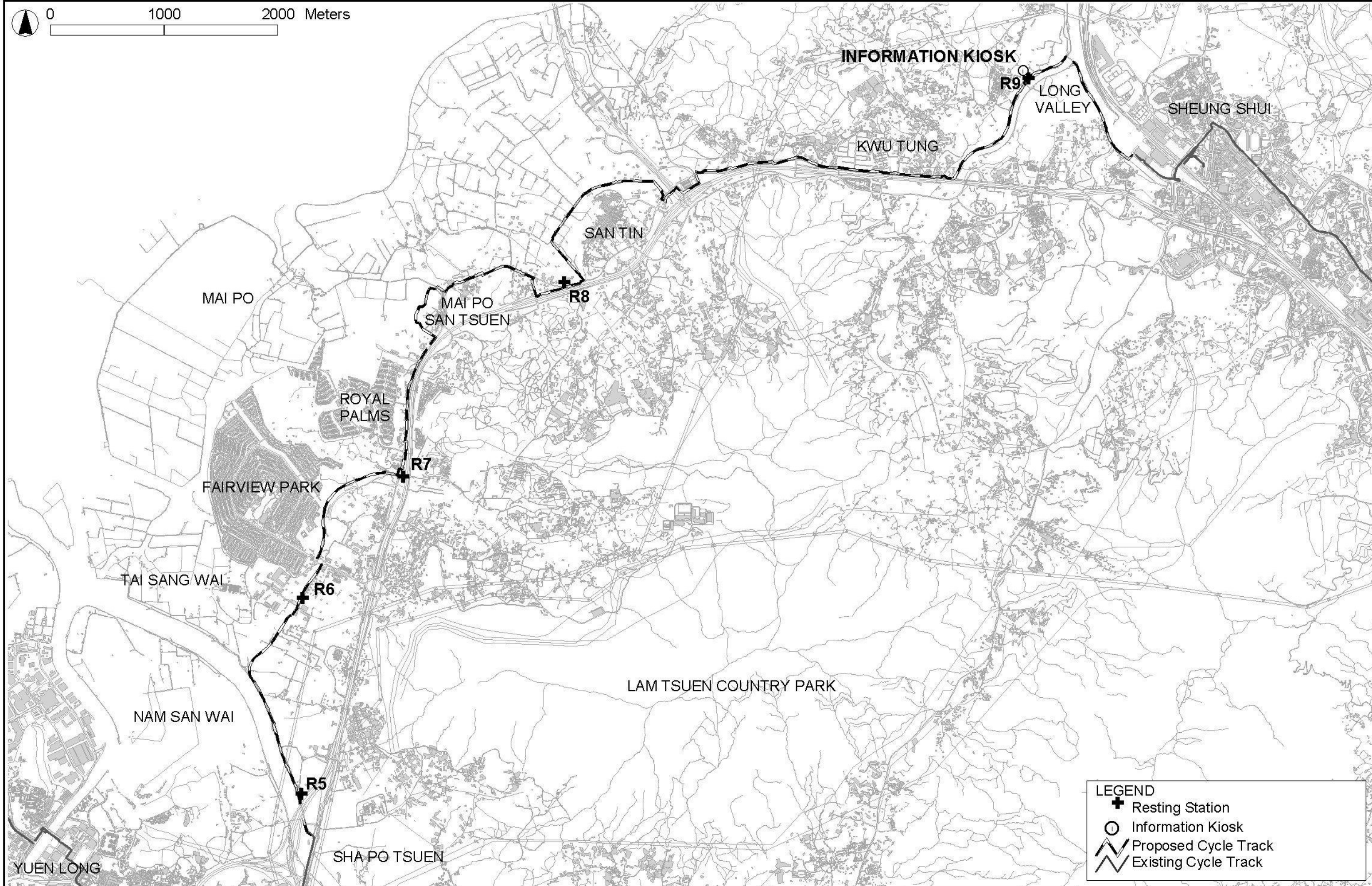
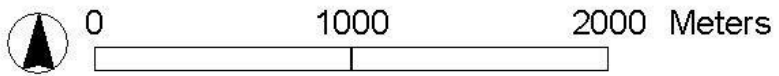
1. Implementation Status Performa;
2. Data Recovery Schedule;
3. Site Inspection Corrective Action Proforma;
4. Proactive Environmental Protection Proforma;
5. Regulatory Compliance Proforma;
6. Complaint Log;
7. Sample Template for Interim Notifications of Environmental Quality Limits Exceedances; and
8. Noise Monitoring Field Record Sheet.

12.8 Data Keeping

12.8.1 Site-based document such as the monitoring field records, laboratory analysis records, site inspection forms, etc. are not required to be included in the monthly EM&A reports, for submission. However, the document shall be well kept by the ET and be ready for inspection upon request. All relevant information shall be clearly and systematically recorded in the document. The monitoring data shall also be recorded in electronic form, and the software copy can be available upon request. All the documents and data shall be kept for at least one year after completion in construction of the Project.

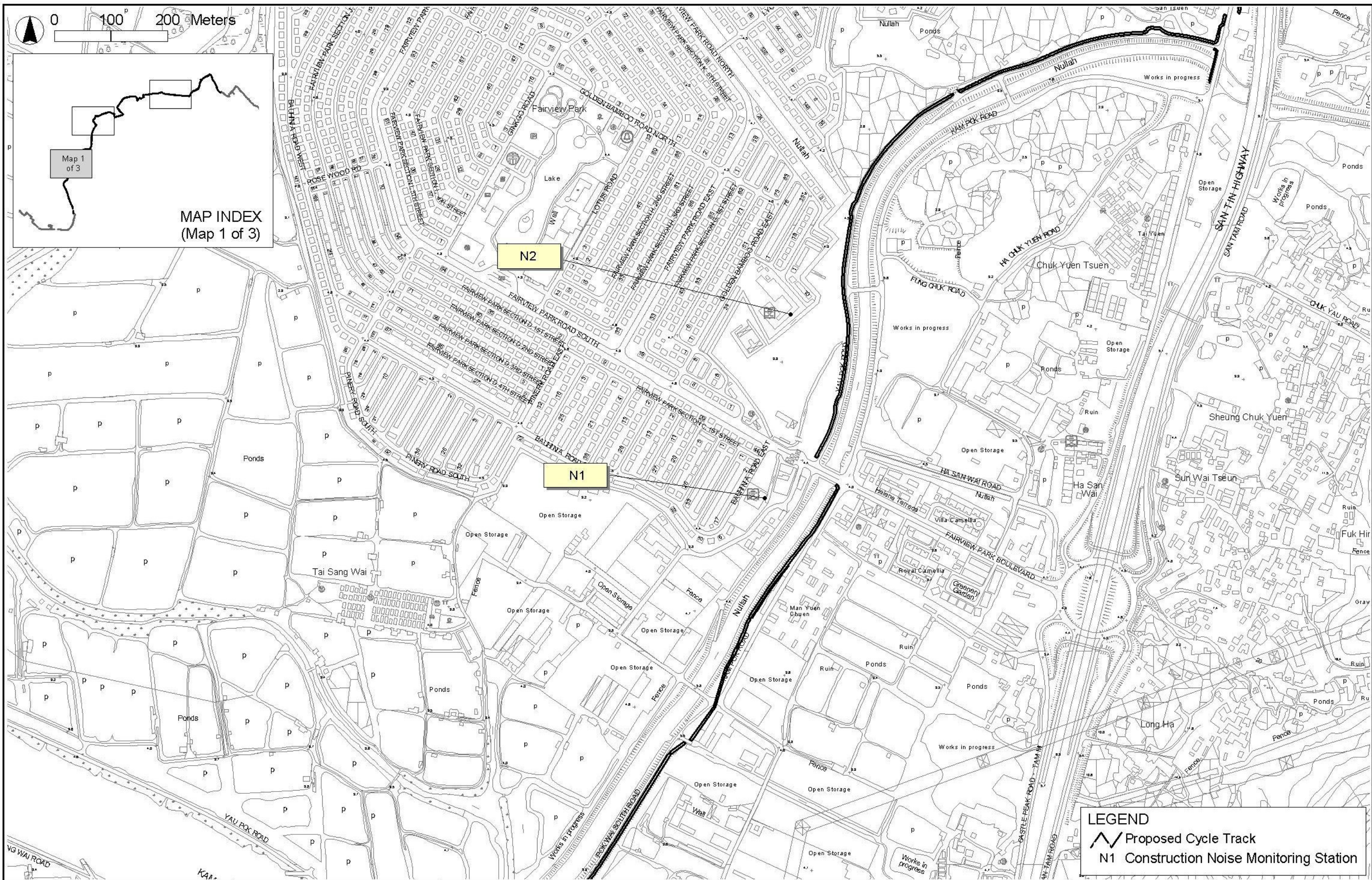
12.9 Interim Notifications of Environmental Quality Limit Exceedances

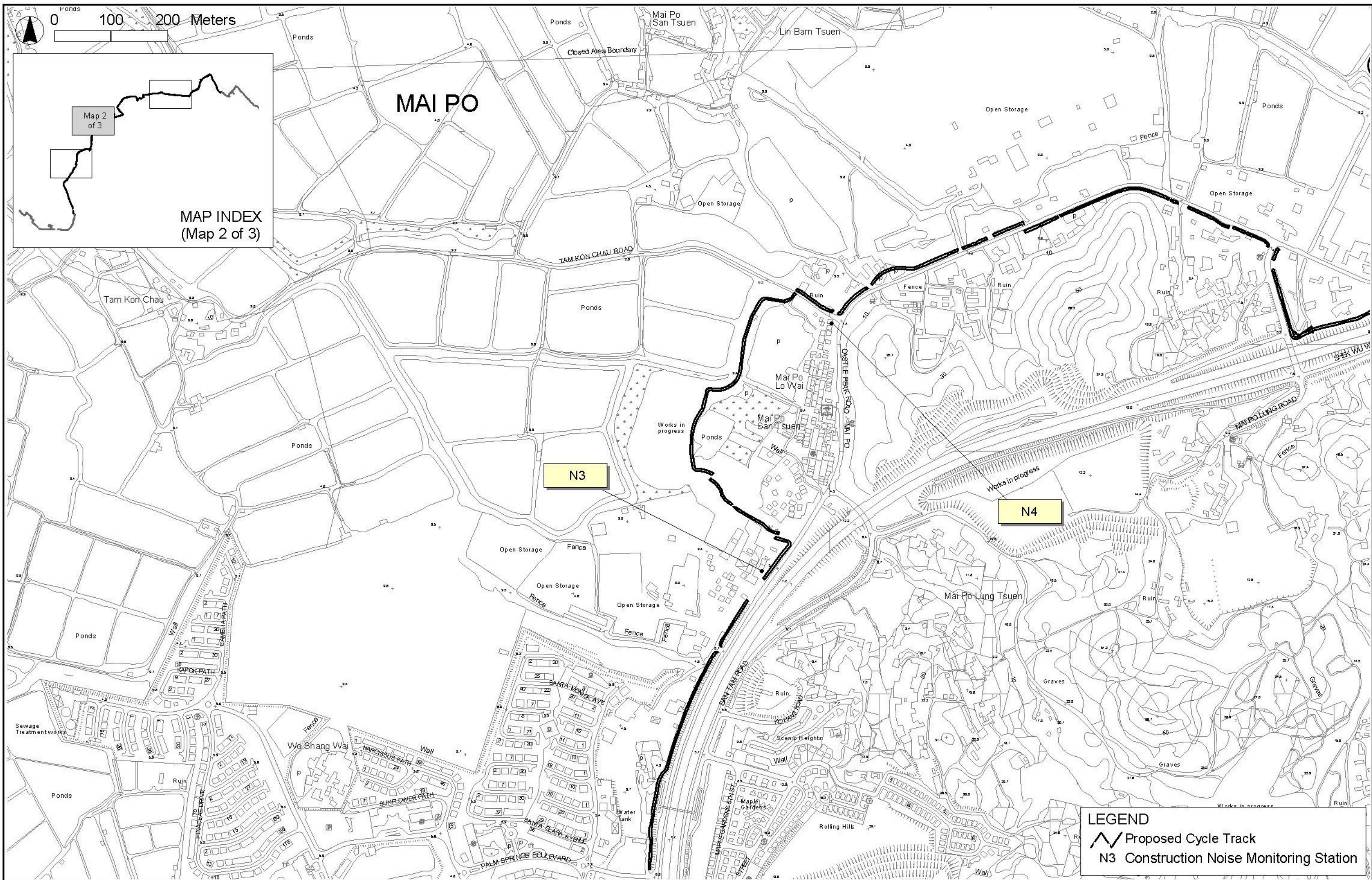
12.9.1 With reference to Event/Action Plans in previous sections, when the environmental quality limits are exceeded, the ET shall immediately notify the IEC, ER and EPD, as appropriate. The notification shall be followed up with advice to EPD on the results of the investigation, proposed actions and success of the actions taken, with any necessary follow-up proposals. A sample template for the interim notifications is shown in **Appendix 2**.

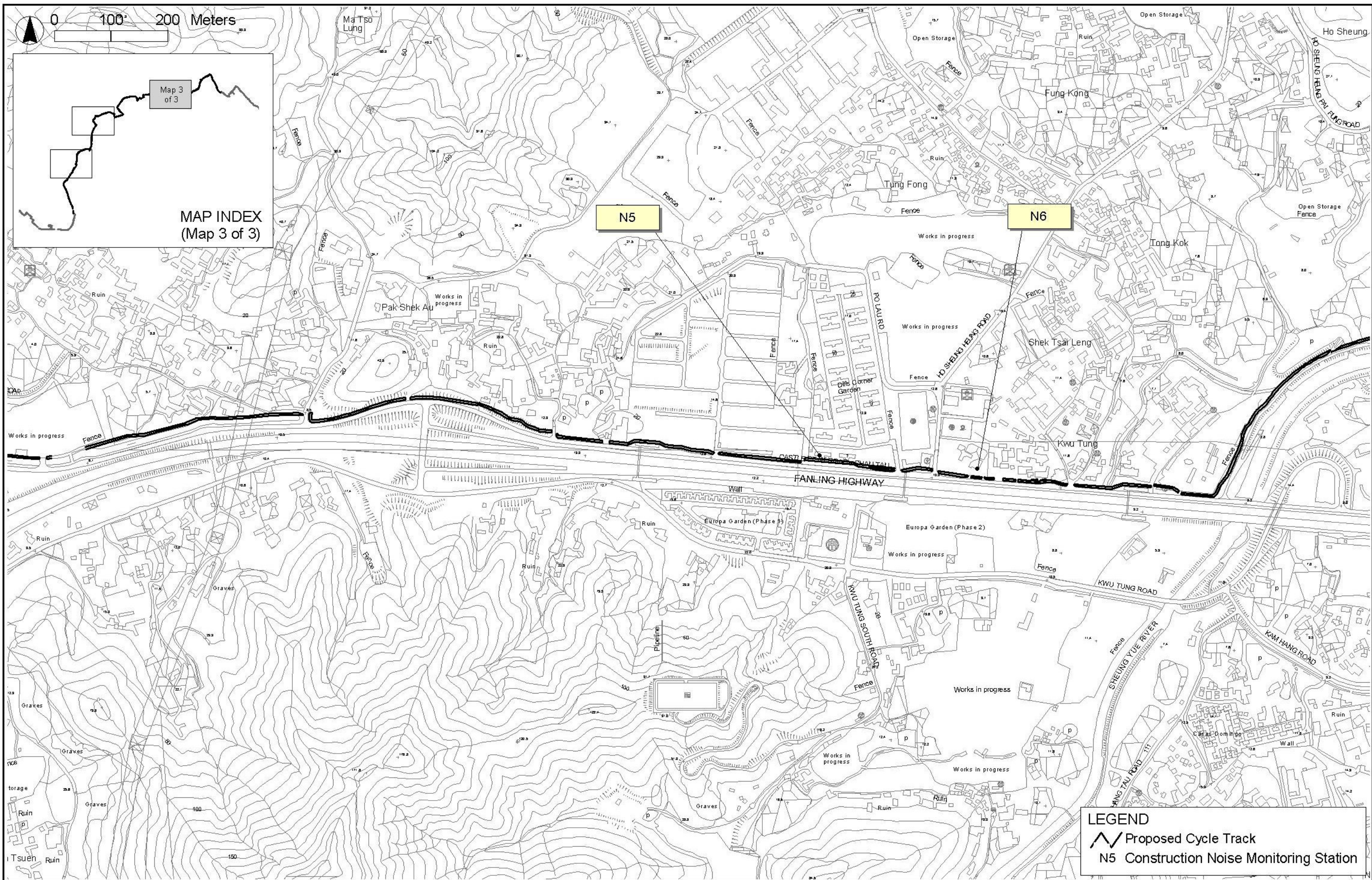


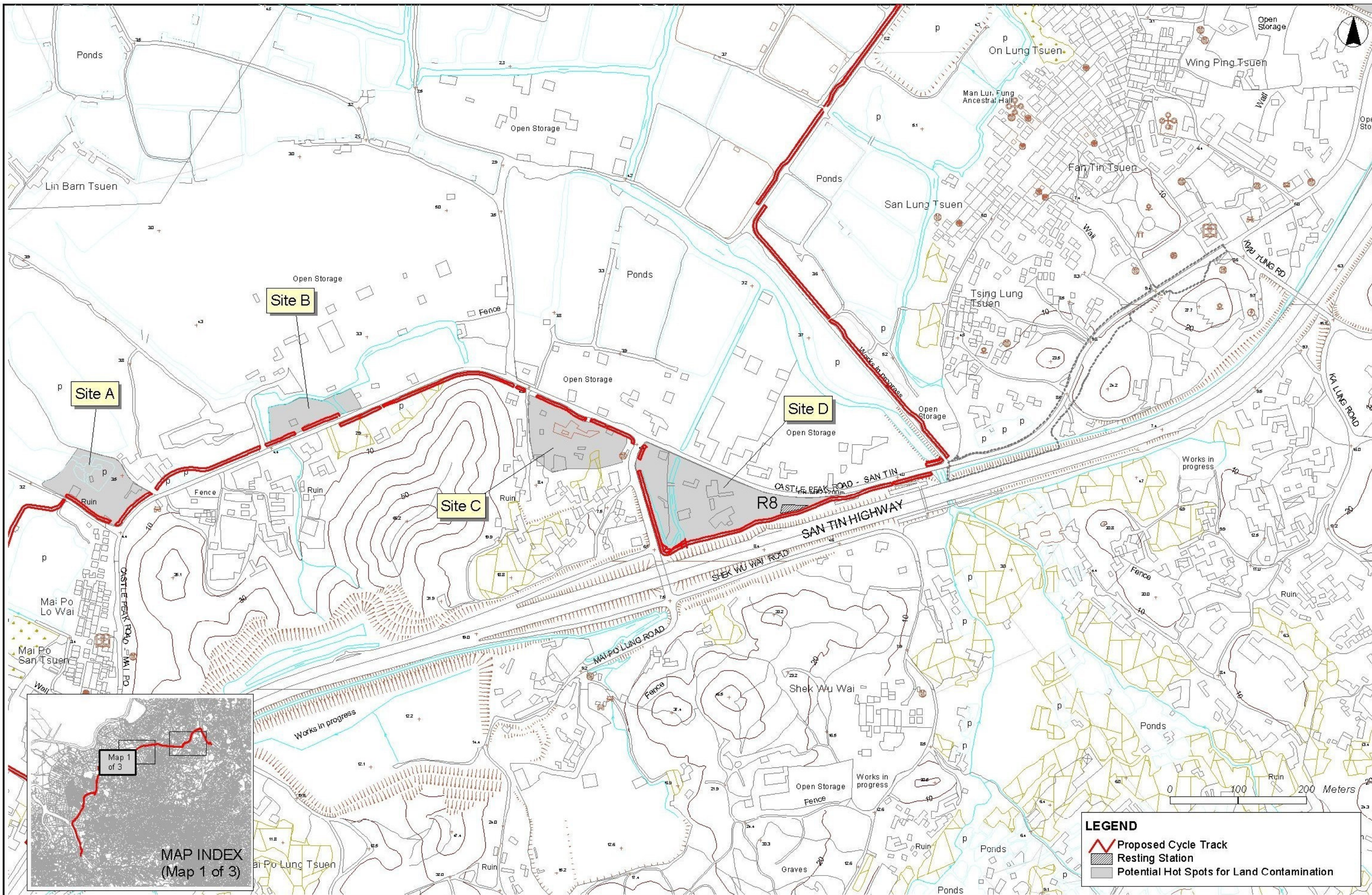
LEGEND

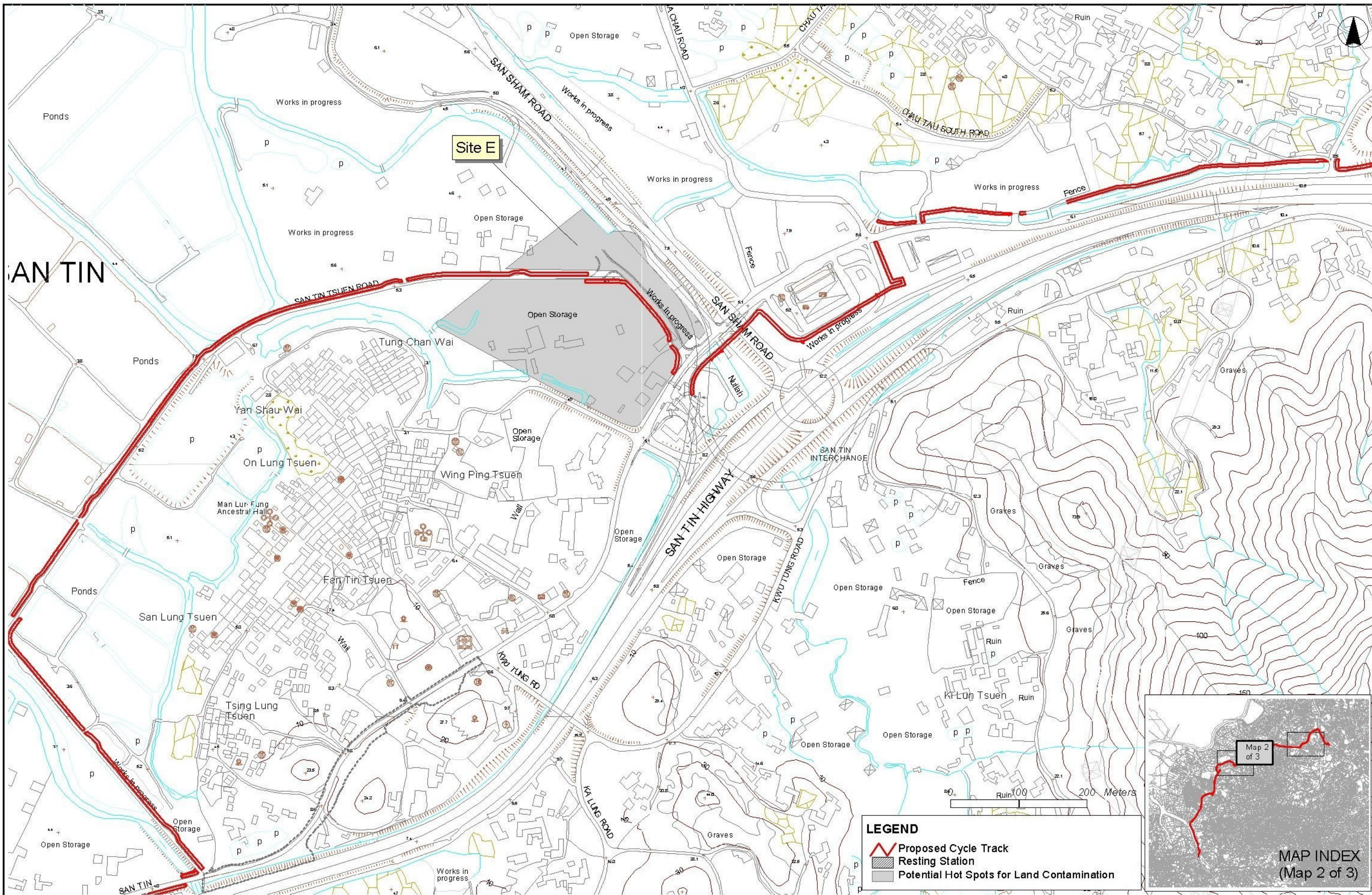
- Resting Station
- Information Kiosk
- Proposed Cycle Track
- Existing Cycle Track

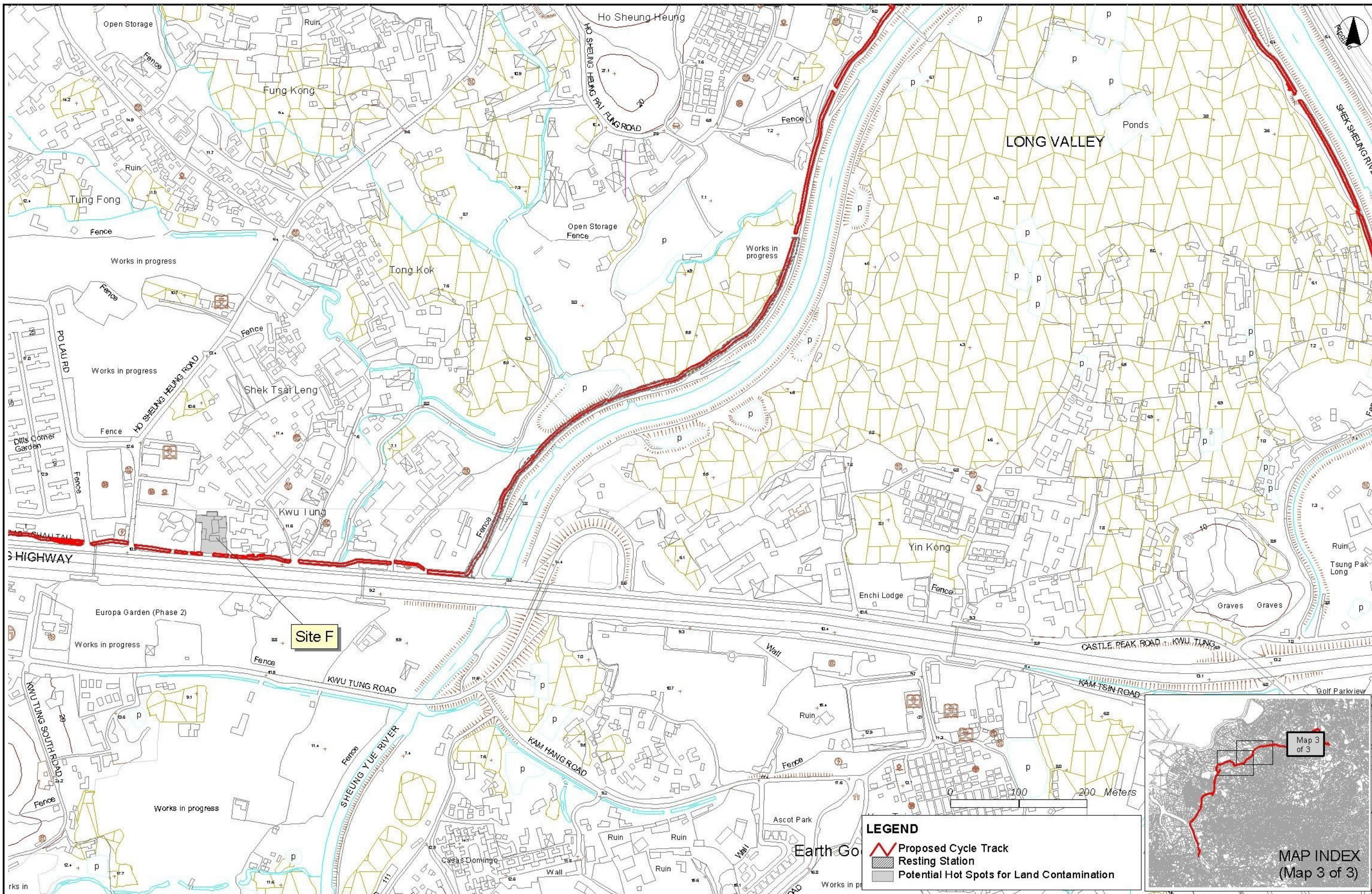


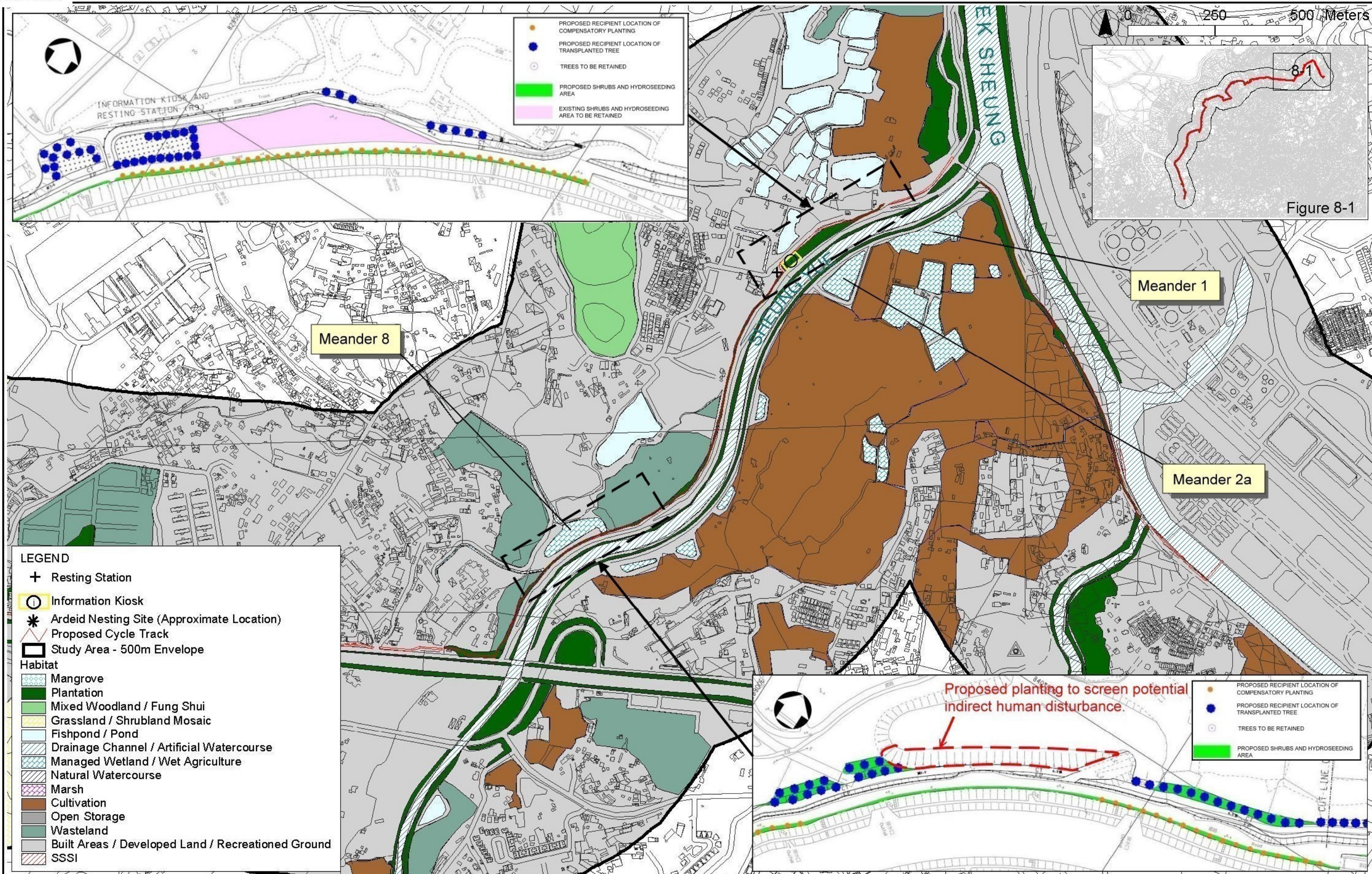












LMM OP1 Responsive Alignment Design - splitting the cycle track from existing carriageway and footpath to create new landscape buffer reducing the cumulative visual impact with existing infrastructure.

LMM OP2 Roadside and Amenity Planting - planting both ornamental and feature trees in proposed new planting areas along road and river and with new supporting facilities to restore and enhance the existing rural landscape. Selection of native tree species on disturbed sloping areas increases both landscape and ecology value of local context.

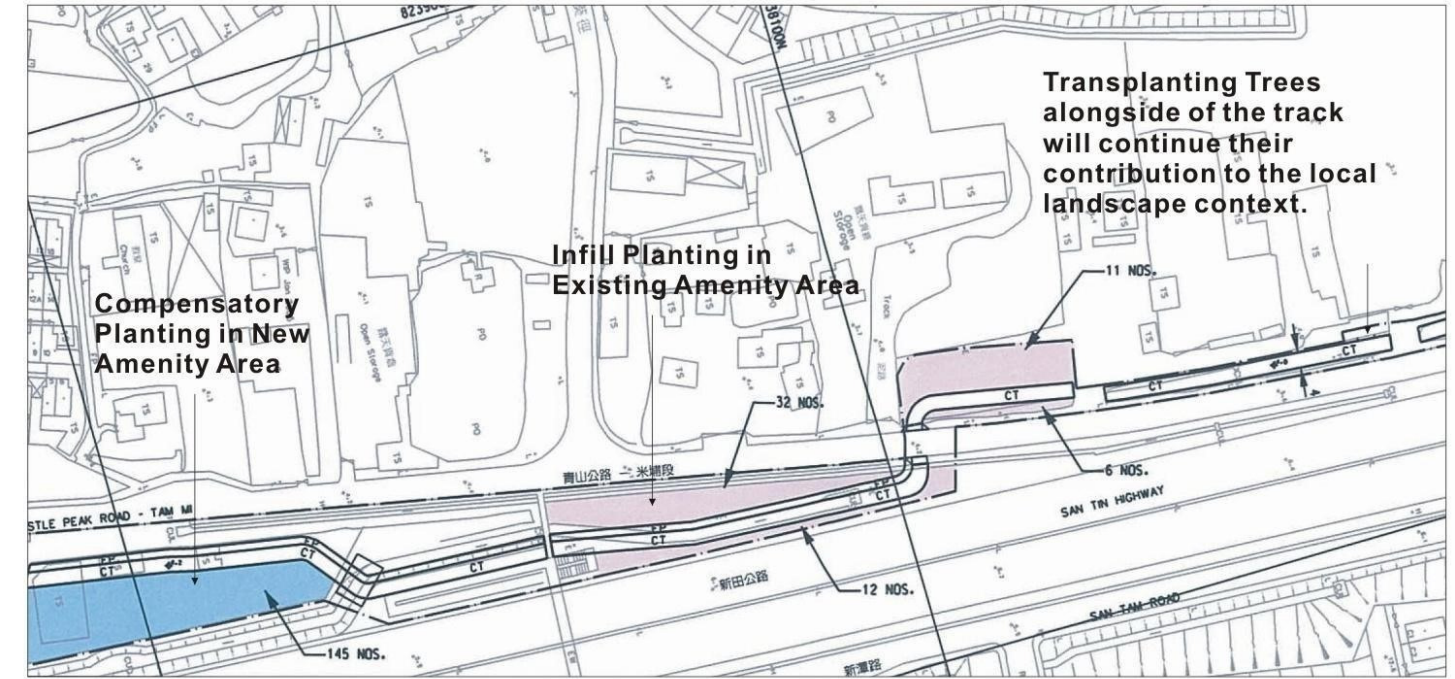
LMM OP3 Compensatory Planting - utilised large sized stock planting should be used to create an instant greening effect.

LMM OP4 Responsive Retaining Wall and Slope Treatment

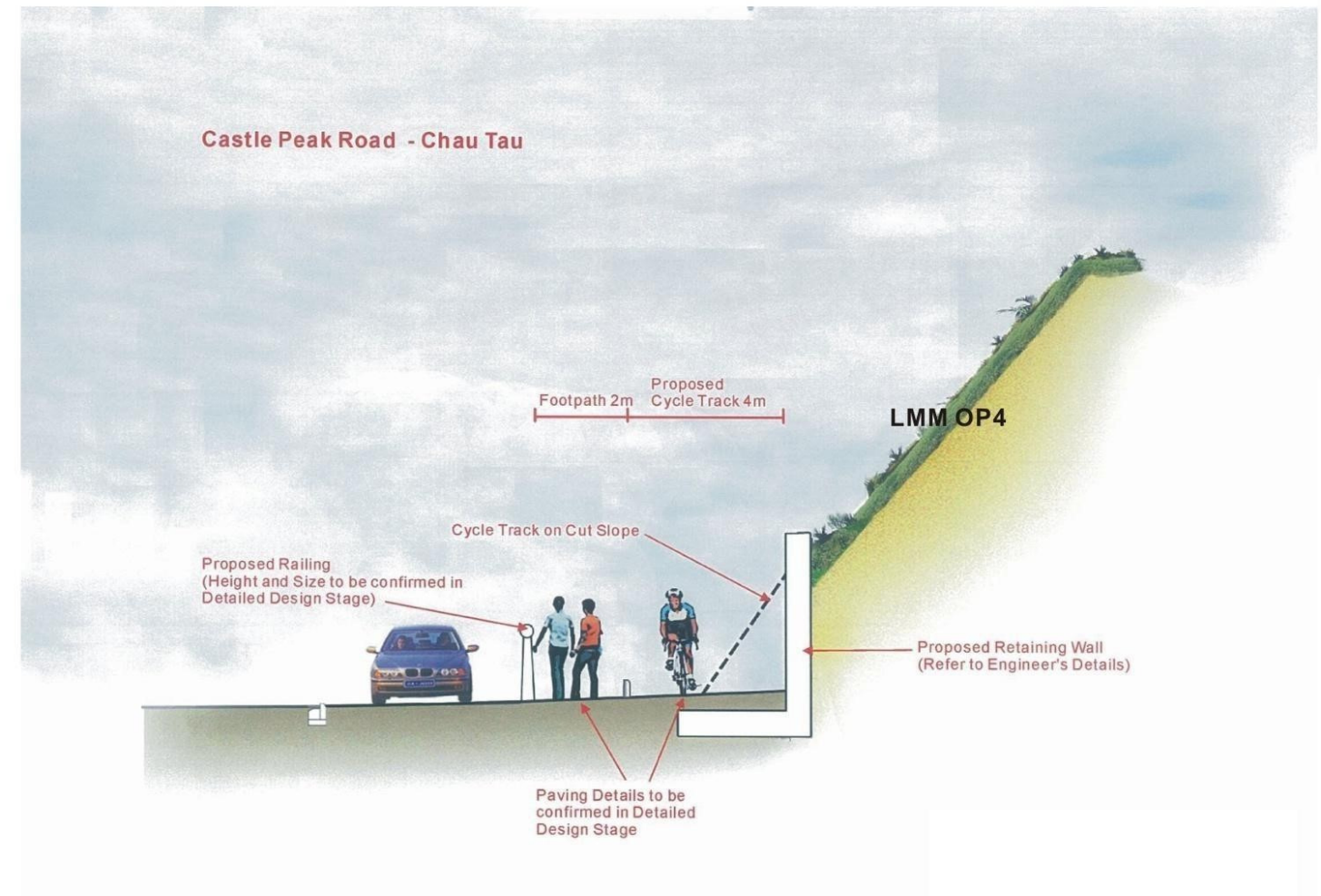
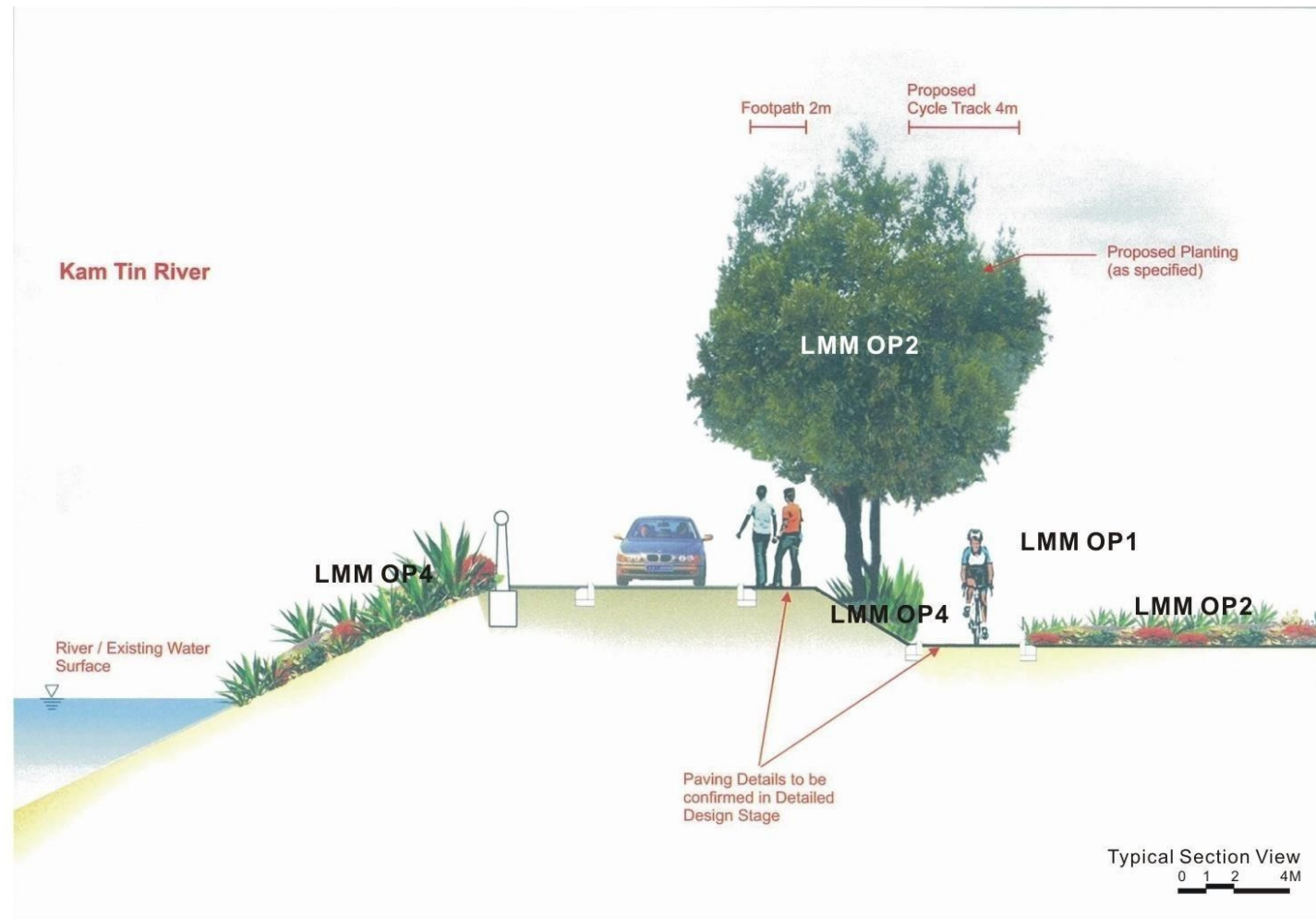
Note: Landscape Design Concept provided by IDC consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007



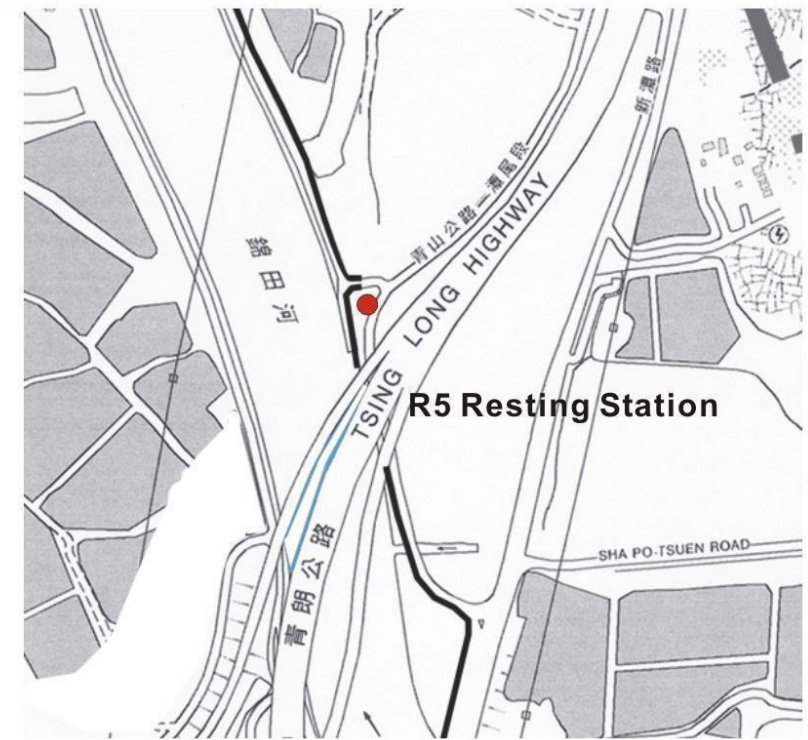
LMM OP4



LMM OP2 and OP3 - Typical Tree Planting Approach

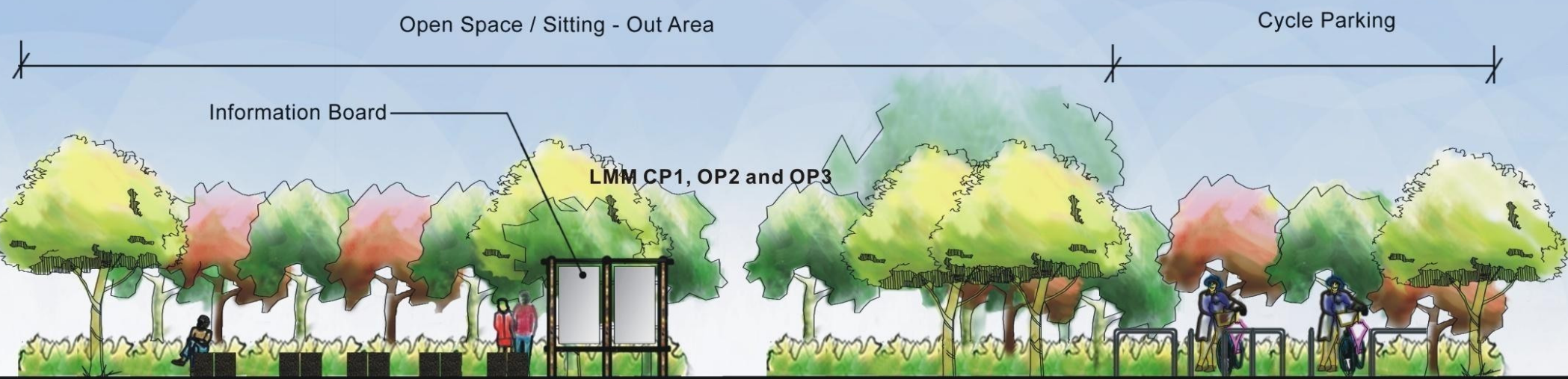


R5 Resting Station Concept



Resting Station (R)		R5
Zonning		O
Facility No.	Facility Description	
1	Cycle Parking Spaces	70 m ² for 20 Parking Units
2	Information Board	10m ²
3	Mobile First Aid Station	N/A
4	Shelter / Pavilion	N/A
5	Public Toilet	*
6	Cycle Rental / Return Kiosk	N/A
7	Food Kiosk	N/A
8	Practicing Area / Gathering Ground	N/A
9	Open Space / Sitting-out Area	200 m ²
Total Area		280 m ²

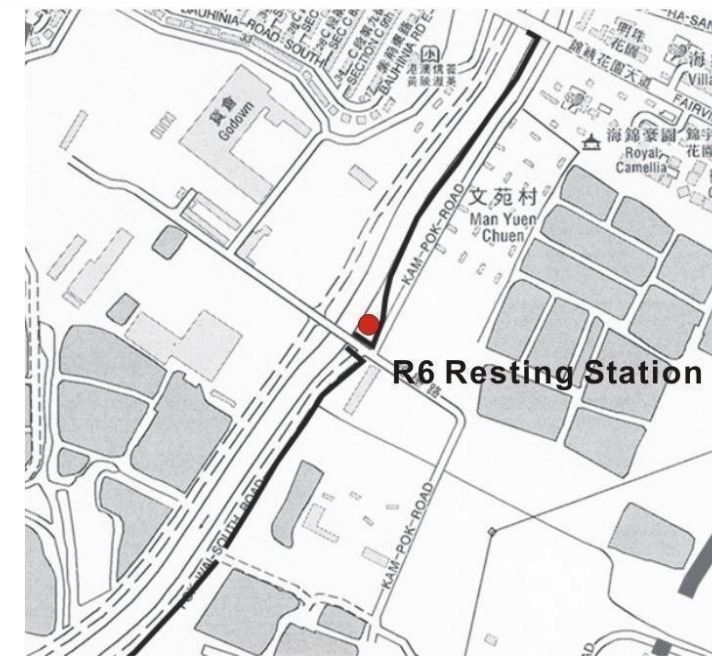
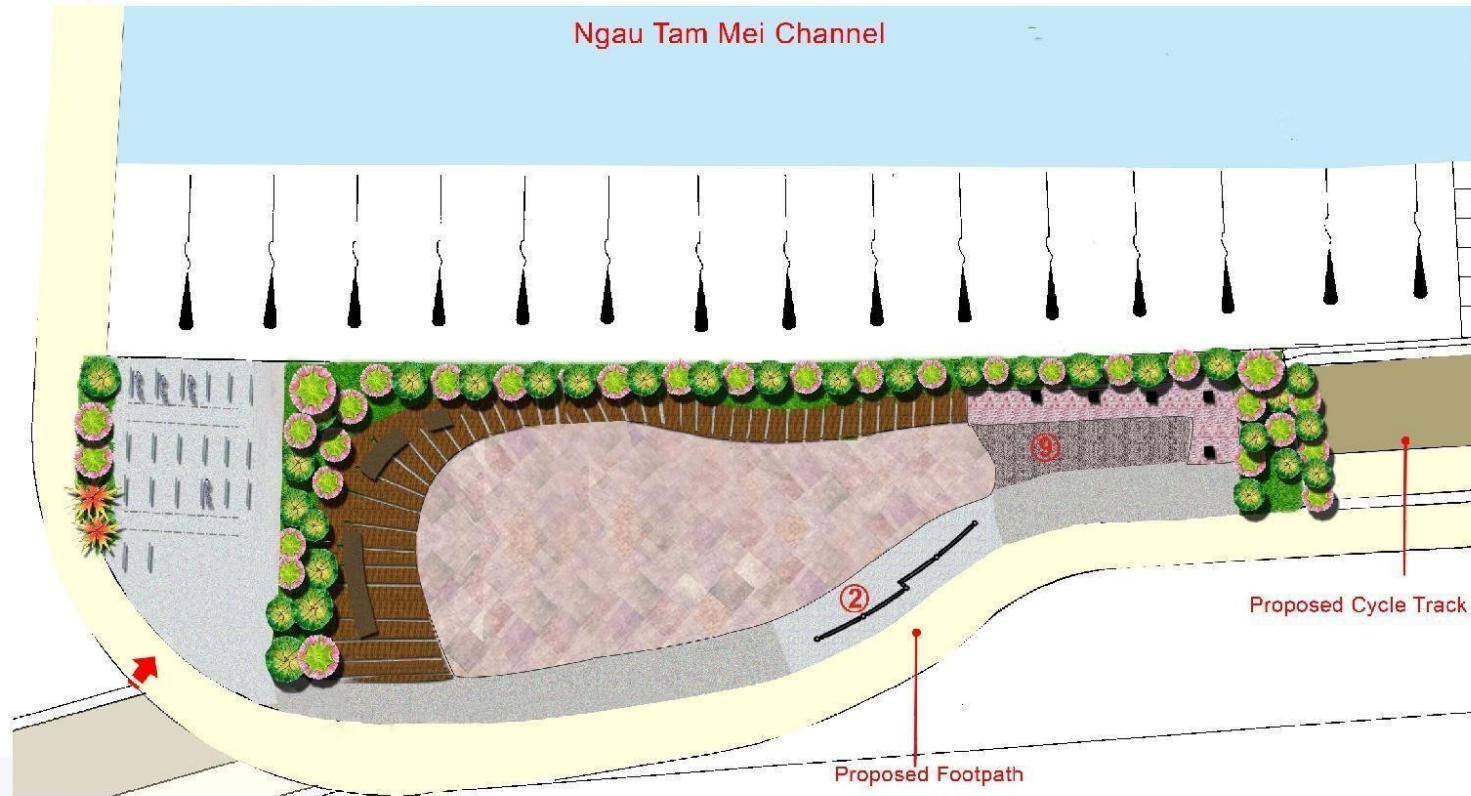
Note: Landscape Design Concept provided by IDC consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007



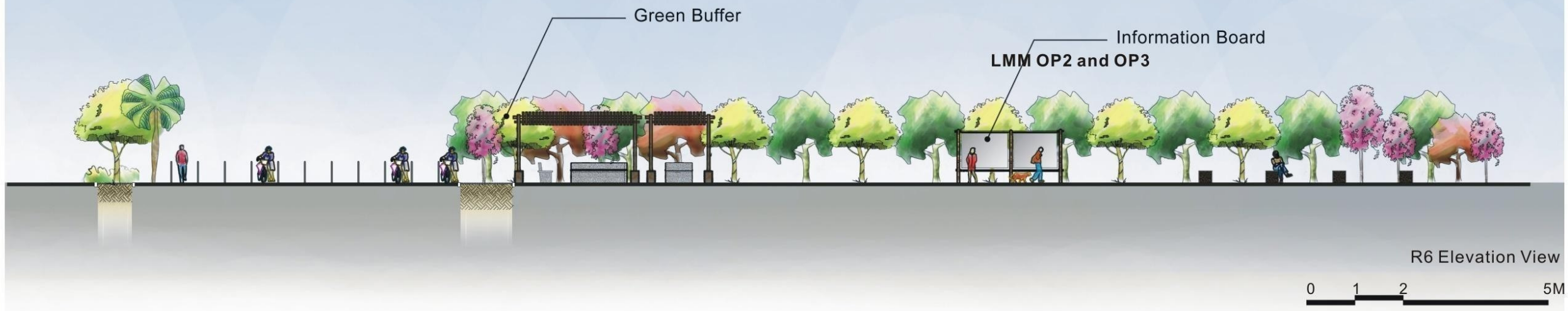
R5 Elevation View



R6 Resting Station Concept

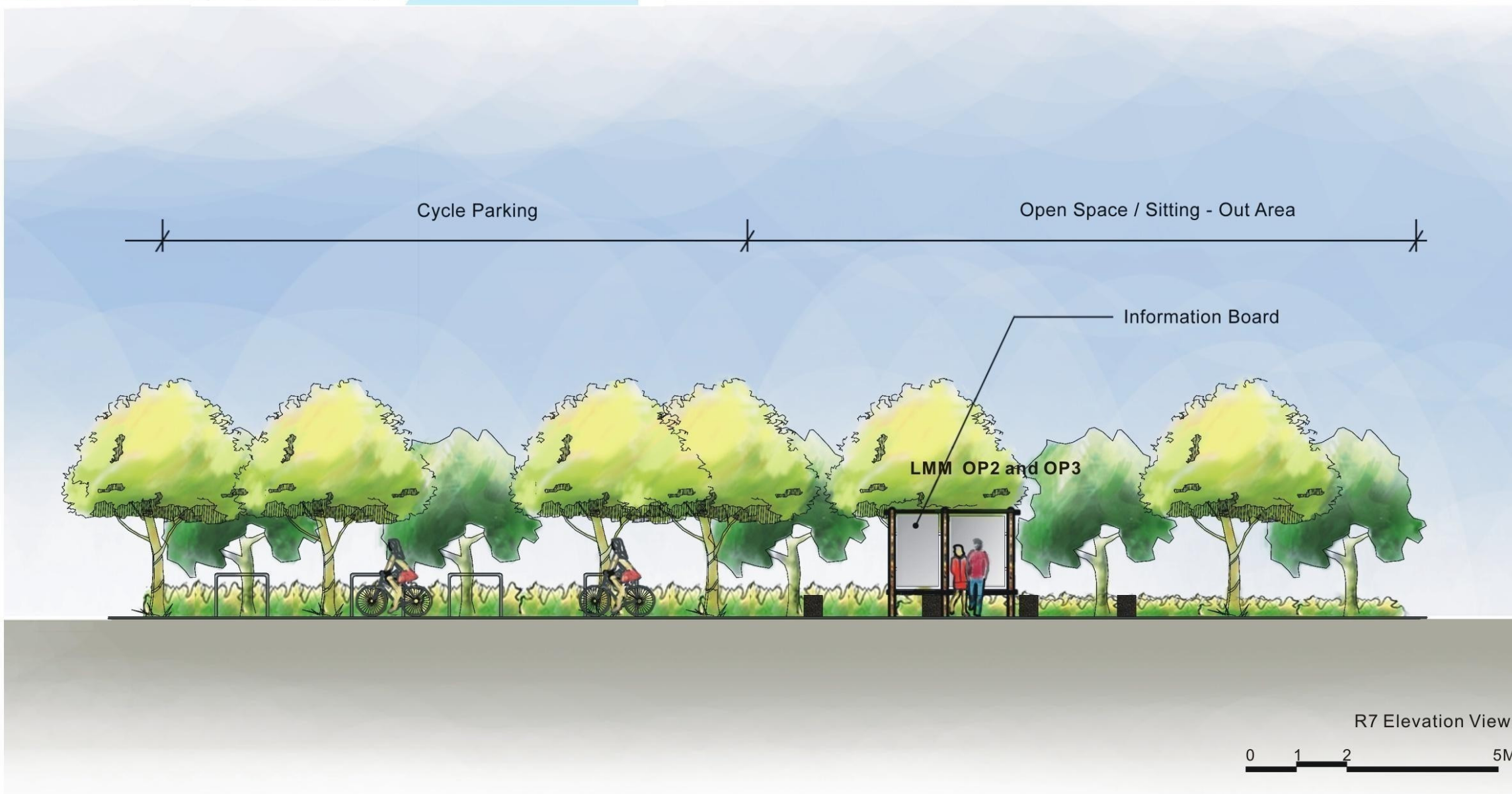
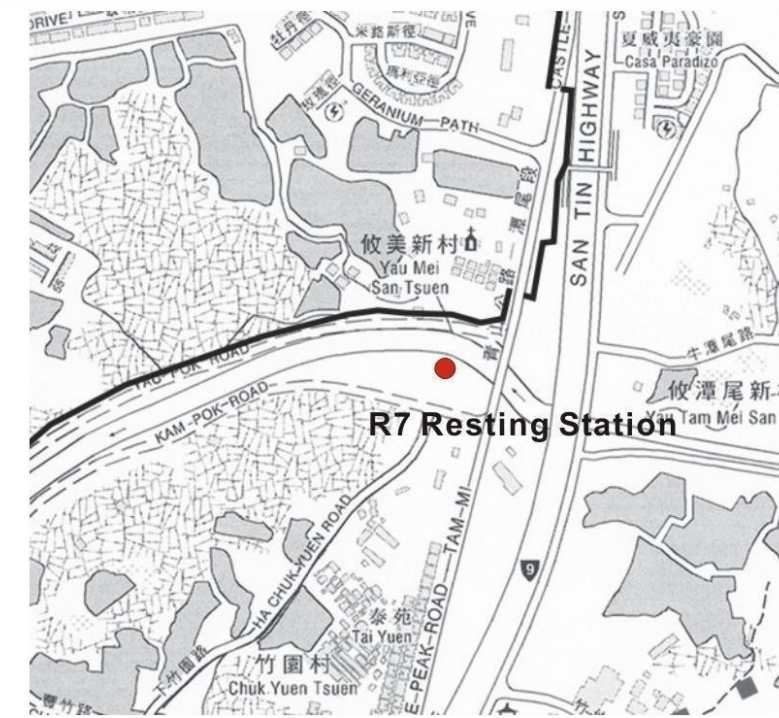
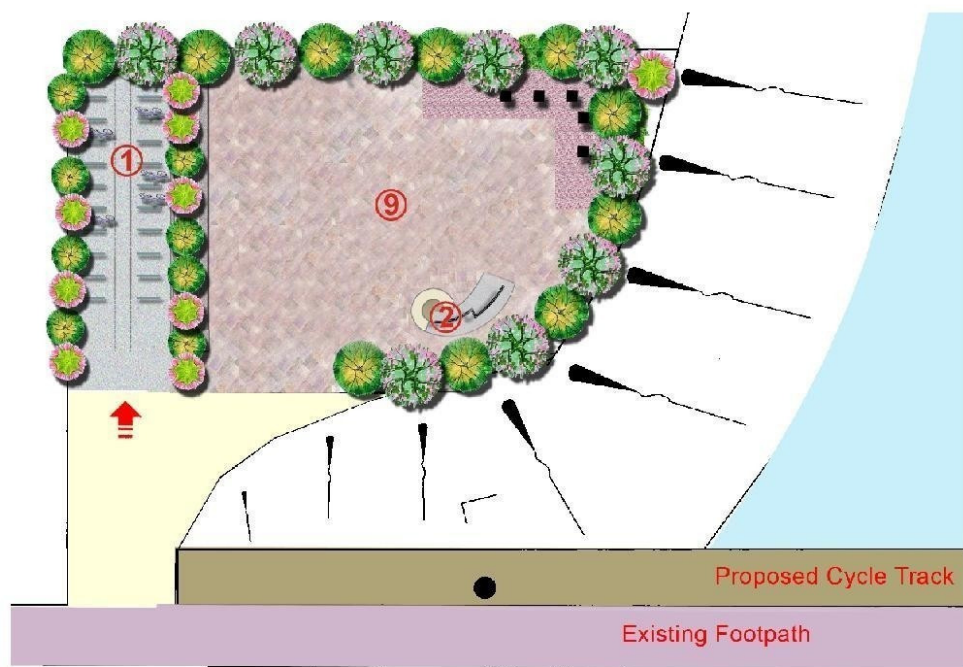


Resting Station (R)		R6
Zoning		OU
Facility No.	Facility Description	
1	Cycle Parking Spaces	90 m ² for 20 Parking Units
2	Information Board	10m ²
3	Mobile First Aid Station	N/A
4	Shelter / Pavilion	N/A
5	Public Toilet	*
6	Cycle Rental / Return Kiosk	N/A
7	Food Kiosk	N/A
8	Practicing Area / Gathering Ground	N/A
9	Open Space / Sitting-out Area	530 m ²
Total Area		630 m ²



Note: Landscape Design Concept provided by consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007

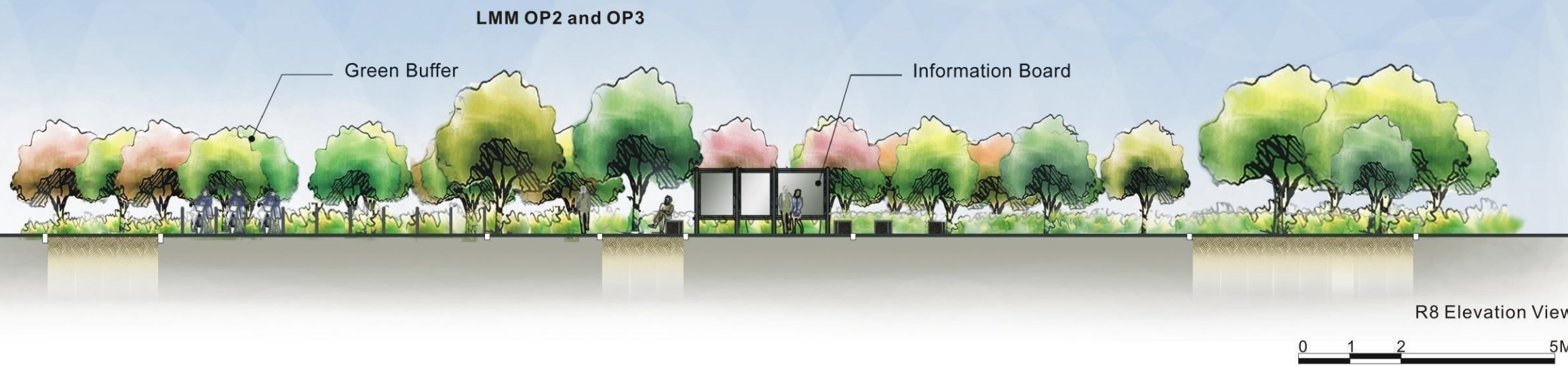
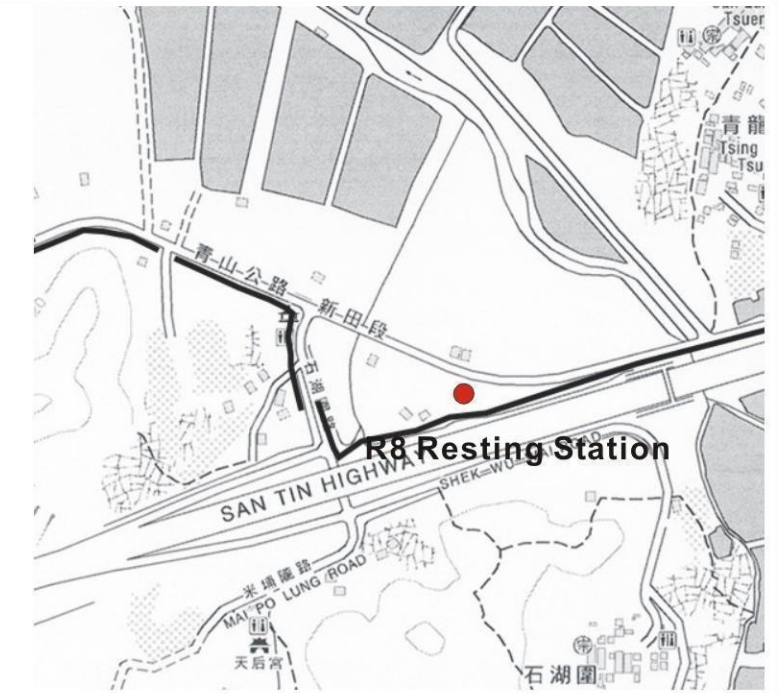
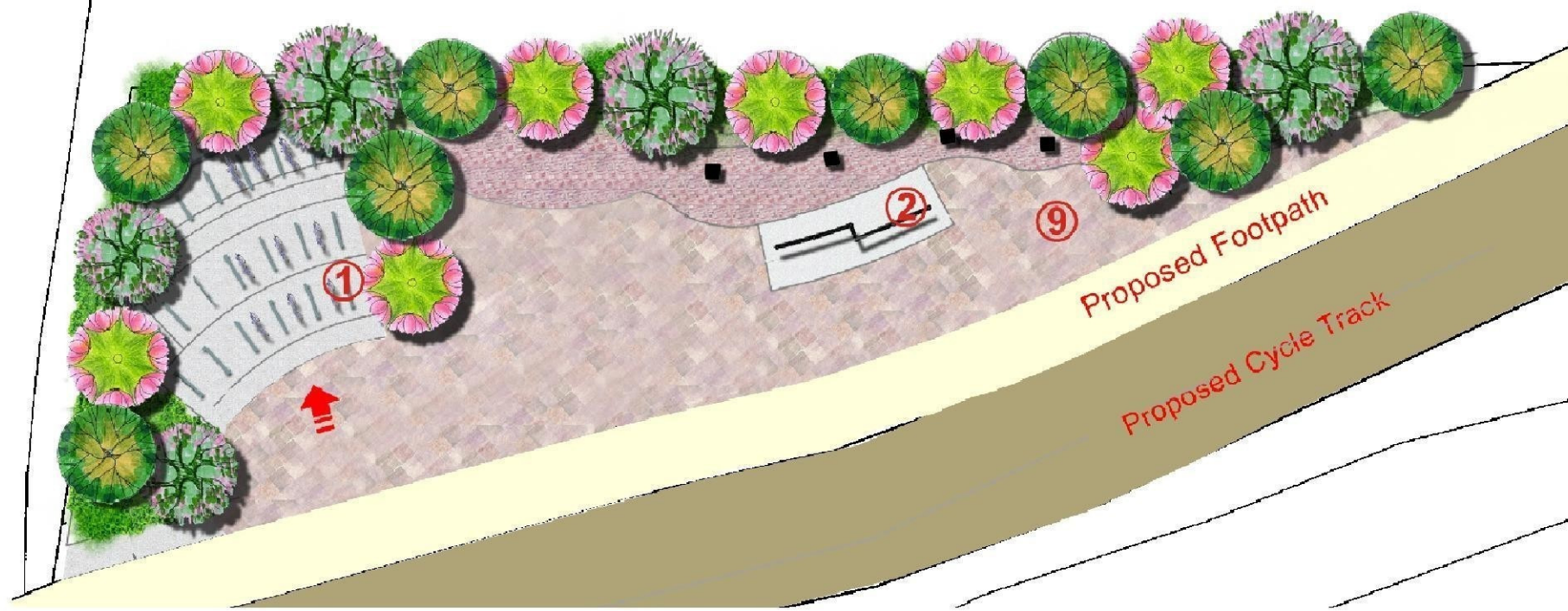
R7 Resting Station Concept



Resting Station (R)		R7
Zoning		V and REC
Facility No.	Facility Description	
1	Cycle Parking Spaces	50 m ² for 20 Parking Units
2	Information Board	10m ²
3	Mobile First Aid Station	N/A
4	Shelter / Pavilion	N/A
5	Public Toilet	*
6	Cycle Rental / Return Kiosk	N/A
7	Food Kiosk	N/A
8	Practicing Area / Gathering Ground	N/A
9	Open Space / Sitting-out Area	160 m ²
Total Area		220 m ²

Note: Landscape Design Concept provided by consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007

R8 Resting Station Concept

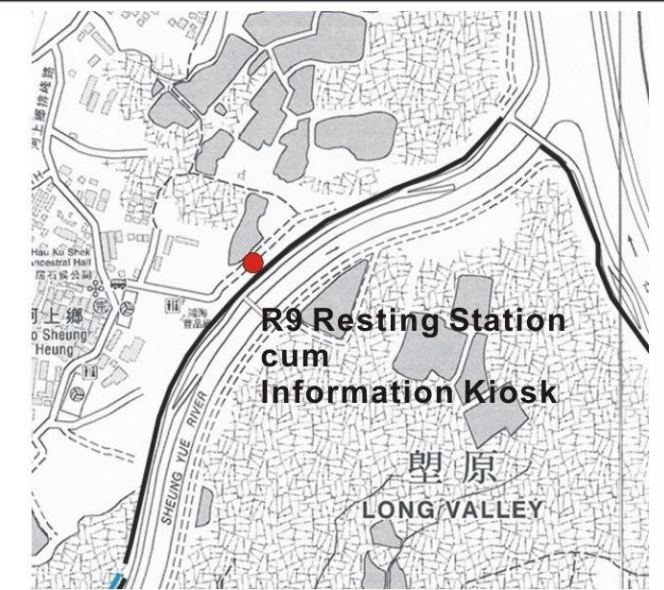
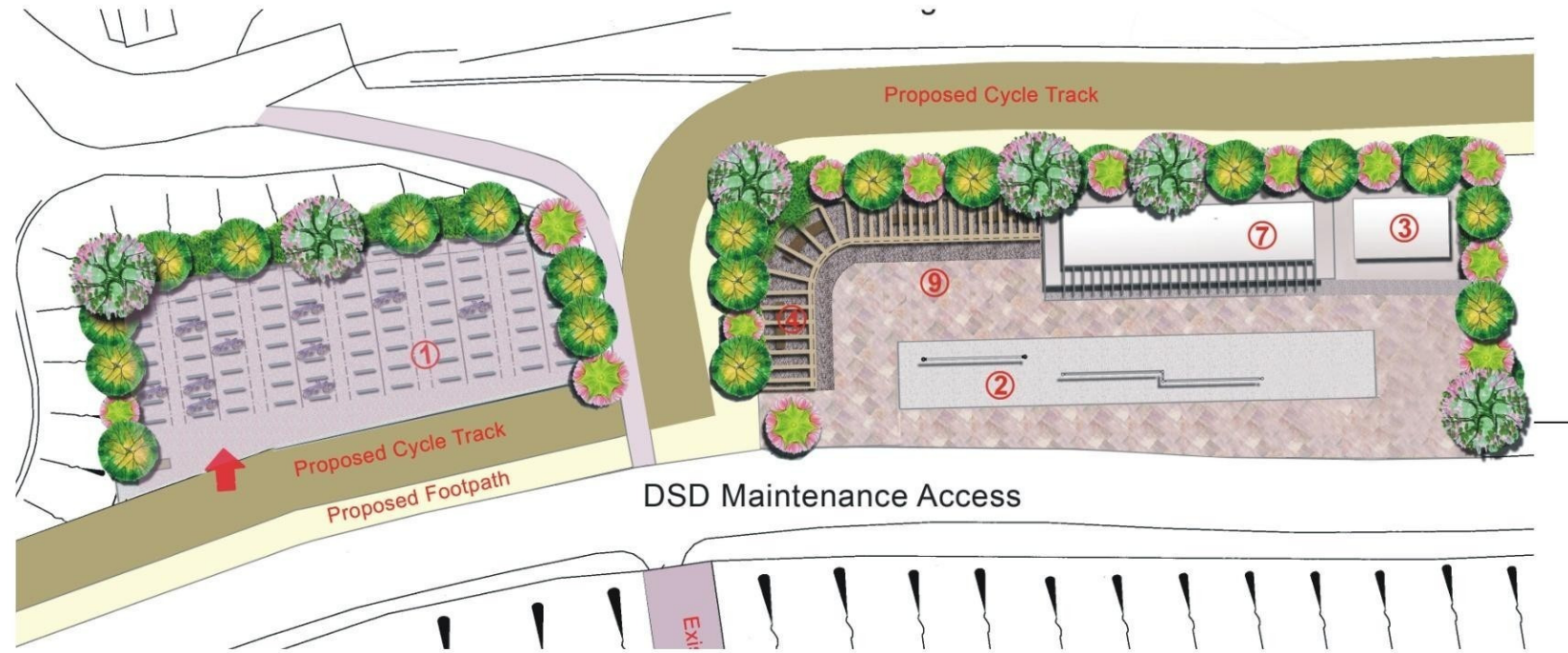


R8 Elevation View
0 1 2 5M

Resting Station (R)		R8
Zonning		RD
Facility No.	Facility Description	
1	Cycle Parking Spaces	90 m ² for 15 Parking Units
2	Information Board	10m ²
3	Mobile First Aid Station	N/A
4	Shelter / Pavilion	N/A
5	Public Toilet	-
6	Cycle Rental / Return Kiosk	N/A
7	Food Kiosk	N/A
8	Practicing Area / Gathering Ground	N/A
9	Open Space / Sitting-out Area	200 m ²
Total Area		300 m ²

Note: Landscape Design Concept provided by consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007

R9 Resting Station cum Information Kiosk



Information Kiosk & Resting Station (R9)		E
Zoning		E & R9
Facility No.	Facility Description	
1	Cycle Parking Spaces	380m ² for 80 Parking Units
2	Information Board	100m ²
3	Mobile First Aid Station	30m ²
4	Shelter / Pavilion	130m ²
5	Public Toilet	*
6	Cycle Rental / Return Kiosk	N/A
7	Food Kiosk	140m ²
8	Practicing Area / Gathering Ground	N/A
9	Open Space / Sitting-out Area	360m ²
Total Area		1140m ²

Note: Landscape Design Concept provided by consultant of the NWNT cycle track design and construction study under Agreement No. CE22/2006, CEDD, 2007

Appendix 1

Implementation Schedule

Table A1-1 Air Quality Impact – 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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
S.3.6.2	S.3.2.3	<ul style="list-style-type: none"> 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

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	<ul style="list-style-type: none"> 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 A1-2 Noise Impact – 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 (YLKTSDD2) 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): <ul style="list-style-type: none"> - 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 PME's where practicable: <ul style="list-style-type: none"> - 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 PME's where practicable: <ul style="list-style-type: none"> - 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
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

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	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 A1-3 Water Quality Impact – 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 A1-4 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 A1-5 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: <ul style="list-style-type: none"> 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	<p><u>Management of Contaminated Soils</u></p> <ul style="list-style-type: none"> ▪ 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 A1-6 Ecological & Fisheries Impact – 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 Egretty 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 <u>September to February</u> 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 egretty. 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	<i>In situ</i> 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 of the EIA Report).	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
S.9.11.27	S.8.2.11	The following good work practices are recommended: <ul style="list-style-type: none"> ▪ 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

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?
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 Egretty, 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 A1-7 Cultural Heritage Impact – 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 A1-8 Landscape & Visual Impact – 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 fallen 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.
	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.

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		
	CP1.8	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.
	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.

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		
	CP2.2	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.
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.

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	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.
	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.

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		
	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.
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.

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		
	OP1.4	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.
	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.

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 12-12	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.
	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.

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 12-12	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.
	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

Note: 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

Appendix 2

Proforma for EM&A

IMPLEMENTATION STATUS PROFORMA

Ref: _____

Ref**	Environmental Protection Measures*	Implementation Status

* *All recommendations and requirements resulted during the Course of EIA/EA Process, including ACE and /or accepted public comment to the proposed project*

** *EIA Ref/EM&A Log Ref/Design Document Ref*

Signed by Environmental Team Leader: _____

Date: _____

Audited by Independent Checker (Environment): _____

Date: _____

DATA RECOVERY SCHEDULE

Ref: _____

Date	Air Quality Monitoring					Noise Monitoring					Water Quality				
	Monitoring Station*					Monitoring Location*					Monitoring Location*				
	A1	A2	A3	A4	A5	N1	N2	N3	N4	N5	W1	W2	W3	W4	W5
1															
2															
3															
4															
5															
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24															
25															
26															
27															
28															
29															
30															
31															
% of R															

* Remark type of parameters
% of R The percentage of Data Recovery is the actual monitoring over the scheduled monitoring

Signed by Environmental Team Leader: _____ Date: _____

Copy to Independent Checker (Environment)

SITE INSPECTION PROFORMA

Ref: _____

Date	Location	Req't Ref.*	Observation/Deficiency	Mitigation Action** (Responsible Agency)	Date*** of Confirmation

* EIA Ref/EM&A Log Ref/Design Document Ref/Environmental Protection Contract Clause
 ** Specific Environmental Mitigation Measures should be stated, such as, equipment, processes, systems, practices or technologies.
 *** The required completion date to confirm the specified Environmental Protection Action

This Proforma is an Environmental Protection Instruction for: _____ on _____

Signed by Environmental Team Leader: _____ Date: _____

Copy to Independent Checker (Environment)

PROACTIVE ENVIRONMENTAL PROTECTION PROFORMA

Ref: _____

Ref*	Proposed Construction Method**	Location/ Working Period	Anticipated Impacts	Recommended Mitigation Measures

* EIA Ref/EM&A Log Ref/Design Document Ref

** Details of equipment, vehicles, plants, processes, technologies for the option of construction method

Reviewed by Environmental Team Leader: _____

Date: _____

Approved by Independent Checker (Environment): _____

Date: _____

REGULATORY COMPLIANCE PROFORMA

Ref: _____

Ref**	Environmental License/Permit*	Control Area/Facility/Location	Effective Date

* *Name of Applicant, Business Corporation, relevant regulation and remark of license/permit conditions*

** *File reference of the licensee/permittee*

Recorded by Environmental Team Leader: _____

Date: _____

Signed by Independent Checker (Environment): _____

Date: _____

COMPLAINT LOG

Ref: _____

Log Ref	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/Mitigation Action	File Closed

Filed by Environmental Team Leader: _____

Date: _____

Sample Template for Interim Notifications of Environmental Quality Limits Exceedances

Incident Report on Action Level or Limit Level Non-compliance

Project	
Date	
Time	
Monitoring Location	
Parameter	
Action & Limit Levels	
Measured Level	
Possible reason for Action or Limit Level Non-compliance	
Actions taken / to be taken	
Remarks	

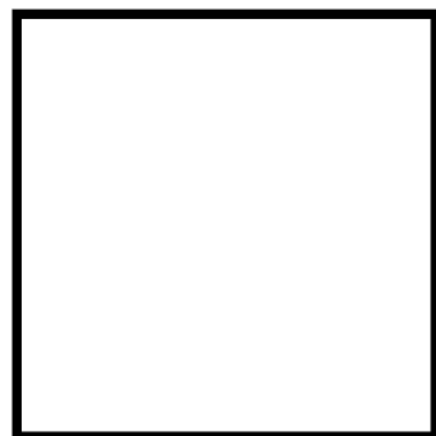
Location Plan

Prepared by : _____

Designation : _____

Signature : _____

Date : _____



Noise Monitoring Field Record Sheet

Monitoring Location		
Description of Location		
Date of Monitoring		
Measurement Start Time (hh:mm)		
Measurement Time Length (min.)		
Noise Meter Model/Identification		
Calibrator Model/Identification		
Measurement Results	L ₉₀ (dB(A))	
	L ₁₀ (dB(A))	
	LEQ (dB(A))	
Major Construction Noise Source(s) During Monitoring		
Other Noise Source(s) During Monitoring		
Remarks		

Name & Designation

Signature

Date

Recorded By :

Checked By :
