

Airport Authority Hong Kong
**Contract C20C17 – Consultancy
Services for Airport City Link**
Environmental Monitoring and Audit
Manual

ACL-REP-D23-03

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 277781

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1 Introduction

1.1 Project Background

- 1.1.1.1** The Airport Authority Hong Kong (AAHK) was invited by the Hong Kong Special Administrative Region (HKSAR) Government to submit a proposal for the topside development of Hong Kong-Zhuhai-Macau Bridge (HZMB) Hong Kong Port (HKP), with a view to create an Aerotropolis, by coupling with the Three Runway System (3RS), South Cargo Precinct, the SKYCITY project, AsiaWorld Expo, etc, to connect the Guangzhou-HK-Macao Greater Bay Area and the world, thereby strengthening and enhancing Hong Kong’s position as an international business centre. To enhance vehicular mobility and walkability between HKP Island and the SKYCITY, AAHK proposed to construct a connection bridge, i.e. the Airport City Link (the Project), to provide shuttle services and pedestrian pathway.
- 1.1.1.2** In July 2020, a Project Profile (PP) (Register No.: PP-606/2020) on the Project was submitted for the application for permission to apply directly for an Environmental Permit (EP), which was approved by Environmental Protection Department (EPD) in August 2020. The EP of the Project (No.: EP-581/2020) was obtained in October 2020.
- 1.1.1.3** In accordance with Condition 3.1 of the EP, the Permit Holder, i.e. AAHK, shall submit the Environmental Monitoring and Audit (EM&A) Manual to the Director of Environmental Protection (DEP) for approval, no later than 4 months before the commencement of construction of the Project.

1.2 Purpose of the Manual

- 1.2.1.1** The purpose of this EM&A Manual (hereinafter refer to as the “Manual”) is to guide the setup of an EM&A programme to ensure compliance with the recommendations in the PP, 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 proposed monitoring and audit programme for the Project.
- 1.2.1.2** The Manual provides specific information, guidance and instruction to personnel in charged with environmental responsibilities and undertaking environmental monitoring and auditing works for the Project. It also provides systematic procedures for monitoring, auditing and minimising environmental impacts associated with the Project.
- 1.2.1.3** Hong Kong environmental regulations and the Hong Kong Planning Standards and Guidelines (HKPSG) have served as environmental standards and guidelines in the preparation of this Manual. In addition, this EM&A Manual has been prepared in accordance with the

requirements stipulated in Annex 21 of the Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM).

1.2.1.4 This Manual contains the following information.

- Project organisation for the EM&A works;
- Responsibilities of the Contractor, the Project Manager (PM) or Project Manager's Representative (PMR) of AAHK, Environmental Team (ET), and the Independent Environmental Checker (IEC) with respect to the EM&A requirements during the course of the Project;
- The basis for, and description of the broad approach underlying the EM&A programme;
- Requirements with respect to the construction programme schedule and the necessary EM&A programme to track the varying environmental impact;
- Details of the methodologies to be adopted, including all laboratories and analytical procedures, and details on quality assurance and quality control programme;
- Definition of Action and Limit levels;
- Requirements for reviewing pollution sources and working procedures required in the event of non-compliance with the environmental criteria and complaints;
- Requirements for presentation of environmental auditing data and appropriate reporting procedures; and
- Requirements for review of PP predictions and the effectiveness of the mitigation measures / environmental management systems and the EM&A programme.

1.2.1.5 This EM&A Manual is a dynamic document that should be reviewed regularly and updated as necessary during the construction and operation of the Project.

2 Project Description

2.1 General Description of the Project

2.1.1.1 The Project is situated between the Airport Island and HKP Island, at the south of existing SkyPier on the Airport Island. The Project serves as a connection bridge providing shuttle services and pedestrian pathway. The western section of the Project will be ended adjacent to the SKYCITY on the Airport Island with an elevated platform, while the eastern section will be ended adjacent to the HKP Passenger Crossing Building (PCB) with another elevated platform. The location of the Project is shown in **Figure 2.1**.

2.1.1.2 The Project scale is anticipated to be small. An approximately 850m-long viaduct, of which an approximately 400m-long section will span over the marine channel between the Airport Island and HKP Island. Elevated platforms for dropoff and pickup of passengers are provided at the western and eastern ends of the viaduct.

2.1.1.3 For the marine section, the viaduct will run in parallel and along the immediate south of the planned Intermodal Transfer Terminal Bonded Vehicular Bridge (ITT-BVB), with its span length and pile cap arrangement same as that of ITT-BVB. The proposed bridge piers will be situated next to the bridge piers of ITT-BVB and the piles will be aligned with the ITT-BVB. The deck level will also be in-line with the ITT-BVB. The pier shape of the marine section will be designed in a similar form of the ITT-BVB to provide a consistent outlook between the two bridges. The purpose of adopting this alignment for this marine section viaduct is to avoid and minimise any adverse cumulative environmental impacts (such as water quality, marine ecology and visual) on the water channel between the Airport Island and HKP Island.

2.1.1.4 In addition, an at-grade plant room will be provided. Due to the nature and small scale of proposed plant room, it is unlikely to cause adverse environmental impacts during construction and operational phases. Its location is also shown in **Figure 2.1**.

2.2 Designated Project

2.2.1.1 The Project comprises the following which are classified as Designated Projects (DPs) as per Schedule 2, Part I of the EIAO.

- Part I, Item A.8 – A road bridge more than 100m in length between abutments, and
- Part I, Item C.3(a) – Reclamation works resulting in 5% decrease in cross sectional area calculated on the basis of 0.0mPD in sea channel

2.3 Tentative Implementation Programme

- 2.3.1.1** The construction works of the Project will tentatively commence in Q1 2022 while for completion in end-2024. The tentative commissioning of the Project is by 2025.

3 Project Organisation

3.1 Project Organisation

3.1.1.1 Involvement of relevant parties in a collaborative and interactive manner is essential for the implementation of the recommended EM&A programme. The following sections outline the primary responsibilities and duties of the key EM&A programme participants. The proposed project organisations and lines of communication with respect to environmental protection works are shown in **Appendix 3.1**.

3.1.2 Project Manager of Airport Authority Hong Kong

3.1.2.1 The Project Manager (PM) or PM's Representative (PMR) of AAHK is responsible for overseeing the construction works and for ensuring that the works are undertaken by the Contractor in accordance with the specification and contract requirements. The duties and responsibilities of the AAHK / PM with respect to the EM&A comprise the following:

- Monitor the contractor's compliance with the contract specifications, the requirements in the Environmental Permit (EP) and EM&A Manual, and the effective implementation and operation of environmental mitigation measures in a timely manner;
- Employ the Environmental Team (ET) to conduct the EM&A works and an Independent Environmental Checker (IEC) to audit the results of the EM&A works carried out by the ET;
- Review the programme of works with a view to identifying any potential environmental impacts before they arise;
- Check that mitigation measures that have been recommended in the PP, this document and contract documents, or as required, are correctly implemented in a timely manner, when necessary;
- Oversee the implementation of the agreed Event and Action Plan in the event of any exceedance; and
- Instruct the Contractor to follow the agreed protocols or those in the contract specifications in the event of exceedance or complaints.

3.1.3 Environmental Protection Department

3.1.3.1 EPD is the statutory enforcement body for environmental protection matters in Hong Kong.

3.1.4 The Contractor

3.1.4.1 The Contractor shall report to the AAHK / PM. The duties and responsibilities of the Contractor comprise the following:

- Work within the scope of the contract and other tender conditions with respect to recommendations in the PP and environmental requirements;
- Operate and strictly adhere to the guidelines and requirements in this EM&A programme and contract specifications;
- Provide assistance to ET in carrying out relevant environmental monitoring and auditing;
- Participate in the site inspections undertaken by ET as required, and undertake correction actions;
- Provide information / advice to ET regarding works activities which may contribute, or be continuing to the generation of adverse environmental conditions;
- Submit proposals on mitigation measures in case of exceedance of Action and Limit levels in accordance with the Event / Action Plans;
- Implement measures to reduce environmental impacts where Action and Limit levels are exceeded until the events are resolved; and
- Adhere to the procedures for carrying out complaint investigation.

3.1.5 Environmental Team (ET)

3.1.5.1 The duties and responsibilities of the ET are:

- Monitor various environmental parameters as required in this EM&A Manual;
- Analyse the environmental monitoring and audit data and review the success of EM&A programme to cost-effectively confirm the adequacy of mitigation measures implemented and the validity of the PP predictions and to identify any adverse environmental impacts arising;
- Carry out regular site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems; carry out ad hoc site inspections if significant environmental problems are identified;
- Prepare monitoring and audit reports on the environmental monitoring data and site environmental conditions;
- Report on the environmental monitoring and audit results to the IEC, Contractor, the AAHK / PM and the EPD or its delegated representative;

- Recommend suitable mitigation measures to the Contractor in the case of exceedance of Action and Limit levels in accordance with the Event and Action Plan;
- Submit the EM&A report(s) to the AAHK / PM, IEC and EPD timely;
- Advice to the Contractor on environmental improvement, awareness, enhancement matters, etc. on site; and
- Adhere to the procedures for carrying out complaint investigation in accordance with **Section 10** of this Manual.

3.1.6 Independent Environmental Checker (IEC)

3.1.6.1 The IEC shall be responsible for the duties defined in this 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 EP. 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 PP or the EP, which might affect the monitoring or control of adverse environmental impact.

3.1.6.2 The main duties of the IEC are to carry out independent environmental audit of the Project. This shall include, inter alias, the followings:

- Review and audit at not less than monthly intervals 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 recommendations in the PP 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 EP. When necessary, the IEC 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;
- Feedback audit results to AAHK / PM and ET by signing accordingly to the Event / Action Plan specified in the Manual; and
- Report the works conducted, and the findings, recommendations and improvements of the site inspection, after reviewing ET's and Contractor's works, to the AAHK / PM on a monthly basis.

4 Air Quality

4.1 Introduction

4.1.1.1 Potential air quality impacts arising from the construction and operational phases of the Project were addressed in the PP, no adverse air quality impact from the Project would be anticipated with the implementation of dust suppression measures during construction phase and the provision of electric vehicles for the shuttle services during operational phase. No specific air quality monitoring is therefore considered necessary for both construction and operational phases of the Project. Nevertheless, regular site environmental audit is recommended to ensure the implementation of the recommended mitigation measures during construction phase.

4.2 Mitigation Measures

4.2.1 Construction Phase

4.2.1.1 Mitigation measures for construction phase air quality impacts have been recommended in the PP. All the recommended mitigation measures are detailed in the Environmental Mitigation Implementation Schedule (EMIS) in **Appendix 4.1**. The Contractor should be responsible for the design and implementation of the mitigation measures.

4.2.2 Operational Phase

4.2.2.1 As there will be no air pollutants emission during the operational phase, adverse air quality impact is not anticipated. Therefore, no mitigation measure is required during the operational phase.

4.3 Environmental Monitoring and Site Audit Requirements

4.3.1 Construction Phase

4.3.1.1 Regular site inspection and audit at least once per week should be conducted during the construction phase of the Project to ensure the recommended mitigation measures are properly implemented.

4.3.2 Operational Phase

4.3.2.1 No mitigation measure is required during the operational phase. Therefore, no EM&A is required during the operational phase.

5 Noise

5.1 Introduction

5.1.1.1 Potential noise impacts arising from the construction and operational phases of the Project were assessed in the PP. The assessment results indicated that no adverse noise impact generated from the construction and operation of the Project. No specific noise monitoring is therefore considered necessary for both construction and operational phases. Nevertheless, regular site environmental audit is recommended to ensure the implementation of the recommended mitigation measures during construction phase.

5.2 Mitigation Measures

5.2.1 Construction Phase

5.2.1.1 Since no existing and planned NSRs which rely on opened windows for ventilation is identified within the assessment area, it is predicted that there will be no adverse noise impact generated from the construction of the Project. Nonetheless, good site practices and the noise control requirements stated in EPD's "Recommended Pollution Control Clauses for Construction Contracts" were recommended to minimise the potential noise nuisance during construction phase. Details of the recommended good site practices are presented in **Appendix 4.1**.

5.2.2 Operational Phase

5.2.2.1 Since no existing and planned NSRs which rely on opened windows for ventilation is identified within the assessment area, it is predicted that there will be no adverse noise impact generated from the operation of the Project. Therefore, no mitigation measure is required during the operational phase.

5.3 Environmental Monitoring and Site Audit Requirements

5.3.1 Construction Phase

5.3.1.1 Regular site inspection and audit at least once per week should be conducted during the construction phase of the Project to ensure the good site practices as listed in **Appendix 4.1** and the noise control requirements stated in EPD's "Recommended Pollution Control Clauses for Construction Contracts" are properly implemented to further minimise the potential noise nuisance during construction phase of the Project.

5.3.2 Operational Phase

- 5.3.2.1** No mitigation measure is required during the operational phase. Therefore, no EM&A is required during the operational phase.

6 Water Quality

6.1 Introduction

6.1.1.1 Potential water quality impacts arising from the construction and operational phases of the Project were identified and assessed in the PP. No adverse water quality impacts from the Project would be expected during the construction and operational phases of the Project. Nevertheless, water quality monitoring and audit is recommended during construction phase to ensure that all the recommended mitigation measures are properly implemented. No monitoring or audit is required during operational phase.

6.1.1.2 Details of the water quality monitoring and audit programme and the Event and Action Plan are provided below.

6.2 Mitigation Measures

6.2.1 Construction Phase

6.2.1.1 Mitigation measures for construction phase water quality impacts have been recommended in the PP. All the recommended mitigation measures are detailed in the EMIS in **Appendix 4.1**. The Contractor should be responsible for the design and implementation of the mitigation measures.

6.2.2 Operational Phase

6.2.2.1 Some general good site practices and design principle for operational phase water quality impacts have been recommended in the PP. They are detailed in the EMIS in **Appendix 4.1**.

6.3 Environmental Monitoring and Site Audit Requirements

6.3.1 Construction Phase

Monitoring Parameters

6.3.1.1 Monitoring for Dissolved Oxygen (DO), Dissolved Oxygen Saturation (DO%), temperature, pH, turbidity, salinity, suspended solid (SS) and water depth should be undertaken at all designated monitoring locations. All parameters should be measured *in-situ* whereas SS should be determined by the laboratory. DO should be presented in mg/L and in % saturation.

6.3.1.2 Other relevant data should also be recorded, including monitoring location / position, time, tidal stages, weather conditions and any special phenomena or work underway at the construction site.

Monitoring Schedule and Stations

6.3.1.3 The proposed water quality monitoring schedule should be submitted to EPD at least two weeks before the first monitoring day of the monitoring month. It is proposed to monitor the water quality at three locations in the sea channel between the HKIA and the HKP (M1, M2 and M3) and two control stations (C1 and C2). As the water flow direction in the sea channel is dominated by the tidal forcing from the northern entrance of the sea channel, impact stations (M1, M2 and M3) are assigned in the sea channel close to the construction site to measure any elevation of pollutant levels (e.g. SS level) due to the Project. Control stations (C1 and C2) are assigned north of the entrance of the sea channel to compare the water quality from potentially impacted sites with the ambient water quality during monitoring. The proposed marine water quality monitoring stations are listed in **Table 6.1** and its locations are shown in **Appendix 6.1**.

Table 6.1 Proposed Marine Water Quality Monitoring Stations for Baseline, Impact and Post-construction Phase Monitoring

Station	Description	Easting	Northing
M1	Impact Station	812423	819635
M2	Impact Station	812629	819845
M3	Impact Station	812586	820069
C1	Control Station – West	812419	820670
C2	Control Station – East	813072	820595

6.3.1.4 EPD should also be notified immediately for any changes in schedule. The locations of monitoring stations may change after issuing this Manual. Any change to the proposed monitoring location(s) shall be agreed by ET leader and IEC before the submission to EPD. In any case, the change in monitoring station shall be submitted to EPD four weeks before the commencement of relevant monitoring works.

6.3.1.5 When alternative monitoring locations are proposed, they shall be chosen based on the following criteria:

- close to the sensitive receptors which are directly or likely to be affected;
- for monitoring locations located in the vicinity of the sensitive receptors, care shall be taken to cause minimal disturbance during monitoring;
- two or more control stations which shall be at representative locations of the Project site in its undisturbed condition. Control stations shall be located, as far as practicable, both upstream and downstream of the works area.

Monitoring Requirements

6.3.1.6 Baseline, impact and post-construction monitoring shall be conducted. The following requirements should be followed for baseline, impact and post-construction monitoring.

- Measurement should be taken at 3 water depths, namely, 1m below water surface, mid-depth and 1m above sea bed, except where the water depth less than 6m, the mid-depth station may be omitted. Should the water depth be less than 3m, only the mid-depth station will be monitored. The ET should agree with EPD on all the monitoring stations.
- Duplicate *in-situ* measurements and water samples collected from each independent monitoring event are required for all parameters to ensure a robust statistically interpretable dataset.
- No sampling should be carried out when typhoon signal No. 3 or above or black rainstorm signal is hoisted.
- At each measurement depth, two consecutive measurements would be taken. The probes would be retrieved out of the water after the first measurement and then redeployed for the second measurement. When the difference in value between the first and second measurement of on-site parameters is more than 25% of the value of the first reading, the reading shall be discarded and further readings shall be taken.

Baseline Monitoring

6.3.1.7 Baseline conditions for marine water quality should be established and agreed with EPD prior to the commencement of works. The measurements for baseline monitoring should be taken at all designated monitoring stations including control station, 3 days per week, at mid-flood and mid-ebb tides, for at least 4 weeks prior to the commencement of marine works below seawater level. The ITT-BVB is located immediately to the north of the Project. The construction activities under sea water level for the Project will commence in a month after completion of that of ITT-BVB. Therefore, it is likely that the period for baseline monitoring would overlap with the construction activities under sea water level of ITT-BVB, which may influence the baseline water quality for the Project.

6.3.1.8 The baseline monitoring of ITT-BVB has been carried out at the same proposed baseline monitoring locations of the Project during 15 August 2019 – 10 September 2019, and 28 November 2019 – 24 December 2019 covering both dry and wet seasons, which was carried out before any marine construction activities in the vicinity of the Project. The baseline monitoring data from ITT-BVB would be the most recent and representative to the baseline condition of the water quality in the

vicinity of the Project without any interference. Thus, baseline monitoring data from ITT-BVB would be adopted.

Impact Monitoring

6.3.1.9 During the marine construction period of the Project, impact monitoring should be undertaken 3 days per week, at mid-flood and mid-ebb tides, with sampling/measurement at all designated monitoring stations including control station as specified in **Table 6.1**. The interval between 2 sets of monitoring should not be less than 36 hours except where there are exceedances of Action and/or Limit levels, in which case the monitoring frequency will be increased. The monitoring parameters and measurement depths shall follow those specified in **Sections 6.3.1.1, 6.3.1.2, 6.3.1.3 and 6.3.1.6**. Duplicate water samples should be taken and analysed.

6.3.1.10 If the impact monitoring data collected at the monitoring stations (i.e. Stations M1, M2 and M3) indicate that the Action or Limit levels as shown in **Table 6.2** are exceeded, analysis should be conducted to identify whether the exceedance is caused by Project activities. If the data analysis results indicate that the exceedance is caused by this Project, appropriate actions including lowering the working rate, or rescheduling of works should be taken and additional mitigation measures should be implemented as necessary.

Post-Construction Monitoring

6.3.1.11 Upon completion of all marine works below seawater level, a post-project monitoring should be carried out for 4 weeks in the same manner as the impact monitoring.

Construction Site Audits

6.3.1.12 Implementation of regular site audits is to ensure that the recommended mitigation measures are to be properly undertaken during construction phase of the Project. It can also provide an effective control of any malpractices and therefore achieve continual improvement of environmental performance on site.

6.3.1.13 Site audits should include site inspections and compliance audits.

Site Inspections

6.3.1.14 Site inspections should be carried out by the ET and should be based on the mitigation measures for water pollution control recommended in **Appendix 4.1**. In the event that the recommended mitigation measures are not fully or properly implemented, deficiency should be recorded and reported to the site management. Suitable actions are to be carried out to:

- investigate the problems and the causes;
- issue action notes to the Contractor which is responsible for the works;

- implement remedial and corrective actions immediately;
- re-inspect the site conditions upon completion of the remedial and corrective actions; and
- record the event and discuss with the Contractor for preventive actions.

Compliance Audits

6.3.1.15 Monitoring of the treated effluent quality from the Project site is required during the construction phase of the Project. The monitoring should be carried out at the pre-determined discharge point. Compliance audits are to be undertaken to ensure that a valid discharge licence has been issued by EPD prior to the discharge of effluent from the Project site. The monitoring frequency and parameters specified in the discharge licence under WPCO should be fully considered during the monitoring.

6.3.1.16 The implementation schedule for the recommended water quality mitigation measures is presented in **Appendix 4.1**.

6.3.2 Monitoring Equipment

6.3.2.1 The following equipment and facilities should be provided by the ET and used for the monitoring of water quality impacts:

Monitoring Position Equipment

6.3.2.2 A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication or other equipment instrument of similar accuracy, should be provided and used during water quality monitoring to ensure the monitoring vessel is at the correct location before taking measurements. DGPS or the equivalent instrument, checked beforehand at appropriate checkpoint should be provided and used to ensure the monitoring station is at the correct position before taking measurement and water samples.

Sampler

6.3.2.3 A water sampler is required. It should comprise a transparent PVC cylinder, with a capacity of not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth (for example, Kahlsico Water Sampler or an approved similar instrument).

Water Depth Detector

6.3.2.4 A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work

boat, if the same vessel is to be used throughout the monitoring programme.

Dissolved Oxygen and Temperature Measuring Instrument

6.3.2.5 The instrument should be a portable and weatherproof DO measuring instrument complete with cable and sensor, and use a DC power source. The equipment should be capable of measuring:

- a DO-level in the range of 0 - 20 mg/L and 0 - 200% saturation; and
- a temperature of 0 - 45 degree Celsius with a capability of measuring to ± 0.1 degree Celsius.

6.3.2.6 It should have a membrane electrode with automatic temperature compensation complete with a cable. Sufficient stocks of spare electrodes and cables should be available for replacement where necessary. (For example, YSI model 59 meter, YSI 5739 probe, YSI 5795A submersible stirrer with reel and cable or an approved similar instrument).

6.3.2.7 Should salinity compensation not be built-in to the DO equipment, *in-situ* salinity should be measured to calibrate the DO equipment prior to each DO measurement.

Turbidity Measuring Instrument

6.3.2.8 Turbidity should be measured *in-situ* by the nephelometric method. The instrument should be portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU (for example, Hach model 2100P or an approved similar instrument). The cable should not be less than 25m in length. The meter should be calibrated in order to establish the relationship between NTU units and the levels of suspended solids. The turbidity measurement should be carried out on split water sample collected from the same depths of suspended solids samples.

Salinity Measuring Equipment

6.3.2.9 A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.

pH Measuring Equipment

6.3.2.10 The instrument shall consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It shall be readable to 0.1 pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 shall be used for calibration of the instrument before and after use. Details of the method shall comply with APHA, 19th Edition 4500-HTB.

Sample Containers and Storage

- 6.3.2.11** Water samples for SS determination should be stored in suitable containers with no preservative added, packed in ice (cooled to 4°C without being frozen) and delivered to the laboratory and analysed as soon as possible after collection. Sufficient volume of samples should be collected to achieve the detection limit.

Calibration of in-situ Instruments

- 6.3.2.12** All *in-situ* monitoring instruments should be checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes should be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter should be carried out before measurement at each monitoring location.
- 6.3.2.13** For the on-site calibration of field equipment, the BS 127:1993, Guide to Field and On-Site Test Methods for the Analysis of Water should be observed.
- 6.3.2.14** Sufficient stocks of spare parts should be maintained for replacements when necessary. Backup monitoring equipment should also be made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.

6.3.3 Field Log

- 6.3.3.1** A sample data record sheet is shown in **Appendix 6.2** for reference.

6.3.4 Laboratory Measurement / Analysis

- 6.3.4.1** Analysis of SS level should be carried out in a HOKLAS (or other international accredited laboratory that is HOKLAS-equivalent). Sufficient water samples of not less than 2 litres should be collected at the monitoring stations for carrying out the laboratory SS determination. All samples should be assigned a unique code and accompanied by Chain of Custody (COC) sheets.
- 6.3.4.2** The SS determination work should start within 24 hours after collection of the water samples. The SS analyses should follow the standard method APHA 2540D with a detection limit of 1 mg/L as described in APHA Standard Methods for the Examination of Water and Wastewater, 21st Edition, unless otherwise specified.
- 6.3.4.3** Detailed testing methods, pre-treatment procedures, instrument use, Quality Assurance/Quality Control (QA/QC) details (such as blank, spike recovery, number of duplicate samples per batch, etc.), detection limits and accuracy should be submitted to EPD for approval prior to the commencement of monitoring programme. EPD may also request

the laboratory to carry out analysis of known standards provided by EPD for quality assurance. The testing methods and related proposal should be checked and certified by IEC before submission to EPD for approval.

6.3.4.4 Additional duplicate samples may be required by EPD for inter laboratory calibration. Remaining samples after analysis should be kept by the laboratory for 3 months in case repeat analysis is required. If in-house or non-standard methods are proposed, details of the method verification may also be required to submit to EPD. In any circumstance, the sample testing should have comprehensive quality assurance and quality control programmes. The laboratory should prepare to demonstrate the programmes to EPD or his representatives when requested.

6.3.5 Event and Action Plan

6.3.5.1 The Action and Limit (AL) Levels for water quality for Stations M1, M2 and M3 are defined in **Table 6.2**. The actions in accordance with the Event and Action Plan in **Table 6.3** should be carried out if the defined Action and/or Limit levels for water quality are exceeded at any designated monitoring points.

Table 6.2 Action and Limit Levels for Marine Water Quality

Parameter	Action Level	Limit Level
Impact Monitoring Station M1 and M2		
DO in mg/L	<u>Surface and Middle</u> 5 percentile of baseline data [4.3]	<u>Surface and Middle</u> 4 mg/L, or 1 percentile of baseline data [4.0]
	<u>Bottom</u> 5 percentile of baseline data [3.8]	<u>Bottom</u> 2 mg/L, or 1 percentile of baseline data [3.0]
SS in mg/L	<u>Depth Average</u> 95 percentile of baseline data [14.2] and 120% of upstream control station at the same tide of the same day ^[6]	<u>Depth Average</u> 99 percentile of baseline data [17.4] and 130% of upstream control station at the same tide of the same day ^[6]
Turbidity in NTU	<u>Depth Average</u> 95 percentile of baseline data [11.0] and 120% of upstream control station at the same tide of the same day ^[6]	<u>Depth Average</u> 99 percentile of baseline data [16.3] and 130% of upstream control station at the same tide of the same day ^[6]
Impact Monitoring Station M3 ^[7]		
SS in mg/L	<u>Depth Average</u> 33	<u>Depth Average</u> 42

Notes:

- [1] “Depth Average” is calculated by taking the arithmetic means of reading of all sampling depths.
- [2] For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
- [3] For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
- [4] All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.
- [5] The baseline monitoring of ITT-BVB has been carried out at the same proposed baseline monitoring locations of the Project. The Action and Limit levels under ITT-BVB are presented in [] for reference.
- [6] The details of upstream control station shall be referred to Table 2.6 of the Baseline Monitoring Report of ITT-BVB (<https://www.epd.gov.hk/eia/register/english/permit/ep5602018/documents/blmr/pdf/blmr.pdf>).
- [7] Since Station M3 monitors the water quality of the seawater intake for HKP, only Action and Limit levels for SS parameter would be applicable, as the operation of the intakes would not be significantly affected by the other water quality parameters. The Action and Limit levels for SS are dependent on the operational tolerance of individual intakes. The Action and Limit levels of Station M3 is determined with reference to the agreed and adopted Action and Limit levels for the ongoing impact water quality monitoring station at SR1A under the Updated EM&A Manual for Expansion of Hong Kong International Airport into a Three-Runway System, which is at the same location as the proposed Station M3.

6.3.6 Operational Phase

- 6.3.6.1** During operational phase, the potential water quality impact would be minimal. No monitoring nor audit is required during operational phase.

Table 6.3 Event and Action Plan for Marine Water Quality

Event	Action			
	ET	IEC	AAHK / PM	Contractor
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor’s working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurement on next day of exceedance. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise AAHK / PM accordingly; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the AAHK / PM and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures.
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the AAHK / PM accordingly; 3. Assess the effectiveness of the implemented mitigation 	<ol style="list-style-type: none"> 1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Inform the AAHK / PM and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and AAHK / PM

Event	Action			
	ET	IEC	AAHK / PM	Contractor
	5. Discuss mitigation measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to daily; 8. Repeat measurement on next day of exceedance.	measures.		within 3 working days; 6. Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day	1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, AAHK / PM and Contractor; 6. Ensure mitigation measures are implemented;	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the AAHK / PM accordingly; 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the AAHK / PM and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and AAHK / PM and propose mitigation measures to IEC and AAHK / PM within three working days; 6. Implement the agreed mitigation measures.

Event	Action			
	ET	IEC	AAHK / PM	Contractor
	7. Increase the monitoring frequency to daily until no exceedance of limit level.			
Limit level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat <i>in-situ</i> measurement to confirm findings; 2. Identify reasons for non-compliance and source(s) of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, AAHK / PM and Contractor; 6. Ensure mitigation measures are implemented; 8. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days. 	<ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the AAHK / PM accordingly; 4. Assess the effectiveness of implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the construction activities until no exceedance of Limit level. 	<ol style="list-style-type: none"> 1. Inform AAHK / PM and confirm notification of non-compliance in writing; 2. Rectify unacceptable practices; 3. Check all plant and equipment; 4. Consider changes of working method; 5. Discuss with ET, IEC and AAHK / PM and propose mitigation measures to IEC and AAHK / PM within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the AAHK / PM, to slow down or to stop all or part of the construction activities.

7 Waste Management

7.1 Introduction

7.1.1.1 Potential waste management implication arising from the construction and operational phase of the Project were addressed in the PP. Waste management during the construction phase will mainly be the responsibility of the Contractor, who should implement the mitigation measures recommended in the PP in order to minimise waste or resolve the issues associated with the management of wastes. The Contractor should also ensure that all wastes produced during the construction phase are handled, stored and disposed of in accordance with good waste management practices, relevant legislation and waste management guidelines. Adverse environmental impacts would not be expected.

7.2 Mitigation Measures

7.2.1 Construction Phase

7.2.1.1 With the proper handling, storage and disposal of wastes arising from the construction of the Project, it is anticipated that the potential adverse environmental impacts would be avoided or minimised. During site inspections, the PM and ET should pay special attention to the issues relating to the waste management and check whether the Contractor has implemented the recommended good site practices and other mitigation measures as listed in **Appendix 4.1**. The Contractor should submit a Waste Management Plan (WMP) prior to the commencement of construction work, in accordance with PNAP No. 243 (ADV-19) so as to provide an overall framework of Waste Management and Reduction.

7.2.2 Operational Phase

7.2.2.1 With the proper handling, storage and disposal of wastes generated during the operational phase, it is anticipated that the potential adverse environmental impacts would be avoided or minimised. In view of the small amount of chemical waste and municipal solid wastes generated during the operational phase, site inspection is not required during the operational phase.

7.3 Environmental Monitoring and Site Audit Requirements

7.3.1 Construction Phase

7.3.1.1 Regular audits and site inspection at least once per week should be carried out by the ET, AAHK / PM and Contractor to ensure that the

recommended good site practices and other mitigation measure in **Appendix 4.1** are properly implemented by the Contractor. The audits should look at all aspects of on-site waste management practices including the waste generation, storage, recycling, transportation and disposal. Apart from site inspections, documents including licenses, permits, disposal and recycling records should be reviewed and audited for the compliance with the legislation and contract requirements. The requirements of the environmental audit programme are set out in this EM&A Manual. The audit programme should verify the implementation status and evaluate the effectiveness of the mitigation measures.

7.3.2 Operational Phase

7.3.2.1 During operational phase, only limited amount of wastes would be generated and no adverse waste impact would be anticipated with the implementation of the good waste management practices. No monitoring nor audit is required during operational phase.

8 Marine Ecology

8.1 Introduction

8.1.1.1 Potential marine ecological impacts arising from the construction and operational phases of the Project were assessed in the PP. Mitigation and precautionary measures have been recommended to further minimise potential direct and indirect impacts to ecological resources. With the implementation of appropriate marine ecological measures, no unacceptable marine ecological impact would be anticipated.

8.2 Mitigation Measures

8.2.1 Construction Phase

8.2.1.1 The recommended mitigation measures for alleviating marine ecological impacts arising from construction works include vessel speed limit control on all construction-related vessels and the implementation of good site practices and water quality measures to minimise disturbance to marine fauna near works area, as listed in **Appendix 4.1**. Indirect disturbance to marine habitats and fauna during operational phase will be minimal under the establishment of a proper surface water drainage system to collect road runoff.

8.2.2 Operational Phase

8.2.2.1 Adverse marine ecological impact is not anticipated during the operational phase. Therefore, no mitigation measure is required during the operational phase.

8.3 Environmental Monitoring and Site Audit Requirements

8.3.1 Construction Phase

8.3.1.1 There will be a water quality monitoring programme during the construction phase of the project to ensure that all the recommended water quality measures and best management practices are properly implemented. Details are discussed in **Section 6.3.1** of this Manual.

8.3.1.2 A speed limit of 10 knots should be strictly enforced on all construction-related vessels based upon a precautionary approach to avoid vessel collision to Chinese White Dolphins.

8.3.2 Operational Phase

8.3.2.1 As there is no anticipated adverse impact during operational phase, monitoring and audit requirements are not required.

9 Landscape and Visual

9.1 Introduction

9.1.1.1 Potential landscape and visual impacts arising from the construction and operational phases of the Project were assessed and landscape and visual mitigation measures were recommended in the PP. This section defines the audit requirements to confirm the recommended landscape and visual impact mitigation measures in the PP are effectively implemented.

9.2 Mitigation Measures

9.2.1 Construction Phase

9.2.1.1 The landscape and visual mitigation measures should be incorporated in the detailed design. The mitigation measures during construction and operational phases as recommended in the PP are presented in **Appendix 4.1**. Where feasible, the construction phase mitigation measures should be implemented as early as possible in order to minimise the landscape impacts in the construction phase.

9.2.1.2 Any potential conflicts among the proposed mitigation measures, the Project works and operational requirement should also be identified and resolved as early as practicable. Any changes to the mitigation measures should be incorporated in the detailed design.

9.2.2 Operational Phase

9.2.2.1 Design objectives to be implemented during operational phase should be integrated into the detailed design and built as part of the construction works so that they are in place on commissioning of the Project.

9.3 Environmental Monitoring and Site Audit Requirements

9.3.1 Construction Phase

9.3.1.1 Site audits should be undertaken during the construction phase of the Project to check that the proposed landscape and visual mitigation measures are properly implemented and maintained as per their intended objectives. Site inspections should be undertaken by the ET at least once every month during the construction period.

9.3.2 Operational Phase

9.3.2.1 As there is no anticipated adverse impact during operational phase, monitoring and audit requirements are not required.

10 Site Inspection / Audit

10.1 Site Inspection Requirement

10.1.1.1 Site inspections/audits provide a direct means to trigger and enforce the specified environmental protection and pollution control measures. They shall be undertaken routinely, at least once per week, to inspect/audit the construction activities in order to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. With reference to the Project's contractual environmental requirements, pollution control and mitigation specifications and a well-established site inspection/audit, deficiency and action reporting system in accordance with the event contingency plan of the EM&A programme, the site inspection/audit would be one of the most effective tools used to enforce the environmental protection requirements on the construction site. A site inspection/audit checklist, to be used for undertaking site inspection/audit, will be prepared by the ET and submitted to the IEC for agreement, and to the AAHK / PM for approval.

10.1.1.2 The ET is responsible for formulation of the environmental site inspection, deficiency and action reporting system, and for carrying out the site inspection works. The proposal for rectification, if any, should be prepared by the Contractor and submitted to the ET Leader and IEC.

10.1.1.3 Regular site inspections shall be carried out and led by AAHK / PM and attended by the Contractor and ET at least once per week during the construction phase. All observations and results will be recorded in the data record sheets, which will pass to the Contractor. If non-compliance is found on site, the Event / Action Plan will be implemented.

10.1.1.4 The areas of inspection shall not be limited to the environmental situation, pollution control and mitigation measures within the site. It should also review the environmental conditions of locations outside the works area which is likely to be affected, directly or indirectly, by the construction site activities. The ET shall make reference to the following information in conducting the inspection.

- (i) PP and EM&A recommendations on environmental protection and pollution control mitigation measures;
- (ii) Requirements of the EM&A Manual and conditions of the Environmental Permit;
- (iii) ongoing results of the EM&A programme;
- (iv) works progress and programme;
- (v) individual works methodology proposals (which shall include the proposal on associated pollution control measures);
- (vi) contract specifications on environmental protection;

- (vii) relevant environmental protection and pollution control legislations; and
- (viii) previous site inspection results undertaken by the ET and others.

10.1.1.5 The Contractor shall keep AAHK / PM and ET Leader updated with all relevant environmental related information on the construction contract necessary for him to carry out the site inspections. Site inspection results and associated recommendations for improvements to the environmental protection and pollution control efforts should be recorded by the Contractor and submitted to AAHK / PM and ET within 24 hours, for reference and taking immediate action in an agreed time-frame. The Contractor shall follow the procedures and time-frame as stipulated in the environmental site inspection/audit, and the deficiency and action reporting system formulated by the ET, to report on any remedial measures subsequent to the site inspections. Weekly site inspection should be carried out to check the implementation status of the recommended environmental mitigation measures throughout construction period.

10.1.1.6 AAHK / PM, ET and the Contractor should also carry out ad-hoc site inspections if significant environmental problems are identified. Inspections may also be required subsequent to receipt of a valid environmental complaint, or as part of the investigation work, as specified in Event and Action Plan for EM&A programme.

10.2 Environmental Compliance

10.2.1.1 There are contractual environmental protection and pollution control requirements as well as environmental protection and pollution control laws in Hong Kong, which the construction activities shall comply with.

10.2.1.2 In order to ensure the works comply with the contractual and statutory requirements, all method statements of works should be submitted by the Contractor to AAHK / PM for approval and to the ET Leader for vetting to ensure sufficient environmental protection and pollution control measures have been included. The Environmental Mitigation Implementation schedule (EMIS) is summarised in **Appendix 4.1**. Any proposed changes to the mitigation measures shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendations contained in the PP.

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

10.2.1.4 The Contractor should regularly provide the update of the relevant documents to the ET Leader so that checking can be carried out effectively. The document shall at least include the updated Works Progress Reports, updated Works Programme, method statements, any application letters for different licences / permits under the

environmental protection laws, and copies of all valid licences / permits. The site diary and environmental records shall also be available for inspection by the relevant parties.

10.2.1.5 After reviewing the document, the ET Leader shall advise AAHK / PM and that Contractor of any non-compliance with the contractual and statutory requirements on environmental protection and pollution control so that they can timely take follow-up actions as appropriate. If the follow-up actions may still result in potential violation of environmental protection and pollution control requirements, the ET should provide further advice to the Contractor to take remedial action to resolve the problem.

10.2.1.6 Upon receipt of the advice, the Contractor shall undertake immediate actions to correct the situation. The ET shall follow up to ensure that appropriate action has been taken by the Contractor in order to satisfy legal and contractual requirements.

10.3 Environment Complaints

10.3.1.1 Complaints shall be referred to the ET Leader for carrying out complaint investigation procedures. The following procedures should be undertaken upon receipt of any environmental complaint:

- The ET Leader to log complaint and date of receipt onto the complaint database and inform the AAHK / PM and IEC immediately;
- The ET Leader to investigate, with the AAHK / PM, the complaint to determine its validity, and assess whether the source of the problem is due to construction works of the Project with the support of additional monitoring frequency and stations, if necessary;
- The ET Leader to identify remedial measures in consultation with the IEC and AAHK / PM if a complaint is valid and due to the construction works of the Project;
- The Contractor to implement the remedial measures as required by ET Leader and agreed with the IEC and AAHK / PM any additional monitoring frequency and stations, where necessary, for checking the effectiveness of the remedial measures;
- The ET and IEC to review the effectiveness of the Contractor's remedial measures and the updated situation;
- The ET/Contractor to undertake additional monitoring and audit to verify the situation if necessary, and oversee that circumstances leading to the complaint do not recur;

- If the complaint is referred by the EPD, the ET Leader to prepare interim report on the status of the complaint investigation and follow-up actions stipulated above, including the details of the remedial measures and additional monitoring identified or already taken, after endorsement by IEC and AAHK / PM, for submission to EPD within the time frame assigned by the EPD; and
- The ET to record the details of the complaint, results of the investigation, subsequent actions taken to address the complaint and updated situation including the effectiveness of the remedial measures, supported by regular and monitoring results in the monthly auditing reports. (If the source of complain is a referral from EPD, the result should be reported within the time frame assigned by EPD).

10.3.1.2 During the complaint investigation works, the Contractor and AAHK / PM shall cooperate with the ET Leader in providing all necessary information and assistance for completion of the investigation. If mitigation measures are identified in the investigation, the Contractor shall promptly carry out the mitigation. The ET and IEC shall ensure that the measures have been carried out by the Contractor properly.

11 Reporting

11.1 General

11.1.1.1 Reports can be provided in an electronic medium upon agreeing the format with AAHK / PM and EPD. This would enable a transition from a paper / historic and reactive approach to an electronic / real time proactive approach. All the monitoring data shall also be submitted in an approved electronic medium. The formats for monitoring data to be submitted shall be separately agreed.

11.1.1.2 Types of reports that the ET shall prepare and submit include Monthly EM&A Reports and Final EM&A Review Report. In accordance with Annex 21 of the EIAO-TM, a copy of the monthly and final review EM&A reports should be submitted to EPD. The exact details of the frequency, distribution and time frame for submission should be agreed with the IEC, AAHK / PM and EPD prior to commencement of works.

11.2 Monthly EM&A Reports

11.2.1.1 The results and findings of all EM&A works required in the Manual shall be recorded in the Monthly EM&A Reports prepared by the ET and endorsed by the IEC. The Monthly EM&A Report shall be prepared and submitted to EPD within 10 working days after the end of the reporting month, with the first report within the month after major construction works commences. Copies of each monthly auditing report shall be submitted to the following parties: the IEC, AAHK / PM and EPD. Before submission of the first Monthly EM&A Report, the ET shall liaise with the parties on the required number of copies and format of the monthly reports in both hard copy and electronic medium.

First Monthly EM&A Report

11.2.1.2 The first monthly auditing report shall include at least the following:

- (i) Executive summary (1-2 pages):
 - all environmental audit results;
 - breaches of Action and Limit levels;
 - complaint and emergency events relating to violation of environmental legislation;
 - notifications of any summons and successful prosecutions;
 - reporting changes; and
 - future key issues.
- (ii) Basic project information:
 - project organisation including key personnel contact names and telephone numbers;

- construction programme;
 - management structure; and
 - works undertaken during the month.
- (iii) Environmental status:
- advice on the status of statutory environmental compliance such as the status of compliance with the environmental permit (EP) conditions under the EIAO, submission status under the EP and implementation status of mitigation measures;
 - works undertaken during the reporting month with illustrations (such as location of works, etc.); and
 - drawings showing the Project area, any environmental sensitive receivers and the locations of the monitoring stations.
- (iv) Summary of EM&A requirement:
- all monitoring parameters;
 - environmental quality performance limits (Action and Limit levels);
 - Event and Action Plan;
 - environmental mitigation measures, as recommended in the PP; and
 - environmental requirements in contract documents.
- (v) Implementation status
- advice on the implementation status of environmental protection and pollution control / mitigation measures, as recommended in the PP.
- (vi) 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 (and depth)
 - Monitoring date, time, frequency and duration
 - Quality assurance (QA) / quality control (QC) results and detection limits
- (vii) Report on non-compliance, complaints, and notifications of summons and successful prosecutions:

- record of all non-compliance (exceedances) of the environmental quality performance limits (Action and 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 notification of summons and successful prosecutions for breaches of current environmental protection / pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, results and summary;
- review of the reasons for and the implications of 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.

(viii) Others

- an account of the future key issues as reviewed from the works programme and work method statements;
- advice on the solid and liquid waste management status;
- record of any project changes from the originally proposed as described in the PP (e.g. construction methods, mitigation proposals, design changes, etc.); and
- comments (for examples, effectiveness and efficiency of the mitigation measures), recommendations (for examples, any improvement in the EM&A programme) and conclusions.

Subsequent Monthly EM&A Reports

11.2.1.3 Subsequent Monthly EM&A Reports shall include at least the following:

- (i) Executive summary (1-2 pages):
 - all environmental audit results;
 - breaches of Action and Limit levels;
 - complaint and emergency events relating to violation of environmental legislation;
 - notifications of any summons and successful prosecutions;
 - reporting changes; and
 - future key issues.
- (ii) Basic project information:

- project organisation including key personnel contact names and telephone numbers;
 - construction programme;
 - management structure; and
 - works undertaken during the month; and
 - any updates as needed to the scope of works and construction methodologies.
- (iii) Environmental status:
- advice on the status of statutory environmental compliance such as the status of compliance with the EP conditions under the EIAO, submission status under the EP and implementation status of mitigation measures;
 - works undertaken during the month with illustrations (such as location of works, etc.); and
 - drawings showing the Project area, any environmental sensitive receivers and the locations of the monitoring stations.
- (iv) Implementation status
- advice on the implementation status of environmental protection and pollution control / mitigation measures, as recommended in the PP.
- (v) 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 (and depth)
 - Monitoring date, time, frequency and duration
 - Quality assurance (QA) / quality control (QC) results and detection limits
- (vi) Report on complaints, and notifications of summons and successful prosecutions:
- record of all non-compliance (exceedances) of the environmental quality performance limits (Action and 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 notification of summons and successful prosecutions for breaches of current environmental protection / pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, results and summary;
- review of the reasons for and the implications of 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.

(vii) Others

- an account of the future key issues as reviewed from the works programme and work method statements;
- advice on the solid and liquid waste management status;
- record of any project changes from the originally proposed as described in the PP (e.g. construction methods, mitigation proposals, design changes, etc.); and
- comments (for examples, effectiveness and efficiency of the mitigation measures), recommendations (for examples, any improvement in the EM&A programme) and conclusions.

(viii) Appendices

- Action and Limit levels;
- Graphical plots of trends of the monitoring parameters at key stations over the past four reporting periods for representative monitoring stations annotated against the following:
 - (a) Major activities being carried out on site during the period;
 - (b) Weather conditions during the period; and
 - (c) Any other factors that 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.

11.3 Final EM&A Review Report

11.3.1.1 The EM&A programme for construction phase should be terminated upon the completion of the construction activities that have the potential to result in significant environmental impacts, and / or the completion of post-construction monitoring requirements.

11.3.1.2 ET Leader shall justify the termination of EM&A programme. The proposed termination should only be implemented after the proposal has been endorsed by the IEC and AAHK / PM followed by approval from the Director of Environmental Protection.

11.3.1.3 The ET Leader should prepare and submit the Final EM&A Review Report, which should contain at least the following information:

- (i) Executive summary (1-2 pages);
- (ii) Drawings showing the Project Area, any environmental sensitive receivers and locations of the monitoring and control stations;
- (iii) Basic project information including a synopsis of the project organisation, contacts of key management, and a synopsis of work undertaken during the course of the project or past twelve months;
- (iv) A brief summary of EM&A requirements including:
 - Environmental mitigation measures for construction stage, as recommended in the PP;
 - Environmental impact hypotheses tested;
 - Environmental quality performance limits (Action and Limit levels);
 - All monitoring parameters; and
 - Event and Action Plan.
- (v) A summary of the implementation status of environmental protection and pollution control / mitigation measures, as recommended in the PP, summarised in the updated implementation schedule;
- (vi) Graphical plots of trends of the monitoring 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 period;
 - Weather conditions during the period; and
 - Any other factors that might affect the monitoring results.
- (vii) A summary of non-compliance (exceedances) of the environmental quality performance limits (Action and Limit levels);

- (viii) A review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures as appropriate;
- (ix) A description of the actions taken in the event of non-compliance;
- (x) A summary record of all complaints received, liaison and consultation undertaken, actions and follow-up actions taken and results;
- (xi) A review of the validity of PP predictions and identification of shortcomings in PP recommendations;
- (xii) Comments (for examples, a review of the effectiveness and efficiency of the mitigation measures and of the performance of the environmental management system, that is, of the overall EM&A programme); and
- (xiii) Recommendations and conclusions (for example, a review of success of the overall EM&A programme to cost-effectively identify deterioration and to initiate prompt effective mitigatory action when necessary).

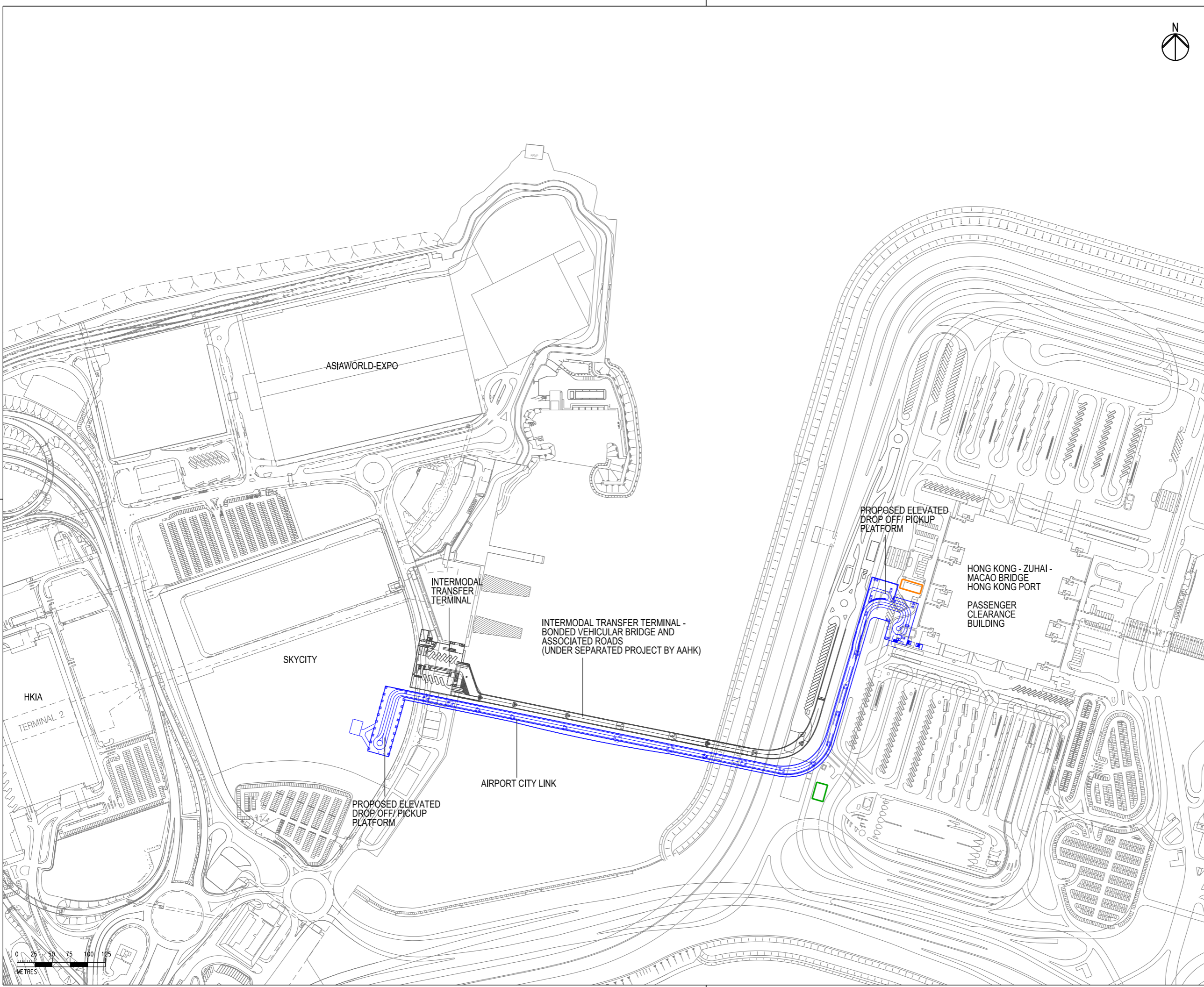
11.4 Data Keeping

11.4.1.1 No site-based documents (such as monitoring field records, laboratory analysis records, site inspection forms, etc.) are required to be included in the EM&A reporting documents. However, any such 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. All relevant information should be recorded in electronic format, and the software copy must be available upon request. All documents and data shall be kept for at least one year following completion of the construction contract.

11.5 Interim Notifications of Environmental Quality Limit Exceedances

11.5.1.1 With reference to the Event and Action Plan, when the environmental quality performance limits are exceeded and if they are proven to be valid, the ET should immediately notify the IEC, AAHK / PM and EPD, as appropriate. The notification should be followed up with advice to the IEC, AAHK / PM and 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 notification is presented in **Appendix 11.1**.

Figure



LEGEND

- PROPOSED ALIGNMENT
- PROPOSED PLANT ROOM (OPTION 1)
- PROPOSED PLANT ROOM (OPTION 2)

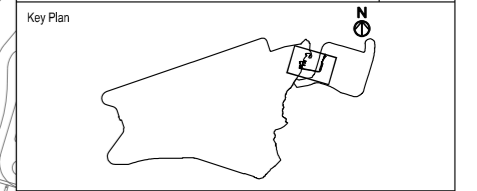
Rev.	Date	Description	Checked
A	11/12/2020	FIRST ISSUE	TL



Hong Kong International Airport

Consultant
ARUP

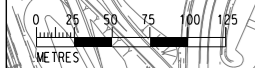
Consultant's Signatures for Approval		Date
Design Supervisor	GL	11/12/2020
Checkers	TL	11/12/2020
Authorised Representative	FC	11/12/2020



Title
**CONTRACT C20C17
 CONSULTANCY SERVICES FOR
 AIRPORT CITY LINK
 LOCATION OF PROJECT**

FIGURE 2.1

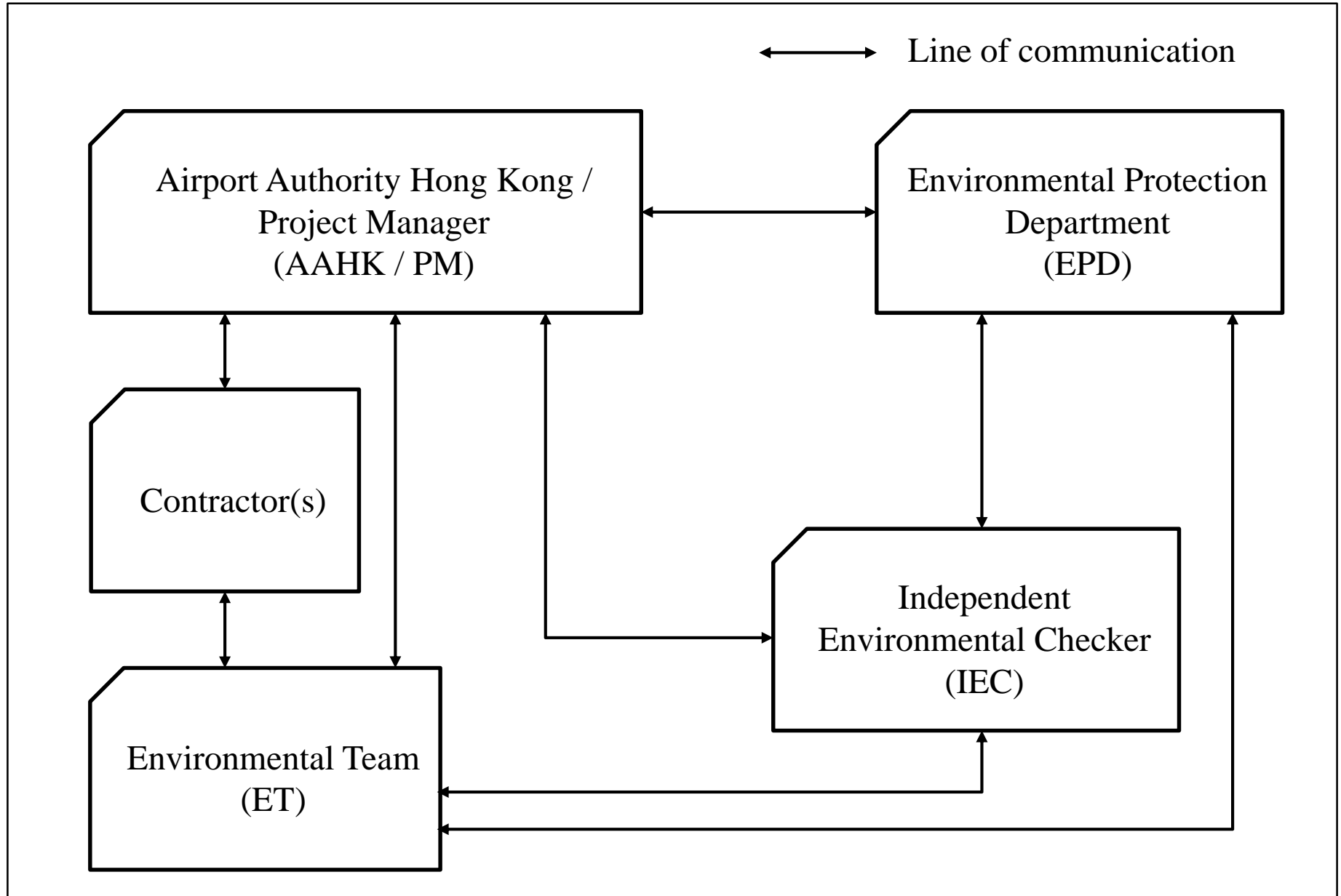
Originator	Location	Discipline	Type	Dwg Sequence No.
Status	DESIGN	Scale	1:5000 (A3)	Rev. A



Appendix 3.1

Project Organisation for Environmental Works

Project Organization for Environmental Works



Appendix 4.1

Environmental Mitigation Implementation Schedule (EMIS)

**Environmental Mitigation Implementation Schedule
Airport City Link**

Site Specific Mitigation Measures

Water Quality

PP Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
Construction Phase							
S6.3.1	S6.2.1	Steel pile casing and watertight cofferdam should be installed at the pier site and seawater trapped inside the casing and cofferdam should be pumped out to generate a dry working environment prior to carrying out sediment excavation.	Control potential impact for marine bridge pile construction	Contractor	Marine construction work sites	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO) • TM-DSS
S6.3.1	S6.2.1	During dewatering of the cofferdam, appropriate desilting or sedimentation device should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meeting the WPCO / TM-DSS requirements before discharge.	Control potential impact for marine bridge pile construction	Contractor	Marine construction work sites	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO) • TM-DSS
S6.3.1 & S6.3.2	S6.2.1	To minimise any adverse water quality impact during the excavation of sediment, a funnel should be placed at the top of pile casing during excavation and silt curtains should be deployed to completely enclose the cofferdam and steel pile casing. Silt curtains should be deployed in the surrounding of the active marine works area prior to installation of steel piling casing. Silt curtains should only be removed after completion of pile caps and piers. The Contractor should be responsible for the design, installation and maintenance of the silt curtain to minimise the impacts on water quality. The design and specification of the silt curtains should be submitted by the Contractor to the Project Manager or Project	Control potential impact for marine bridge pile construction	Contractor	Marine construction work sites below seawater level	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		Manager's Representative of AAHK for approval. The marine bridge piers should not be constructed at the same time to avoid adverse hydrodynamic impact due to flow blockage increase during the interim construction stages. All vessels should be sized such that adequate clearance is maintained between vessels and the seabed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.					
S6.3.1	S6.2.1	For in-situ construction method, concrete would be delivered from existing concrete batching plants off-site to avoid on site concrete batching activity. During the in-situ bridge deck concreting, the concrete should be pumped or lifted inside an enclosed container for concreting the deck. Tarpaulin plastic sheet should be mounted at the bottom of the temporary working platform for concreting to prevent concrete from falling to the sea.	Control potential impact for marine bridge pile construction	Contractor	Marine construction work sites	Construction Phase	<ul style="list-style-type: none"> EIAO-TM Water Pollution Control Ordinance (WPCO)
S6.3.3	S6.2.1	The marine works of the Project should be proactively planned and coordinated to avoid any concurrent marine works below seawater level with those of ITT-BVB to minimise cumulative water quality impact during construction phase.	Control potential impact for marine bridge pile construction	Contractor	Marine construction work sites	Construction Phase	<ul style="list-style-type: none"> EIAO-TM Water Pollution Control Ordinance (WPCO)
Operational Phase							
S6.3.6	S6.2.2	<p>In order to avoid additional adverse hydrodynamic impacts on top of the ITT-BVB, the following features and good practices have been proactively adopted in the design:</p> <ul style="list-style-type: none"> The pier shape of the marine section will be designed in a similar form of the ITT-BVB, All the proposed bridge piers will be situated next to that of ITT-BVB and marine bridge piles and pile caps will be aligned with the ITT-BVB, and The number and size of the proposed marine bridge piles and 	Control potential cumulative hydrodynamic impacts	Design Team, AAHK	Project Site	Design Stage and Operational Phase	<ul style="list-style-type: none"> EIAO-TM

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		pile caps will be similar to that of ITT-BVB.					

**Environmental Mitigation Implementation Schedule
Airport City Link**

Marine Ecology

PP Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
S6.5.1	S8.2.1	Based upon a precautionary approach, a speed limit of 10 knots should be strictly enforced on all construction-related vessels.	To minimise the possibility of lethal vessel collision to Chinese White Dolphins.	Contractor	Within assessment area and between works area and casting yard offsite	Construction Phase	N/A

**Environmental Mitigation Implementation Schedule
Airport City Link**

Landscape and Visual

PP Ref	EM&A Ref	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
Construction Phase							
S6.6.1	S9.3.1	Affected trees to be transplanted at HKP Island or Airport Island where applicable. Transplanting location will require further discussion with relevant departments in the next detailed design stage.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A

**Environmental Mitigation Implementation Schedule
Airport City Link**

Good Site Practices

Air Quality

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
S6.1.1	S4.2.1	<p>Relevant control measures as required in the Air Pollution Control (Construction Dust) Regulation shall be implemented to minimise dust impact.</p> <ul style="list-style-type: none"> • Skip hoist for material transport should be totally enclosed by impervious sheeting, • All dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet, • All stockpiles of aggregate or spoil should be covered and/or water applied, • The height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation from unloading, • Immediately before leaving a construction site, every vehicle shall be washed to remove any dusty materials from its body and wheels, and • The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak form the vehicle. 	To minimise the dust impact	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • Air Pollution Control Ordinance (APCO) • HKAQO • EIAO-TM

**Environmental Mitigation Implementation Schedule
Airport City Link**

Noise

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
S6.2.1	S5.2.1	<p>Good site practices listed below shall be adopted by all the contractors to further ameliorate the noise impacts.</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly. • Silencers or mufflers on construction plant should be utilised. • Mobile plant should be sited as far away from sensitive uses as possible. • Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. • Plant known to emit noise strongly in one direction should, where possible, be orientated so that noise is directed away from the nearby sensitive uses. • Material stockpiles and other structures such as site hoarding should be effectively utilised to screen noise from on-site construction activities. • Noisy construction activities such as road breaking, should be scheduled to less sensitive hours during the day, e.g. midday. 	Control construction airborne noise	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM

**Environmental Mitigation Implementation Schedule
Airport City Link**

Water Quality

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
Construction Phase							
S6.3.1	S6.2.1	Surface run-off from construction sites should be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers should be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries should be provided on site boundaries where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels should be constructed in advance of site formation works and earthworks.	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Before disposal at the public fill reception facilities, the deposited silt and grit should be solicited in such a way that it can be contained and delivered by dump truck instead of tanker truck. Any practical options for the diversion and re-alignment of drainage should comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Construction works should be programmed to minimise soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces should be covered e.g. by tarpaulin, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place in such a	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.					
S6.3.1	S6.2.1	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Measures should be taken to minimise the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the	Control potential impacts from construction site	Contractor	All construction work sites	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>construction sites on a regular basis. Also, the following mitigation measures related to the transportation of the sediment should be implemented to minimise the potential water quality impact:</p> <ul style="list-style-type: none"> • Loading of the excavated marine-based sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water; • The barge transporting the excavated marine-based sediment to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation; and • Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the Director of Environmental Protection (DEP). 	runoff and land-based construction		where practicable		<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Water used in ground boring and drilling for site investigation or rock/soil anchoring should as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from boring and drilling water	Contractor	All construction work sites where practicable	Design Stage and Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	All vehicles and plant should be cleaned before they leave a construction site to minimise the deposition of earth, mud, debris on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of	Control potential impacts from wheel washing water	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		soil and to prevent site run-off from entering public road drains.					Ordinance (WPCO)
S6.3.1	S6.2.1	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the TM-DSS. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimise water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring should be carried out in accordance with the relevant WPCO license.	Control potential impacts from construction site effluent	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO) • TM-DSS
S6.3.1	S6.2.1	No discharge of sewage to the storm water system and marine water will be allowed. Sufficient chemical toilets should be provided in the works areas to handle the sewage generated from the construction workforce. A licensed waste collector should be deployed to clean the chemical toilets on a regular basis.	Control potential impacts from construction workforce sewage effluent	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)
S6.3.1	S6.2.1	Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the surrounding environment. Regular environmental audit of the construction site will provide an effective control of any malpractices and can encourage continual improvement of environmental performance on site. It is anticipated that sewage generation during the construction phase of the project would not cause water pollution problem after undertaking all required measures.	Control potential impacts from construction workforce sewage effluent	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
S6.3.1	S6.2.1	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation, should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • ProPECC PN 1/94 • EIAO-TM • Water Pollution Control Ordinance (WPCO), • Waste Disposal Ordinance (WDO)
S6.3.1	S6.2.1	Any service shop and maintenance facilities should be located on hard standings within a bonded area, and sumps should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO) •
S6.3.1	S6.2.1	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows: <ul style="list-style-type: none"> • Suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; • Chemical waste containers should be suitably labelled, to 	Control potential impacts from accidental spillage of chemicals	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • EIAO-TM • Water Pollution Control Ordinance (WPCO), • Waste Disposal Ordinance (WDO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>notify and warn the personnel who are handling the wastes, to avoid accidents; and</p> <ul style="list-style-type: none"> Storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 					
Operational Phase							
S6.3.5	S6.2.2	<p>For the operation of road works, a surface water drainage system should be provided to collect the road runoff. The road drainage should be provided with adequately designed silt trap as necessary. The design of the operational phase mitigation measures for the road works shall take into account the guidelines published in ProPECC PN 5/93 “Drainage Plans subject to Comment by the EPD”</p>	Control potential impacts from road surface runoff	Design Team, AAHK	Project Site	Design Stage and Operational Phase	<ul style="list-style-type: none"> ProPECC PN 5/93 EIAO-TM Water Pollution Control Ordinance (WPCO)
S6.3.5	S6.2.2	<p>Mitigation measures including Best Management Practices (BMPs) to reduce storm water pollution arising from the Project are as follows:</p> <p><u>Design Measures</u></p> <p>Exposed surface shall be avoided within the roads to minimise soil erosion. The roads shall be hard paved.</p> <p>The drainage system should be designed to avoid flooding.</p> <p><u>Devices and Facilities</u></p> <p>Screening facilities such as standard gully grating and trash grille, with spacing which is capable of screening large substances such as rubbish should be provided at the inlet of drainage system.</p> <p>Road gullies with standard design and silt traps should be provided to remove particles present in stormwater runoff, where appropriate.</p> <p><u>Administrative Measures</u></p>	Control potential impacts from non-point source storm pollution	Design Team, AAHK	Project Site	Design Stage and Operational Phase	<ul style="list-style-type: none"> EIAO-TM Water Pollution Control Ordinance (WPCO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>Good management measures such as regular cleaning and sweeping of road surface/ open areas are suggested. The road surface/ open area cleaning should also be carried out prior to occurrence rainstorm.</p> <p>Manholes, as well as stormwater gullies, ditches provided at the Project site should be regularly inspected and cleaned (e.g. monthly). Additional inspection and cleansing should be carried out before forecast heavy rainfall.</p>					

**Environmental Mitigation Implementation Schedule
Airport City Link**

Waste Management

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
Construction Phase							
S6.4.1, 6.4.2	S7.2.1	<u>Good Site Practices</u> <ul style="list-style-type: none"> Nomination of approved personnel, such as a site manager, to be responsible for implementation of good site practices, arrangements for waste collection and effective disposal to an appropriate facility; Training of site personnel in site cleanliness, concepts of waste reduction, reuse and recycling, proper waste management and chemical waste handling procedures; Provision of sufficient waste reception/ disposal points, and regular collection of waste; Adoption of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; Provision of regular cleaning and maintenance programme for drainage systems and sumps; Adoption of a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites); and Preparation of Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP). 	To minimise impacts arising from waste management	Contractor	All construction site	Construction Phase	<ul style="list-style-type: none"> ETWB TC(W) 19/2005 TC(W) 6/2010 Practice Note for Authorized Persons No.243 (ADV-19) (PNAP No.243 (ADV-19))Waste Disposal Ordinance (WDO) Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.4.1	S7.2.1	<u>Waste Reduction Measures</u> Good management and control of construction site activities/	To minimise impacts arising from waste management	Contractor	All construction sites	Construction Phase	<ul style="list-style-type: none"> ETWB TC(W)

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>processes can minimise the generation of waste. Waste reduction is best achieved at the planning and design stage, as well as by ensuring the implementation of good site practices. Recommendations to achieve waste reduction include:</p> <ul style="list-style-type: none"> • Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors; • Recycle any unused chemicals or those with remaining functional capacity; • Maximise the use of reusable steel formwork to reduce the amount of C&D materials; • Adopt proper storage and site practices to minimise the potential for damage to, or contamination of construction materials; • Plan the delivery and stock of construction materials carefully to minimise the amount of waste generated; and • Minimise over ordering and wastage through careful planning during purchasing of construction materials. 					<p>19/2005</p> <ul style="list-style-type: none"> • TC(W) 6/2010 • Waste Disposal Ordinance (WDO) • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.4.1	S7.2.1	<p><u>C&D materials</u></p> <p>The C&D materials generated should be sorted on-site into inert C&D materials (that is, public fill) and non-inert (C&D waste). To minimise the impact resulting from collection and transportation of C&D materials as far as practicable, C&D waste, such as wood, plastic, steel and other metals should be reused or recycled and, as a last resort, disposed to landfill. Any surplus would be timely transported out of construction work area, therefore no designated</p>	To minimise impacts arising from the disposal of C&D materials	Contractor	All construction sites	Construction Phase	<ul style="list-style-type: none"> • ETWB TC(W) 19/2005 • TC(W) 6/2010 • Waste Disposal Ordinance

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>stockpiling area is planned within the construction site. In case stockpiling areas are found required, mitigation measures should be implemented. Within the stockpile areas, the following measures should be taken to control potential environmental impacts or nuisance</p> <ul style="list-style-type: none"> • Proper handling and storage of waste such as soil by means of covers and/or water spraying system to minimise the potential environmental impact and to prevent materials from wind-blown or being washed away; • Covering materials during heavy rainfall; • Locating stockpiles to minimise potential visual impacts; • Minimising land intake of stockpile areas as far as possible; • Adopting GPS or equivalent system for tracking and monitoring of all dump trucks engaged for the Project in recording their travel routings and parking locations to prohibit illegal dumping and landfilling of C&D materials; and • Keeping record and analysis of data collected by GPS or equivalent system related to travel routings and parking locations of dump trucks engaged on site. 					<p>(WDO)</p> <ul style="list-style-type: none"> •
S6.4.1	S7.2.1	<p><u>General Refuse</u></p> <p>General refuse should be stored in covered bins or compaction units separately from C&D materials. A reputable waste collector should be employed by the Contractor to remove general refuse from the site regularly, separately from C&D materials. An enclosed and covered area is preferred to reduce the occurrence of “wind blown” light materials.</p> <p>The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The</p>	To minimise impacts arising from waste management	Contractor	All construction sites	Construction Phase	<ul style="list-style-type: none"> • ETWB TC(W) 19/2005 • TC(W) 6/2010 • Waste Disposal Ordinance (WDO) •

**Environmental Mitigation Implementation Schedule
Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>Contractor shall also be responsible for arranging recycling companies to collect these materials.</p> <p>The Contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins should also be provided in the site as reminders.</p>					
S6.4.1 & S6.4.2	S7.2.1	<p><u>Chemical Waste</u></p> <p>If chemical wastes were to be produced, the Contractor would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.</p> <p>Appropriate containers with proper labels should be used for storage of chemical wastes. Chemical wastes should be collected and delivered to designated outlet by a licensed collector. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the CWTC, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</p> <p>Any unused chemicals or those with remaining functional capacity should be collected for reuse as far as practicable.</p> <p>Trip ticket system shall be implemented to prevent illegal dumping in accordance with the 'Trip Ticket System for Disposal of Construction and Demolition Materials'.</p>	To minimise impacts arising from waste management	Contractor	All construction sites	Construction Phase	<ul style="list-style-type: none"> • ETWB TC(W) 19/2005 • TC(W) 6/2010 • Waste Disposal Ordinance (WDO) • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes • Trip Ticket System for Disposal of Construction and Demolition Materials
S6.4.1	S7.2.1	<p><u>Sediment</u></p>	To minimise impacts	Contractor	All	Construction	<ul style="list-style-type: none"> • Dumping at

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PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
& S6.4.3		<p>The sediment should be excavated, handled, treated, transported and/or disposed of in a manner that would minimise adverse environmental impacts.</p> <p>Relevant ordinances (such as Waste Disposal Ordinance, Air Pollution Ordinance (Construction Dust) Regulation and Water Pollution Control Ordinance) shall be complied with during the excavation and handling of the sediment..</p> <p>The temporary stockpiling area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The temporary stockpiling area should be completely paved in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected, treated and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the exposure to contaminated materials, workers shall, if necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.</p>	arising from waste management		construction work sites where practicable	Phase	<p>Sea Ordinance (DASO)</p> <ul style="list-style-type: none"> • Practice Note for Authorized Persons No.252 (ADV-21) (PNAP No.252 (ADV-21)) • Air Pollution Control Ordinance (APCO) • Water Pollution Control Ordinance (WPCO)
S6.4.1	S7.2.1	For off-site disposal, the basic requirements and procedures specified under PNAP No. 252 (ADV-21) shall be followed. Marine Fill Committee (MFC) of CEDD is managing the disposal facilities in Hong Kong for the excavated sediment, while EPD is the authority of issuing marine dumping permit under the Dumping at Sea Ordinance (DASO).	To minimise impacts arising from waste management	Project Proponent/ Contractor	All construction work sites where practicable	Design and Construction Phase	<ul style="list-style-type: none"> • Dumping at Sea Ordinance (DASO) • Practice Note for Authorized Persons No.252 (ADV-21)

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Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
							(PNAP No.252 (ADV-21))
S6.4.1 & S6.4.3	S7.2.1	<p>For the purpose of site allocation and application of marine dumping permit and if considered necessary by Dumping at Sea Ordinance (DASO) Team/EPD, separate submissions (e.g. SSTP/SQR) shall be submitted to DASO team/EPD for agreement under DASO. Additional SI works, based on the SSTP, shall then be carried out in order to confirm the disposal arrangements of the excavated sediment. A Sediment Quality Report (SQR), reporting the chemical and biological screening results and the estimated quantities of sediment under different disposal options, shall then be submitted to DASO team/EPD for agreement under DASO.</p> <p>To ensure disposal space is allocated for the Project, the Project Proponent should be responsible for obtaining agreement from MFC on the allocation of the disposal site. The contractor(s), on the other hand, should be responsible for the application of the marine dumping permit under DASO from EPD for the sediment disposal.</p>	To minimise impacts arising from waste management	Project Proponent/ Contractor	All construction work sites where practicable	Design and Construction Phase	<ul style="list-style-type: none"> • Dumping at Sea Ordinance (DASO) • Practice Note for Authorized Persons No.252 (ADV-21) (PNAP No.252 (ADV-21))
S6.4.1	S7.2.1	<p>The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by MFC. The excavated sediment would be disposed of according to its determined disposal options and PNAP No. 252 (ADV-21).</p> <p>Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiles area should be completely paved in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials.</p>	To minimise impacts arising from waste management	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • Dumping at Sea Ordinance (DASO) • Practice Note for Authorized Persons No.252 (ADV-21) (PNAP No.252 (ADV-21))

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Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
		<p>Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO).</p> <p>In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water.</p> <p>The barge transporting the sediments to the designated disposal sites shall be equipped with tight fitting seals to prevent leakage and shall not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP.</p>					<p>(ADV-21))</p> <ul style="list-style-type: none"> • Water Pollution Control Ordinance (WPCO) • Air Pollution Control Ordinance (APCO)
S6.4.1	S7.2.1	<p><u>Potential Floating Refuse</u></p> <p>Proper management and education should be given to construction site workers such that accidental release or intentional disposal would be avoided. The refuse should be stored in enclosed bin to avoid adverse impacts to the surroundings including marine environment. Regular checking should also be carried out to ensure that the refuse is stored properly.</p>	To minimise impacts arising from waste management	Contractor	All construction sites	Construction Phase	<ul style="list-style-type: none"> • ETWB TC(W) 19/2005 • TC(W) 6/2010 • Waste Disposal Ordinance (WDO) • Water Pollution Control Ordinance (WPCO)

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PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Stage	Requirements and / or Standards to be Achieved
Operational Phase							
S6.4.4	S7.2.2	<p><u>Chemical Waste</u></p> <p>If chemical wastes were to be produced, the Project Proponent would be required to register with the EPD as a Chemical Waste Producer, and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A trip-ticket would be adopted by the Project Proponent to monitor disposal of chemical waste.</p> <p>Appropriate containers with proper labels should be used for storage of chemical wastes. Chemical wastes should be disposed to designated outlet by a licensed collector. Chemical wastes should be disposed of at appropriate facility such as the CWTC by licensed collectors.</p>	To minimise impacts arising from waste management	Project Proponent	Project Area	Operation Phase	<ul style="list-style-type: none"> • ETWB TC(W) 19/2005 • TC(W) 6/2010 • Waste Disposal Ordinance (WDO) • Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes
S6.4.4	S7.2.2	<p><u>Municipal Solid Wastes</u></p> <p>Designated areas should be assigned for proper storage and collection of MSW generated on site. Segregation of MSW should be conducted on site to allow for maximisation of recycling opportunities. Place clearly labelled recycling bins at designated locations which could be accessed conveniently. A reputable waste collector should be employed to remove MSW regularly to minimise potential impacts arising from storage and collection of MSW.</p>	To minimise impacts arising from waste management	Project Proponent	Project Area	Operation Phase	<ul style="list-style-type: none"> • Waste Disposal Ordinance (WDO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

Marine Ecology

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
S6.5.1	S8.2.1	Good site practices, guidelines and mitigation measures detailed in Water Quality Sections should be adopted to further alleviate water quality impacts.	To minimise the impacts on Chinese White Dolphins and other marine fauna	Contractor	All construction work sites where practicable	Construction Phase	<ul style="list-style-type: none"> • Water Pollution Control Ordinance (WPCO)

**Environmental Mitigation Implementation Schedule
Airport City Link**

Landscape and Visual

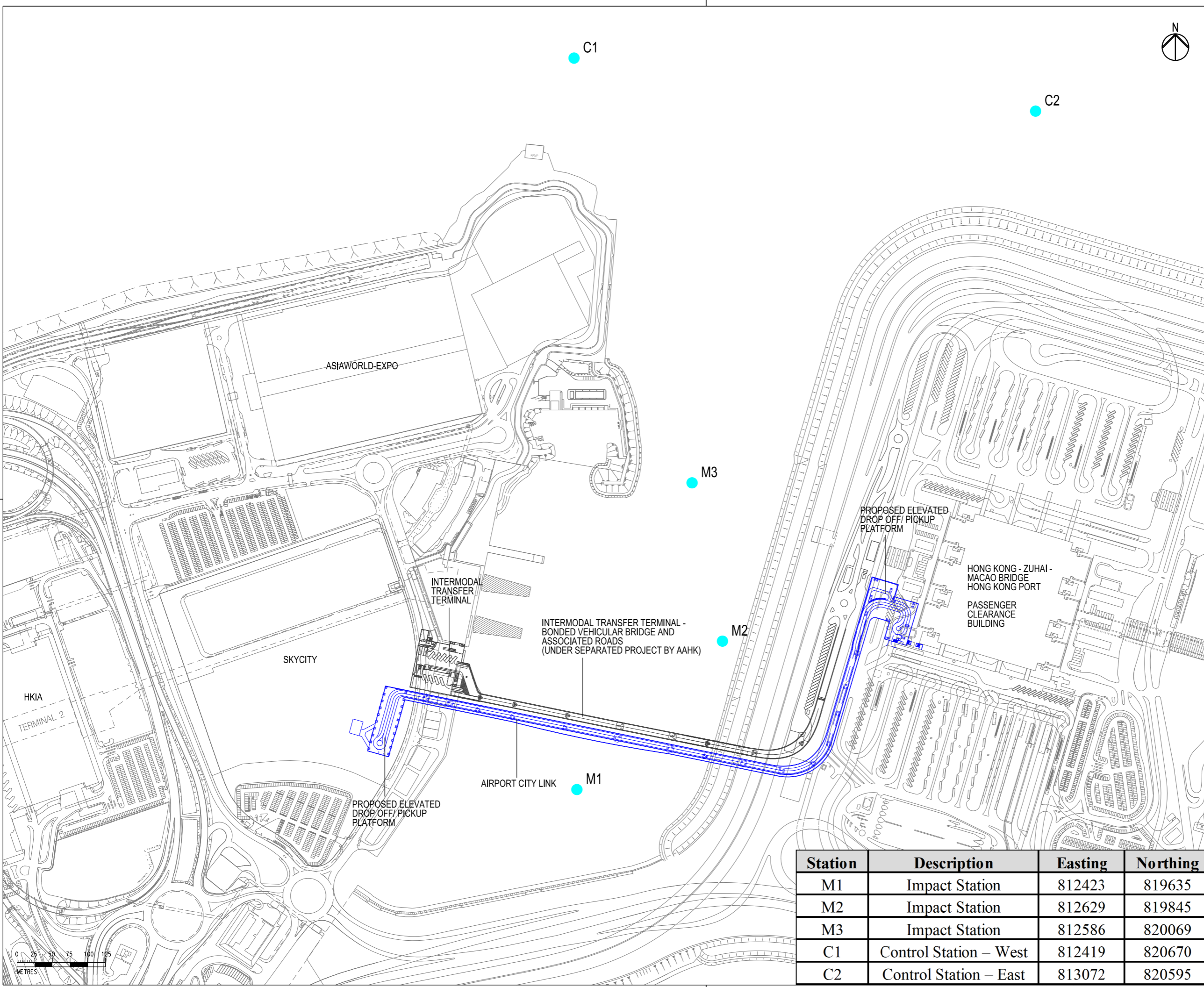
PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
Construction Phase							
S6.6.1	S9.3.1	Minimising disturbance to significant landscape resources as part of the design.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Optimising construction activities, e.g. minimising extent of temporary works area, installing site hoardings and minimising illumination on non-target areas.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Minimise construction periods where possible.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Early establishment of planting areas as far as appropriate.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Erection of decorative mesh screen or construction hoardings.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Control of night-time lighting.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Temporary vertical greening, screen / buffer at-grade planting to soften the engineering structure of construction works.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Chromatic design in colour tone, finishes and treatments of engineering structures should be visually unobtrusive, non-reflective, and compatible with surrounding context.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
S6.6.1	S9.3.1	Advisory Committee on the Appearance of Bridges and Associated Structures (ACABAS) submission upon completion of conceptual design should be in accordance with ETWB TCW No. 36/2004.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	• ETWB TCW No. 36/2004
S6.6.1	S9.3.1	Tree preservation in accordance with Development Bureau Technical Circular (Works) No. 4/2020 (ref: DEVB(GLTM)	To minimise the landscape and visual	Project Proponent	All works areas	Construction Phase	• DEVB(GLTM)

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Airport City Link**

PP Ref	EM&A Ref	Recommended Good Site Practices	Objectives of the Recommended Good Site Practices & Main Concerns to Address	Implementation Agent	Location / Timing	Implementation Phase	Requirements and / or Standards to be Achieved
		200/2/1/1).	on surround setting				200/2/1/1
S6.6.1	S9.3.1	Proposed tree felling / tree compensation.	To minimise the landscape and visual on surround setting	Project Proponent	All works areas	Construction Phase	N/A
Operational Phase							
S6.6.1	S9.3.2	Provision of greening, aesthetic architectural design of aboveground structures to enhance landscape and visual aesthetic of the area in proximity.	To minimise the landscape and visual on surround setting	Project Proponent	Project Area where practicable	Design and Operational Phase	N/A
S6.6.1	S9.3.2	Sensitive lighting design and installation to minimise night-time glare.	To minimise the landscape and visual on surround setting	To minimise the landscape and visual on surround setting	Project Area where practicable	Design and Operational Phase	N/A
S6.6.1	S9.3.2	Tree maintenance in accordance with Guidelines on Tree Risk Assessment and Management Arrangement by DevB (latest version) for compensatory trees.	To minimise the landscape and visual on surround setting	To minimise the landscape and visual on surround setting	Project Area where practicable	Design and Operational Phase	N/A

Appendix 6.1

Proposed Water Quality Monitoring Stations



LEGEND

- PROPOSED ALIGNMENT
- WATER QUALITY MONITORING STATION

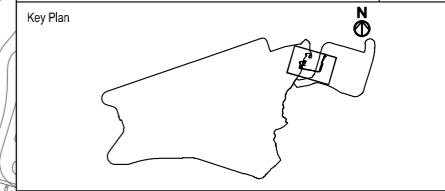
Rev.	Date	Description	Checked
A	11/12/2020	FIRST ISSUE	TL



Hong Kong International Airport



Consultant's Signatures for Approval		Date
Design Supervisor	GL	11/12/2020
Checkers	TL	11/12/2020
Authorised Representative	FC	11/12/2020



Title

CONTRACT C20C17
CONSULTANCY SERVICES FOR
AIRPORT CITY LINK
PROPOSED WATER QUALITY
MONITORING STATIONS

APPENDIX 6.1

Originator	Location	Discipline	Type	Dwg Sequence No.
Status	DESIGN	Scale	1:5000 (A3)	Rev. A

Station	Description	Easting	Northing
M1	Impact Station	812423	819635
M2	Impact Station	812629	819845
M3	Impact Station	812586	820069
C1	Control Station – West	812419	820670
C2	Control Station – East	813072	820595

Appendix 6.2

Water Quality Monitoring Data Record Sheet

Water Quality Monitoring Data Record Sheet

Location		Surface	Middle	Bottom
Monitoring Station				
Date				
Weather				
Sea Condition				
Tide Mode				
Start Time	(hh:mm)			
Water Depth	(m)			
PH				
Temperature	(oC)			
Salinity	(ppt)			
Turbidity	(NTU)			
Sample Identification				
SS	(mg/l)			
DO				
DO Saturation				
Observed Construction Activities	<100m from location			
	>100m from location			
Other Observations				

Name & Designation

Signature

Date

Recorded by:

Checked by:

Note: The SS results are to be entered once they are available from the laboratory.

Appendix 11.1

Sample Template for Interim Notifications of Environmental Quality Limits Exceedances

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	
Action taken / to be taken	
Remarks	

Location Plan

Prepared by:

Designation:

Signature:

Date: