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**ENVIRONMENTAL MONITORING
AND AUDIT MANUAL (EM&A
MANUAL)**

FOR

**CHAI WAN GOVERNMENT
COMPLEX AND VEHICLE DEPOT**

COMMERCIAL-IN-CONFIDENCE

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1 INTRODUCTION

1.1 BACKGROUND

1.1.1 This Project is to construct and operate a vehicle depot-cum-office building (hereinafter referred to as the “proposed Project”) for the Hong Kong Police Force (HKPF), the Food and Environmental Hygiene Department (FEHD), the Electrical and Mechanical Services Department (EMSD) and the Government Laboratory (GL), and are responsible for the operation of the proposed Project after completion of construction works. The Project Proponent for the proposed Project is the HKPF. Allied Environmental Consultants Limited (AEC) was appointed as the environmental consultant to undertake the Environmental Impact Assessment (EIA) study for the proposed Project.

1.2 PROJECT DESCRIPTION

1.2.1 The proposed Project is to construct and operate a new vehicle depot-cum-office building in Chai Wan. The proposed Project is planned to be constructed on a piece of land which currently allocated as a works and staging area of the Drainage Services Department (DSD). The site location of the proposed Project is shown in *Figure 1.1*.

1.2.2 The proposed Project will involve the construction and operation of a 6-storey building comprising various facilities for vehicle washing and repair activities, vehicle parking as well as offices. The area of the Project site is approximately 7,000m².

1.2.3 The proposed Project covers the construction of permanent depot of the following facilities:

- (a) Construction of HKPF Hong Kong Island Police Vehicle Pound and Examination Centre (PVP&EC) of 5,200 m² on Level 1 and 2, which includes:
 - Vehicle examination area accommodates an inspection pit (100 m²), a roller brake tester and load simulator (100 m²), a vehicle lift (100 m²), and a level floor examination area (150 m²);
 - Area of staff including offices, discussion room, lecture room, guard room and locker/ changing room (75 m²);
 - A brake test strip (660 m²) and a brake test ramp (180 m²);
 - Store (39 m²) and workshop (16 m²);
 - Parking spaces for detention of a minimum of 81 vehicles of various sizes including covered parking for 25 saloon car spaces and 20 motorcycles; and
 - Parking spaces for 5 police operational vehicles

- (b) Construction of a vehicle depot under the FEHD of 4,600 m² or as appropriate on Level 3 and 4, which includes:
- Parking spaces with minimum headroom of 4m for 70 vehicles of various sizes with a total required area of 3,755 m² or as appropriate with inclusion of circulation space;
 - Vehicle washing bay for 1 vehicle with high pressure water jet guns and drainage facilities (72 m² or as appropriate);
 - Water refilling bay for 2 vehicles (84 m² or as appropriate);
 - Office area (49 m²) (22.9m² for the open plan office for staff and F/E), ancillary area (233 m² or as appropriate), including meeting room, driver stand-by-briefing room, locker and changing rooms, toilet and shower facilities, storeroom and pantry;
 - Fire services pump room, compressor room and switch room (100m² or as appropriate); and
 - Security guard booth (2.5m²).
- (c) Construction of the HKPF Centralised Case Property Store for the storage of case property for Crime Formations on Level 3 and 3 m (about 1,942 m²).
- (d) Construction of a permanent depot under the EMSD of 2,200 m² on Level 5, which includes:
- Vehicle repair area and parking area (1,784 m²);
 - Battery charging room (9 m²);
 - Vehicle washing bay for two vehicles with petrol interceptor;
 - Lubricant storage/lubricant dosing equipment/ chemical waste storage (37 m²);
 - Air compressor room (7 m²);
 - Tyre charger and tyre balancer area (8 m²);
 - Waste oil tank (200 Litre);
 - Waste water sedimentation tanks;
 - Office area (total 120 m²) ; and
 - Ancillary area with toilet, shower facilities, pantry, locker, changing rooms and storage.
- (e) Construction of a specialist laboratory under the GL of about 2,160 m² on Level 6, which includes:

- Testing laboratory area;
- Storage rooms;
- Offices, changing rooms and meeting room;
- Dangerous good stores for categories 2, 3 and 5 dangerous goods; and
- Parking spaces.

1.2.4 In accordance with Item A.6, Part I, Schedule 2 of the EIA Ordinance (EIAO), the proposed Project is a designated project under the category of “A transport depot located less than 200 m from the nearest boundary of an existing or planned (a) residential area and (b) educational institution”. An EIA is required and an Environmental Permit (EP) is to be obtained prior to construction commencement. An application for the EIA Study Brief under Section 5(1) of the EIAO was submitted by AEC on 23 January 2014 with a Project Profile (No. PP-499/2014). An EIA Study Brief (No. ESB-267/2014) was issued by the Environmental Protection Department (EPD) on 5 March 2014 to proceed with an EIA study for the proposed Project.

1.3 TENTATIVE CONSTRUCTION PROGRAMME

1.3.1 The construction of the proposed Project is tentatively to commence in period from Mid 2016 to Mid 2017 depending on the design process and will last for about 29 months. For the purpose of this EIA study, a conservative approach for the construction period is assumed to be started in Mid 2016. The preliminary construction programme of the proposed Project is shown in *Appendix 1.1*.

1.3.2 The EM&A programme for the proposed Project would be implemented according to the following tentative schedule:

Mid 2016	Baseline monitoring (prior to commencement of construction works)
Mid 2016 to end 2018	Impact monitoring (throughout construction period)
End 2018	Cessation and termination of EM&A programme for construction phase (upon confirmation of substantial completion of the proposed Project and no construction works would be carried out)

1.4 CONCURRENT PROJECTS

1.4.1 There are several concurrent projects in the vicinity of the Project site, as also depicted in *Figure 1.1* and summarised in *Table 1.1*. At this stage, consideration of concurrent projects for cumulative environmental impacts will only take into account those with the available implementation programmes. Cumulative impacts from the planned and existing

major concurrent projects, if any, have been assessed in the individual sections of this EIA study.

Table 1.1 List of Potential Concurrent Projects

Concurrent Projects	Potential Cumulative Impacts	
	Construction Phase	Operation Phase
Planned THEi New Campus (construction tentatively between the third quarter of 2013 and the third quarter of 2016; operation phase from the third quarter of 2016)	✓	✓
Existing EMSD Hong Kong Workshop at Chai Wan (EP-442/2012)	×	×
Existing New World First Bus Permanent Depot at Chai Wan (EP-052/2000)	×	✓
Existing Headquarter and Bus Maintenance Depot in Chai Wan (EP-107/2001)	×	✓

1.5 PURPOSE OF THIS EM&A MANUAL

- 1.5.1 The purpose of this Environmental Monitoring and Audit (EM&A) Manual (hereafter referred to as “the Manual”) is to guide the setup of an EM&A programme to ensure the compliance with the EIA study recommendations, to assess the effectiveness of the recommended mitigation measures recommended in the EIA Report (the Environmental Mitigation Implementation Schedule (EMIS) is included in *Appendix 1.2* of this Manual), and to identify any further needs for additional mitigation measures or remedial action. This Manual outlines the monitoring and audit programme during the detailed design, construction and operation phases of the proposed Project. It aims to provide systematic procedures for the monitoring, auditing and minimisation of environmental impacts associated with the activities of the proposed Project.
- 1.5.2 All the environmental legislation of Hong Kong and the Hong Kong Planning Standards and Guidelines serve as the environmental standards and guidelines for the preparation of this Manual. In addition, this Manual has been prepared in accordance with the requirements as stipulated in the EM&A Guidelines for Development Projects in Hong Kong and Annex 21 of the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM).
- 1.5.3 The Manual contains the following information:
- duties of the Environmental Team (ET), the Independent Environmental Checker (IEC), the Engineer's Representative (ER) and the Contractor, in relation to the

environmental monitoring and audit requirements during construction of the proposed Project;

- information on the organisation and programming of construction activities of the proposed Project;
- the construction schedule and the necessary environmental monitoring and audit programme of the proposed Project to track the environmental impacts;
- requirements for the review of pollution sources and working procedures in the event of non-compliance of the proposed Project's environmental performance criteria;
- environmental monitoring protocols and their technical requirements;
- environmental auditing procedures;
- requirements for the documentation of environmental monitoring and audit data, and appropriate reporting procedures; and
- complaint resolution procedures.

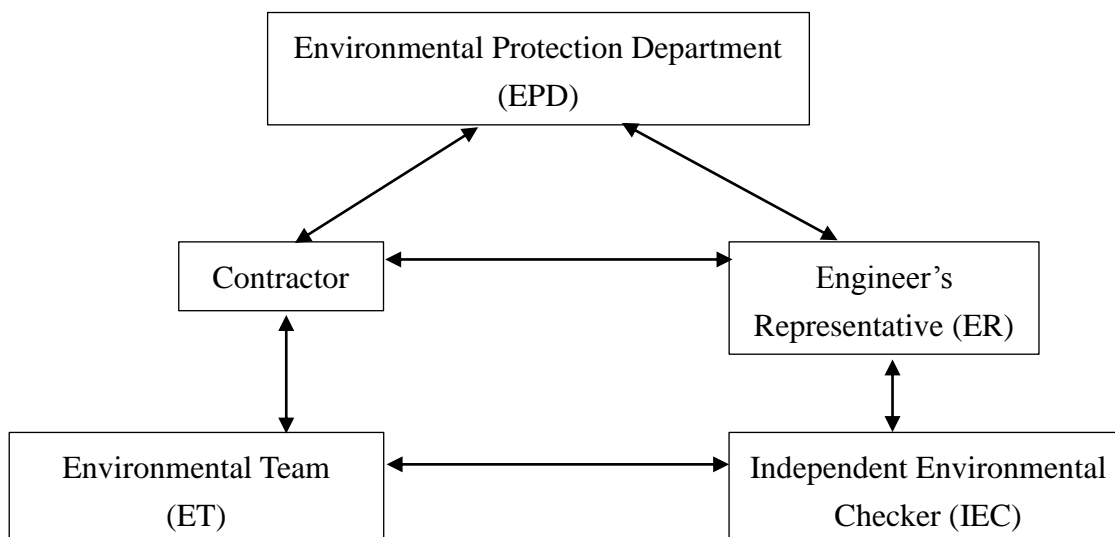
1.5.4 For the purpose of this Manual, the ET Leader, who shall be responsible for and in charge of the ET, shall refer to the person delegated the role of executing the EM&A requirements.

1.5.5 This Manual is a dynamic document that should be reviewed regularly and updated as necessary during the construction and operation of the proposed Project.

1.6 PROJECT ORGANIZATION

Background

1.6.1 The roles and responsibilities of various parties involved in the EM&A process and the organisation structure of the parties responsible for implementing the EM&A programme are outlined below.



Engineer's Representative

1.6.2 The ER is responsible for overseeing the construction works and ensuring the works to be undertaken by the Contractor in accordance with the specifications and contractual requirements. The duties and responsibilities of the ER with respect to the EM&A include:

- Monitor the Contractors' compliance with specifications, including the implementation and operation of the environmental mitigation measures and their effectiveness;
- Monitor Contractors', ET's and IEC's compliance with the requirements in the Environmental Permit (EP) and EM&A Manual;
- Facilitate ET's implementation of the EM&A programme;
- Oversee the implementation of the agreed Event and Action Plan in the event of any exceedance;
- Participate in regular site inspections and audits attended by the Contractor and ET; and
- Adhere to the procedures for carrying out the complaint investigation.

The Contractor

1.6.3 The Contractor should report to the ER. The duties and responsibilities of the Contractor are:

- Comply with the relevant contract conditions and specifications on environmental protection;
- Implement the recommendations and requirements of the EIA study;
- Employ an ET to undertake monitoring, laboratory analysis and reporting of EM&A;
- Provide assistance to the ET in carrying out the relevant environmental monitoring and site inspection activities;
- Participate in the site inspections by the ET and IEC, and undertake any corrective actions;
- Submit the proposal of mitigation measures in case of exceedances of the Action and Limit levels, in accordance with the Event and Action Plans;
- Implement the mitigation measures to reduce the environmental impacts where the Action and Limit levels are exceeded until the events are resolved; and
- Adhere to the procedures for carrying out the complaint investigation.

Environmental Team (ET)

- 1.6.4 The ET Leader and the ET shall be employed to conduct the EM&A programme and ensure the Contractor's compliance with the proposed Project's environmental performance requirements during construction.
- 1.6.5 The ET should be led and managed by an ET leader, who should possess at least 7 years of experience in EM&A or environmental management. The ET should monitor the mitigation measures implemented by the Contractor on a regular basis to ensure the compliance with the intended aims of the mitigation measures.
- 1.6.6 The duties and responsibilities of the ET are:
- Conduct sampling, analysis and statistical evaluation of monitoring parameters with reference to the EIA/EA study recommendations and requirements;
 - Audit environmental conditions on site;
 - Monitor compliance with conditions in the EP, environmental protection, pollution prevention and control regulations;
 - Monitor the implementation of environmental mitigation measures;
 - Monitor compliance with the environmental protection clauses/specifications in the Contract;
 - Review construction programme and comment as necessary;
 - Review construction methodology and comment as necessary;
 - Recommend suitable mitigation measures to the Contractor in case of exceedance of Action and Limit Levels in accordance with the Event and Action Plans;
 - liaison with IEC on all environmental performance matters, and timely submission of all relevant EM&A pro forma for IEC's approval;
 - Advise the Contractor on environmental improvement, awareness, enhancement matters, etc., on site;
 - Adhere to the procedures for carrying out compliant investigation.

Independent Environmental Checker (IEC)

- 1.6.7 The IEC should be employed by the Project Proponent / Engineer prior to the commencement of the Project and should possess at least 7 years of experience in EM&A or environmental management. The main duties and responsibilities of the IEC are:
- Provide proactive advise to the ER on EM&A matters related to the project, independent from the management of works, but empowered to audit the environmental performance of works;
 - Review and audit all aspects of the EM&A programme;

- Validate and confirm the accuracy of monitoring results, monitoring equipment, monitoring locations, monitoring procedures and locations of sensitive receivers;
- Carry out random sample check and audit on monitoring data and sampling procedures, etc.;
- Conduct random site inspection;
- Audit the EIA/EA recommendations and requirements against the status of implementation of environmental protection measures on site;
- Review the effectiveness of environmental mitigation measures and environmental performance of the proposed Project;
- On a needs basis, audit the Contractor's construction methodology and agree the least impact alternative in consultation with the ET leader and the Contractor;
- Check complaint cases and the effectiveness of corrective measures;
- Review EM&A report submitted by the ET leader; and
- Feedback audit results to ET by signing off relevant EM&A pro forma.

1.7 STRUCTURE OF THIS EM&A MANUAL

1.7.1 Following this introductory section, the structure of the Manual is set out as below:

- **Section 2** sets out the EM&A requirements for air quality impact;
- **Section 3** sets out the EM&A requirements for noise impact;
- **Section 4** sets out the EM&A requirements for water quality and sewerage impact;
- **Section 5** sets out the EM&A requirements for landscape and visual impact;
- **Section 6** sets out the EM&A requirements for waste management implications;
- **Section 7** sets out the EM&A requirements for land contamination;
- **Section 8** sets out the EM&A requirements for hazard to life impact;
- **Section 9** describes the scope and frequency of the environmental site audits and sets out the system of handling complaints; and
- **Section 10** details the EM&A reporting requirements.

2 AIR QUALITY

2.1 INTRODUCTION

Construction Phase

- 2.1.1 The EIA study of the proposed Project concluded that with the implementation of sufficient dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation, good site practices and proposed mitigation measures, adverse dust impact would not be anticipated at the representative air sensitive receivers (ASRs) in the vicinity of the Project site. As such, dust monitoring is not recommended during the construction period.
- 2.1.2 Nevertheless, regular weekly site audit is recommended to ensure that appropriate dust control measures are properly implemented and good construction site practices are adopted throughout the construction period.

Operation Phase

- 2.1.3 Air quality monitoring during the operation phase of the proposed Project is not considered as necessary for air quality impacts due to vehicular movement, odour as well as laboratory emissions to the representative ASRs would be insignificant.

2.2 AIR SENSITIVE RECEIVERS

- 2.2.1 As stated in clause 3.4.3 of the EIA Study Brief, the study area for the air quality impact assessment is defined by a distance of 500 m from the boundary of the Project site. ASRs were identified in accordance with Annex 12 of the EIAO-TM, including any domestic premises, hotels, hostels, hospitals, medical clinics, nurseries, temporary housing accommodation, schools, educational institutions, offices, factories, shops, shopping centres, places of public worship, libraries, courts of law, sports stadiums, performing arts centres or any recreational facilities.
- 2.2.2 The existing ASRs were identified with reference to the latest best available information at the time of preparation of this report, like those showing on the survey maps, topographic maps, aerial photos and other relevant published land use plans. Various site surveys were conducted to verify the sensitive receivers and confirm with the desktop studies.
- 2.2.3 The committed / planned ASRs were identified with reference to the latest best available information at the time of preparation of this study, which include those earmarked on the approved Chai Wan OZP (No.: S/H20/21), and other relevant published land use plans, including plans and drawings published by the Lands Department and any land use and development applications approved by the Town Planning Board. Planned ASRs, such as a planned pet garden at Sheung On Street and a planned THEi New Campus were identified. Summary list of the representative ASRs are tabulated in **Table 2.1**.

Table 2.1 Representative Air Sensitive Receivers

ASR ID	Description	Existing (E) or Planned (P)	Land Use
ASR 1	Metro Recreational Club Chai Wan Depot Club House (MTR Facilities)	E	Recreational
ASR 2	Heng Fa Chuen Lutheran Day Nursery	E	Educational
ASR 3	Heng Fa Chuen Block 1	E	Residential
ASR 4	Heng Fa Chuen Block 50	E	Residential
ASR 5	Heng Fa Chuen Playground	E	Recreational
ASR 6	Government Logistics Centre	E	Government
ASR 7	NWFB Depot	E	Industrial
ASR 8	Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block	E	Educational
ASR 9	Knight Court Flat A & B	E	Residential
ASR 10	Knight Court Flat C & D	E	Residential
ASR 11	Citybus Depot	E	Industrial
ASR 12	EMSD Workshop	E	Industrial
ASR 13	Wing Tai Road Garden	E	Recreational
ASR 14	Pamela Youde Nethersole Eastern Hospital - Block F	E	Community
ASR 15	Pamela Youde Nethersole Eastern Hospital - East Block	E	Community
ASR 16	Tsui Wan Estate Playground	E	Recreational
ASR 17	Tsui Shou House, Tsui Wan Estate	E	Residential
ASR 18	Endeavourers Chan Cheng Kit Wan Kindergarten	E	Educational
ASR 19	Tsui Ching House, Hang Tsui Court	E	Residential
ASR 20	Tsui Wan Nursing Home Limited	E	Community
ASR 21	Tsui Wan Estate Shopping Complex	E	Commercial
ASR 22	S.K.H Li Fook Hing Secondary School	E	Educational
ASR 23	TWGHs & LKWFSL Mrs Fung Yiu Hing Memorial Primary School	E	Educational
ASR 24	Chai Wan Fire Station	E	Government
ASR 25	Chai Wan Industrial City Phase II	E	Industrial
ASR 26	Ming Pao Industrial Centre Block B	E	Industrial
ASR 27	Safety Godown Industrial Building	E	Industrial
ASR 29	Planned Pet Garden at Sheung On Street	P	Recreational
ASR 30	Planned THEi New Campus	P	Educational

2.3 MITIGATION MEASURES

- 2.3.1 The recommended mitigation measures for construction dust impacts are presented as the EMIS in *Appendix 1.2* of this Manual. In an event of complaint(s) or non-compliance(s), the ET, ER and Contractor should review the effectiveness of these mitigation measures, design alternatives or additional mitigation measures as appropriate. The Contractor should propose corrective action(s) to the ER for approval, and implement them accordingly. These measures should include the following dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:

- Use of regular watering, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather;
- Use of frequent watering for particularly dusty construction areas close to ASRs;
- Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;
- Open temporary stockpiles should be avoided or covered. Prevent placing dusty material storage plies near ASRs;
- Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;
- Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;
- Imposition of speed controls for vehicles on unpaved site roads. 8 km/hr is the recommended limit;
- Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs;
- Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) , if applicable, should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3-sides; and
- Loading, unloading, transfer, handling or storage of large amount of cement or dry PFA should be carried out in a totally enclosed system or facility, and may vent or exhaust should be fitted with the an effective fabric filter or equivalent air pollution control system.

2.4 AUDIT REQUIREMENTS

- 2.4.1 The implementation of regular site audit aims to ensure the mitigation measures recommended in the EIA Report to be properly carried out during the construction phase of the proposed Project. It also provides an effective control of any mal-practices and therefore achieves a continual improvement of the environmental performance on site.
- 2.4.2 Inspection of construction activities, work sites and work areas should be conducted at least on a weekly basis to ensure the mitigation measures are properly implemented.
- 2.4.3 Site audits should be carried out by the ER, ET and Contractor with a basis on the mitigation measures for air pollution control as recommended in *Appendix 1.2*. In an event that the recommended mitigation measures are not fully or properly implemented, the Contractor should report the deficiency to the ER and ET. Appropriate action(s) will need to be taken by the Contractor include:
- Investigate the problem(s) and cause(s);
 - Discuss remedial and corrective proposal(s) with the ER and ET;

- Take action(s) according to the action notes agreed with the ER;
- Implement the agreed remedial and corrective action(s) immediately;
- Re-inspect the site conditions upon the completion of the remedial and corrective action(s) and;
- Record the event and keep good record of such written documentation.

3 NOISE

3.1 INTRODUCTION

Construction Phase

- 3.1.1 With the implementation of the recommended mitigation measures such as the use of quality powered mechanical equipment (QPME), limiting the number of construction plants operating concurrently, using movable noise barriers and adopting good site practices, adverse construction noise impact is not anticipated except at the Hong Kong Institute of Vocational Education (Chai Wan) (NSR2). As it is close to the site, NSR 2 is predicted to expose to construction noise exceeding the relevant noise standard during the examination period when site formation, excavation and filling works take place in mid 2016.
- 3.1.2 More detailed construction planning, which includes the arrangement on work sequence and plant locations, etc., before actual construction work is undertaken by the Contractor and practicable noise mitigation measures should be implemented according to the actual site conditions and constraints, in order to reduce the construction noise impact. In particular, the Contractor should keep close liaison with the nearby educational institutions, and special arrangement on powered mechanical equipment (PME) operations should be determined during school examination periods. The Contractor is required to provide a Construction Noise Management Plan before construction commencement.
- 3.1.3 EM&A procedures are recommended during the construction phase of the proposed Project to ensure the implementation of construction noise mitigation measures and a noise complaint handling mechanism. The EM&A requirements, methodology, equipment, monitoring locations, criteria and protocols for the noise impacts during the construction phase of the proposed Project are presented in this section.

Operation Phase

- 3.1.4 The maximum allowable sound power levels (SWLs) of the identified fixed noise sources of the proposed Project were predicted in the EIA Report. To ensure that the noise impact associated with the operation of fixed plant would comply with the fixed plant noise criteria, the MVAC and other fixed noise sources should be properly selected. Noise monitoring during the operation phase of the proposed Project is considered not necessary.

3.2 NOISE SENSITIVE RECEIVERS

- 3.2.1 Noise sensitive receivers (NSRs) were identified in accordance with Annexes 5 and 13 of the EIAO-TM and should include domestic premises, temporary housing accommodation, educational institutions including kindergartens, nurseries, and all others where unaided voice communication is required, hospitals, medical clinics, homes for the aged, convalescent homes, places of public worship, libraries, courts of law, performing arts centres, auditoria, amphitheatres, hostels and country parks, having direct line-of-sight and

substantial angle of view of the Project area. Study area is expanded beyond 300m from the Project site to include NSRs at Tsui Wan Estate.

3.2.2 The existing and planned NSRs were identified with reference to the latest best available information at the time of preparation of this report, such as those showing on the survey maps, topographic maps, aerial photos and other relevant land use plans. A planned THEi New Campus was identified as the only planned NSR of the proposed Project.

3.2.3 **Figure 3.1** shows the Project boundary, representative NSRs and noise assessment points (NAPs). Details of the representative existing and planned NSRs with the corresponding NAPs are summarised in **Table 3.1**. Photos of representative existing NSRs are presented in **Appendix 3.2**.

Table 3.1 Representative Existing and Planning NSRs with the Corresponding NAPs

NSR ID	NAP ID	Name of Building	Use ^[1]	Potential Impact ^[2]	No. of Floor	Approx. Distance from the Project Site (m)	Shielded/ No Direct Line of Sight
NSR 1	NAP 101	Heng Fa Chuen Block 50	R	C, R, F	21	300	Nil
NSR 2	NAP 201	Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block	E	C, R, F	6	145	Nil
	NAP 202			R		248	1/F – 6/F
NSR 3	NAP 301	Knight Court Flat C&D ^[4]	R	R	24	160	1F – 24/F
NSR 4	NAP 401	Tsui Shou House, Tsui Wan Estate	R	C, R, F	30	345	Nil
NSR 5	NAP 501	Endeavourers Chan Cheng Kit Wan Kindergarten	E	C, R, F	1	340	Nil
NSR 6	NAP 601	Tsui Fuk House, Tsui Wan Estate	R	C, R, F	30	375	Nil
NSR 7	NAP 701	Tsui Hong House, Tsui Wan Estate	R	C, R, F	30	380	1/F – 6/F
NSR 8 ^[3]	NAP 801	Planned THEi New Campus	E	C, F	14	200	Nil
	NAP 802		E	R	14	260	5/F- 13/F

Notes:

[1] R- Residential, E- Educational

[2] C- Construction air-borne noise, R- Operational road traffic noise, F- Operational fixed plant noise

[3] The classrooms which will be located from 5/F to 13/F at NSR 8 are considered as NSRs.

[4] The eastern façade of Knight Court are provided with windows with special key lock for cleansing purpose only (i.e. not relying on such windows for ventilation).

3.3 MONITORING REQUIREMENTS

Construction Noise

Noise Parameters and Criteria

- 3.3.1 The construction noise level should be measured in terms of the A-weighted equivalent continuous sound pressure level (L_{eq}). $L_{eq(30mins)}$ should be used as the monitoring parameter for the time period between 0700 and 1900 hours on any day not being a general holiday. The supplementary information for data auditing and statistical results, such as L_{10} and L_{90} , should be obtained and recorded for reference. A sample data record sheet is provided in **Appendix 3.1**.

Monitoring Equipment and Methodology

- 3.3.2 As referred to the requirements of the Technical Memorandum (TM) issued under the Noise Control Ordinance (NCO), the sound level meters in compliance with the International Electrotechnical Commission Publications 651: 1979 (Type 1) and 804:1985 (Type 1) specifications should be used for conducting the noise monitoring. Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement agree to within 1.0 dB.
- 3.3.3 Noise measurements should not be conducted in the presence of fog, rain, wind with a steady speed exceeding 5m/s or wind with gusts exceeding 10m/s. The wind speed should be checked with a portable wind speed meter capable of measuring wind speeds in m/s.
- 3.3.4 The ET is responsible for the provision of the monitoring equipment and should ensure that sufficient noise measuring equipment and associated instrumentation are available for conducting the baseline monitoring, regular impact monitoring and ad-hoc monitoring. All the equipment and associated instrumentation should be labelled clearly.

Monitoring Locations

- 3.3.5 Based on the EIA study, construction noise monitoring should be conducted at the potentially worst affected locations as listed in **Table 3.2** and shown in **Figure 3.2**.

Table 3.2 Designated Noise Monitoring Stations

Identification No.	NSR ID in EIA Report	Monitoring Stations
NM1	NSR 1	Heng Fa Chuen Block 50
NM2	NSR 2	Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block
NM3	NSR 8	Planned THEi New Campus

3.3.6 The status and location of NSR may change after issuing this Manual. If such cases exist, the ET should propose alternative monitoring locations and seek approval from the ER and agreement from the IEC and EPD on the proposal. The alternative locations should be selected based on the following criteria:

- Monitoring at NSRs close to the major construction works activities which are likely to have noise impacts;
- Monitoring close to the NSRs as defined in the EIAO-TM; and
- Assurance of minimal disturbance to the occupants and working under a safe condition during the monitoring in the vicinity of the NSRs.

3.3.7 The monitoring stations should normally be at a point 1 m from the exterior of the facade of the NSR and be at a position 1.2 m above the ground. If there is a problem with access to the normal monitoring position, an alternative position should be chosen, and a correction to the measurement results should be made. For reference, a correction of +3 dB(A) should be made to the free-field measurements. The ET should seek agreement with the IEC on the monitoring position and corrections adopted. Once the positions for the monitoring stations are chosen, the baseline and impact monitoring should be carried out at the same positions. If changes to the monitoring stations are required upon commencing the baseline monitoring or thereafter, the ET should propose alternative locations based on the above-mentioned criteria and seek approval from the ER and agreement from the IEC on the proposal.

Baseline Monitoring

3.3.8 The ET should carry out the baseline noise monitoring prior to the commencement of the construction works. The baseline noise levels should be measured for a continuous period of at least 14 consecutive days at a minimum logging interval of 30 minutes during daytime between 0700 and 1900 hours. The L_{eq} , L_{10} and L_{90} should be recorded at the specified intervals. A schedule on the baseline monitoring should be submitted to the IEC for approval before the baseline monitoring starts.

3.3.9 There should not be any construction activities in the vicinity of the monitoring stations during the baseline monitoring. The source and location of any non-project related construction activities in the vicinity of the monitoring stations during the baseline monitoring should be noted and recorded.

3.3.10 In exceptional case, when baseline monitoring data obtained are insufficient or questionable, the ET Leader should liaise with the ER, IEC and EPD to agree on an appropriate set of data to be used as a baseline reference and submit the ER and IEC for agreement and EPD for approval.

Impact Monitoring

3.3.11 Noise monitoring should be carried out at all the designated monitoring stations when there are project-related construction activities being undertaken within a radius of 300m from the monitoring stations. Monitoring of $L_{eq(30min)}$ should be carried out at each station

between 0700 and 1900 hours on any day not being a general holiday at a frequency of once a week when construction activities are underway. Any general construction work or percussive piling carried out during restricted hours is controlled via a construction noise permit (CNP) system under the NCO.

- 3.3.12 If a school is located near the construction activities, noise monitoring should be carried out at the monitoring stations for the school during school examination periods. The ET Leader should liaise with the school administration and the Hong Kong Examination and Assessment Authority to ascertain the exact dates and times of all examinations during the construction phase of the proposed Project.
- 3.3.13 In case of non-compliance with the construction noise criteria, more frequent monitoring as specified in the Event/ Action Plan in **Table 3.4** should be carried out. The additional monitoring should be continued until the recorded noise levels show that the non-compliance is rectified or proved to be irrelevant to the project-related construction activities.

Event and Action Plan

- 3.3.14 The Action and Limit levels for the construction noise are provided in **Table 3.3**. Should non-compliance of the noise criteria occur, actions in accordance with the Event and Action Plan in **Table 3.4** should be taken.

Table 3.3 Action and Limit Level for Construction Noise Monitoring

Time Period	Action Level	Limit Level
0700 – 1900 hours on any day not being a general holiday	When one documented complaint is received	75 dB(A) for residential premises
		70 dB(A) for schools during normal teaching periods and 65 dB(A) during examination periods

Table 3.4 Event and Action Plan for Construction Noise Monitoring

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

Notes

(1) ET – Environmental Team, IEC – Independent Environmental Checker;

(2) Each step of action should be undertaken within 1 working day unless otherwise specified.

Operation Noise – Fixed Plant

- 3.3.15 The maximum allowable SWLs of the identified fixed noise sources of the proposed Project are predicted in the EIA study. To ensure that the noise impact associated with the fixed plant operations would comply with the fixed plant noise criteria, the specified SWLs should be implemented and refined by the Contractor as appropriate. No specific monitoring for fixed plant operation is deemed necessary.

3.4 MITIGATION MEASURES

Construction Phase

- 3.4.1 According to the EIA Report, noise mitigation measures and good site practices are recommended. The Contractor should be responsible for the design and implementation of the measures and practices under the supervision of the ER and monitored by the ET. The implementation schedule for the recommended mitigation measures is presented in *Appendix 1.2*.
- 3.4.2 In the event of non-compliance(s) or complaint(s), the Contractor should review the effectiveness of these mitigation measures. Alternative or additional measures should be proposed, designed and implemented as appropriate. The Contractor should liaise with the ET on alternative or additional remedial measures, if appropriate, and the proposal of the measures should be submitted to the ER for approval. The Contractor should implement the agreed remedial measures properly.

Operation Phase

Fixed Plant Noise – vehicle repair / testing activities and MVAC/ BS equipment

- 3.4.3 The mitigation measures as recommended in the EIA Report for the fixed plant noise arising from the operation of the proposed Project are presented in *Appendix 1.2*.

Road Traffic Noise

- 3.4.4 The assessment results demonstrate that with the low level of traffic generation from the proposed Project, operation of the proposed Project will have no significant contribution to road traffic noise impact on NSRs. No mitigation measure is necessary.

4 WATER QUALITY AND SEWERAGE

4.1 INTRODUCTION

4.1.1 With the implementation of mitigation measures as recommended in the EIA report, adverse water quality impact would not be anticipated to the water sensitive receivers (WSRs) during the construction and operation phases of the proposed Project. As such, regular inspections of construction activities, works sites and works areas should be conducted to ensure that the recommended mitigation measures are properly implemented.

4.2 WATER SENSITIVE RECEIVERS

4.2.1 The water quality impact assessment evaluates the potential water quality impact from the proposed Project to the existing and planned future activities, beneficial uses and WSRs within 500 m from the boundary of the Project site and Eastern Buffer Water Control Zone (WCZ). Due to the highly urbanised nature of the area, no natural streams or rivers are located within 500 m from the Project site. Also, there are no marine biological sensitive receivers, such as shellfish culture grounds, marine park/reserves or commercial fishing rounds, being identified within the assessment area. However, a cargo handling basin and seawater abstraction points for flushing and cooling are identified within the assessment area. The details of the key WSRs that may potentially be affected by the proposed Project are provided in *Table 4.1*.

Table 4.1 Water Sensitive Receivers in Eastern Buffer WCZ

WSR No.	Descriptions
WSR 1	WSD Water Flushing Intake – Sai Wan Ho
WSR 2	Shau Kei Wan Typhoon Shelter
WSR 3	Cooling Water Intake – Pamela Youde Nethersole Eastern Hospital
WSR 4	Chai Wan Cargo Handling Basin
WSR 5	WSD Water Flushing Intake – Siu Sai Wan
WSR 6	Cape Collinson - Corals
WSR 7	Joss House Bay – Corals
WSR 8	Tung Lung Chau West – Corals
WSR 9	Tung Lung Chau Fish Culture Zone
WSR 10	Tung Lung Chau North – Corals
WSR 11	Tung Lung Chau South – Corals

4.3 MONITORING REQUIREMENT

Construction Phase

4.3.1 No adverse water quality impact would be anticipated during the construction phase, provided that all mitigation measures recommended in the EIA Report are properly

implemented. Therefore, water quality monitoring would not be required during the construction phase. To avoid any potential water quality impacts arising from the construction activities, regular site audits should be conducted to ensure the recommended mitigation measures are properly implemented.

Operation Phase

4.3.2 No adverse water quality impact would be anticipated during the operation phase, provided that all mitigation measures recommended in the EIA Report are properly implemented. Therefore, water quality monitoring and auditing are not required during the operation phase.

4.4 MITIGATION MEASURES

4.4.1 The recommended mitigation measures for water quality impacts are presented in the EMIS in *Appendix 1.2* of this Manual. In the event of complaints or non-compliances, the ET, ER and Contractor should review the effectiveness of these mitigation measures, design alternatives or additional mitigation measures as appropriate. The Contractor should propose corrective actions to the ER for approval, and implement them accordingly.

Construction Phase

4.4.2 In accordance with Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN) 1/94, potential water quality impact shall be minimised by the implementation of construction phase mitigation measures and general good site practice including the following:

- At the establishment of works site, perimeter cut-off drains to direct off-site water around the Site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided to divert the stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the Contractor prior to the commencement of construction, followed by proper maintenance and management practices throughout the construction phase;
- Dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the run-off discharge into an appropriate watercourse, through a silt/sediment trap. Silt/sediment traps should also be incorporated in the permanent drainage channels to enhance deposition rates;
- The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The sizes may vary depending upon the flow rate, but for a flow rate of $0.1 \text{ m}^3/\text{s}$, a sedimentation basin of 30m^3 would be required and for a flow rate of $0.5 \text{ m}^3/\text{s}$ the basin would be 150m^3 .

The detailed design of the sand/silt raps should be undertaken by the Contractor prior to the commencement of construction;

- The construction works should be programmed to minimise surface excavation works during rainy seasons (April to September), as possible. All exposed earth areas should be completed and vegetated as soon as possible after completion of the earthwork, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means;
- The overall slope of works sites should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads should be protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during the prolonged periods of inclement weather and the reduction of surface sheet flows;
- All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure their proper and efficient operation at all times particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading evenly over stable, vegetated areas;
- Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet season is inevitable, they should be dug and backfilled in short sections wherever practicable. The water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities;
- All open stockpiles of construction materials (for example, aggregates, sand and fill materials) should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system;
- Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm run-off being directed into foul sewers;
- Precautions to be taken at any time of the year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted and during or after rainstorms, are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface run-off during storm events;
- All vehicles and plants should be cleaned before leaving the Project site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at the exit of Project site where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-washing bay to public roads should be paved with sufficient backfall toward the wheel-washing bay to prevent vehicle tracking of soil and silty water to public roads and drains;

- Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. Oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for oil interceptors to prevent flushing during heavy rain. Any drainage channels connecting storm drains via designed sand/silt removal facilities should be disconnected/removed after completion of construction stage to prevent any direct discharge to the stormwater system;
- The construction solid waste, debris and rubbish on-site should be collected, handled and disposed of properly to avoid causing any water quality impacts. The requirements for solid waste management are detailed in Section 8 of EIA Report; and
- All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching the nearby WSRs.

4.4.3 There is a need to apply to the EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements as specified in the discharge licence. All the run-off and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the Technical Memorandum. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes. In addition, no new effluent discharges in nearby typhoon shelters should be allowed. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., would minimise water consumption and reduce the effluent discharge volume.

4.4.4 Portable chemical toilets and sewage holding tanks are recommended for the handling of the construction sewage generated by the workforce. A licenced contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.

4.4.5 Any maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the areas appropriately equipped to control these discharges.

Operation Phase

4.4.6 All sewage arising from the proposed Project should be collected and diverted to the public foul water drainage system via proper connections to minimise water quality impact from the operation of the proposed Project and ensure compliance with Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters under the Water Pollution Control Ordinance (WPCO-TM).

4.4.7 Run-offs from the covered areas including vehicle washing bays and vehicle examination / maintenance / repair / testing area would be properly treated prior to discharge into the sewerage system. The wastewater treatment facilities for the proposed Project, which

comprised of petrol interceptor and sedimentation tank, would be designed using sedimentation process with adequate treatment capacity. Oily waste collected by petrol interceptors is considered and disposed of as chemical waste. The wastewater treatment facilities for the proposed Project will be designed during the detailed design stage and the treated effluent for discharging into the public foul water drainage system should comply with the effluent standards as stated in the WPCO-TM.

- 4.4.8 There is a need to apply to the EPD for a discharge licence for discharge of the operational effluent from the proposed Project under the WPCO. The discharge quality must meet the requirements as specified in the discharge licence.

4.5 AUDIT REQUIREMENTS

- 4.5.1 The implementation of regular site audits aims to ensure the mitigation measures recommended in the EIA Report to be properly undertaken during the construction phase of the proposed Project. It also provides an effective control of any mal-practices and therefore achieve the continual improvement of the environmental performance on-site. Site audits should include both site inspections and compliance audits.
- 4.5.2 Inspections of the construction activities, works sites and works areas should be conducted at least on a weekly basis to ensure the mitigation measures to be properly implemented.
- 4.5.3 Site audits should be carried out by the ER, ET and Contractor with a basis on the mitigation measures for the water pollution control as recommended in *Appendix 1.2*. In the event that the recommended mitigation measures are not fully or properly implemented, the Contractor should report the deficiency to the ER and ET. The appropriate actions will need to be taken by the Contractor:
- Investigate the problem(s) and cause(s);
 - Discuss remedial and corrective proposal(s) with the ER and ET;
 - Take action according to the action notes agreed with the ER;
 - Implement the agreed remedial and corrective action(s) immediately;
 - Re-inspect the site conditions upon the completion of the remedial and corrective action(s); and
 - Record the event and keep good record of such written documentation.

Compliance Audits

- 4.5.4 Compliance audits are to be undertaken by the ER and ET, and escorted by the Contractor to ensure that a valid WPCO discharge licence has been issued by the EPD prior to the discharge of the effluent from the construction activities of the proposed Project. Monitoring of the quality of the treated effluent from the works areas should be carried out in accordance with the WPCO discharge licence. As monitoring is provided under the WPCO, it does not form part of this EM&A programme. However, the results of monitoring should be made available in the EM&A reporting if appropriate.

5 LANDSCAPE AND VISUAL

5.1 INTRODUCTION

5.1.1 Potential landscape and visual impacts arising from the construction and operation of the proposed Project have been identified and evaluated in the EIA Report. With the implementation of the proposed mitigation measures, the impacts from the proposed Project should be minimised as well as enhancing the overall landscape and visual quality.

5.1.2 The Contractor should be responsible for the implementation of the recommended landscape and visual mitigation measures for construction phase. A qualified landscape consultant should be employed by the Contractor to undertake a landscape and visual baseline review prior to commencement of construction works. The objectives of the baseline review are:

- To verify the status of the Landscape Resources (LRs) within and in close proximity to the Project site;
- To determine whether any change has occurred to the status of the LRs since the EIA study;
- To determine whether amendments in the design of the landscape and visual mitigation measures are required in response to the changes during detailed design of the proposed Project and the status change of the LRs; and
- To recommend any necessary amendments to the design of the landscape and visual mitigation measures.

5.1.3 It is anticipated that most of the mitigation measures for the operation phase should be designed and confirmed during the detailed design stage. The project designer/ Contractor should ensure the proposed mitigation measures are incorporated in the design. The operator should provide regular maintenance for the proposed mitigation measures to ensure the effectiveness of the measures.

5.2 MITIGATION MEASURES

5.2.1 The EIA Report has recommended a series of landscape and visual mitigation measures for both the construction and operation phases of the proposed Project. A preliminary master landscape plan is provided in *Figure 5.1*. The mitigation measures are also summarised in *Table 5.1*.

Table 5.1 Recommended Mitigation Measures

Mitigation Code	Responsible Party for Implementation	Mitigation Measures
<i>Construction Phase</i>		
CM1	Contractor and Sub-contractor(s)	<u>Construction Site Hoarding</u> – Hoardings should be provided with aesthetic treatment and designed to be subtle and camouflaged. It should be compatible with the surrounding landscape and visually “impermeable” to block the view of construction activities from visual sensitive receivers (VSRs).
CM2	Contractor and Sub-contractor(s)	<u>Temporary Landscape Treatment</u> – Temporary landscape treatment, such as the provision of temporary planting around the Site office in ornamental pots and application of green roof for Site office, should be considered during construction phase. Landscape planting in movable planters should also be considered as a temporary greening measure for the Project area (i.e. along Site hoarding). Design of the green roof and the type of species to be used will be reviewed and confirmed during detailed design stage.
CM3	Contractor and Sub-contractor(s)	<u>Preservation of Existing Vegetation</u> – Disturbance to existing vegetation should be avoided as far as practicable. Where possible, the construction programme should retain all trees in situ that are not in direct conflict with the development proposals. Subject to the detailed design of the proposed Project, a review shall be carried out before commencement of construction phase to assess the potential conflict of the construction activities with existing roadside trees and the need of corresponding measures. Proper protective fencing should be provided by the Contractor to protect the preserved trees before commencement of any works within the Project site. The protective fencing should be erected along or beyond the perimeter of the tree protection zone of each individual tree.
<i>Operation Phase</i>		
OM1	Contractor and Sub-contractor(s), Operator	<u>Compensatory Planting</u> – Compensatory planting should be provided in the landscape area on Level 1 for the 12 trees that are proposed to be felled. The planting would follow the requirements as stipulated in the Development Bureau Technical Circular (Works) (DEVB TC(W)) No. 10/2013, such as the provision of compensatory trees of heavy-standard size in a ratio of 1:1 in terms of number and aggregate diameter at breast height (DBH). The planting location and the type of compensatory plant species should be reviewed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator. A compensatory tree planting proposal should be submitted together with tree removal application for approval by authorities in later stage.

OM2	Contractor and Sub-contractor(s), Operator	<p><u>Landscape Planting near Pedestrian Zone</u> – Landscape areas should be provided along the Site boundary on Level 1 to soften the built structure of the proposed Project. An approximate of 700m² of trees, shrubs or groundcovers shall provide year-round streetscape amenity as well as enhancing visual interest at street level. A mix of native and ornamental trees, shrubs or groundcovers shall be planted to articulate the spatial arrangements as well as to further add to the visual amenity. The type of species to be used will be confirmed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator.</p>
OM3	Contractor and Sub-contractor(s), Operator	<p><u>Green Roof</u> – A multi-patch of landscape area should be provided on the roof of the proposed building to soften the impact of the built structure. An area of approximately 2600m² of shrub, which comprises of a mix of native and ornamental species, is proposed to be provided to enhance the aesthetics of views for those viewing the roof. The type of shrub species will be confirmed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator.</p>
OM4	Contractor and Sub-contractor(s), Operator	<p><u>Hard Landscape Feature and Lighting Design</u> – In order to blend in with the surrounding environment, the exterior of the permanent structure of the proposed Project should use non-reflective external finishes in light colour that is visually unobtrusive with surrounding context. Non-reflective paving materials should be considered to reduce potential glare from surface reflectance. The finishing material and colour should be reviewed and confirmed during detailed design stage.</p> <p>Lighting should be efficiently designed so that minimum amount of lighting is required for safety and security. The design may make reference to the <i>Guidelines on Industry Best Practices for External Lighting Installations</i> by Environmental Bureau, EPD and EMSD. The mounting height and direction of exterior lighting fixtures shall be designed and arranged to point away from sensitive receivers where possible. Specification of lighting operation schedule shall be formed by the operator to impose restriction on lighting operation after business hours, such as limiting the operation of lighting except for security lighting only, and in areas with necessary night-time operation where applicable.</p>

5.3 AUDIT REQUIREMENTS

5.3.1 With proper implementation of mitigation measures, the landscape and visual impact arisen from the proposed Project during construction phase is considered to be minimised. The implementation of mitigation measures shall be checked by site audits to ensure the measures as recommended in the EIA Report are properly undertaken during the construction phase of the proposed Project. It can also provide an effective control of any mal-practices and therefore achieve the continual improvement of the environmental performance on site.

5.3.2 Inspections of construction activities, work sites and works areas should be carried out by the ER, ET and the Contractor at least on a bi-weekly basis to ensure the mitigation measures are properly implemented. The audit should be based on the mitigation measures as recommended in *Table 5.1* and *Appendix 1.2*. The scope of the site audit during construction phase shall include the following:

- The extent of the agreed works areas should be regularly checked. No construction activity or storage shall be undertaken outside the limit of the works;
- The progress of the engineering works on site should be regularly reviewed to identify the earliest practical opportunities for the landscape works to be undertaken;
- The landscaping works are carried out in accordance with the specifications; and
- All new plantings are carried out properly and within the right season.

5.3.3 A Tree Preservation and Removal Proposal (TPRP) should be prepared during detailed design stage in accordance with DEVB TC(W) No. 10/2013 to seek for approval of tree felling from relevant responsible department including the Lands Department. The compensatory planting would be implemented and should be completed before completion of construction phase of the proposed Project. Therefore, EM&A work is not necessary for operation phase in general. Subject to the tree felling approval conditions as required by the approval authorities, monitoring of the compensatory planting after establishment will be conducted, if required.

5.4 EVENT AND ACTION PLAN

5.4.1 Should non-compliance of the landscape and visual impacts occur, actions should be carried out in accordance with the event and action plan as shown in *Table 5.2*.

Table 5.2 Event and Action Plan for Landscape and Visual Impact during Construction Phase

Action Level	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Identify source. 2. Inform the IEC and ER. 3. Discuss remedial actions with the IEC, ER and Contractor. 4. Monitor remedial action until rectification has been completed. 	<ol style="list-style-type: none"> 1. Check report. 2. Check the Contractor's working method. 3. Discuss with the ER and Contractor on possible remedial measures. 4. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods. 2. Rectify damage and undertake remedial measures or any necessary replacement.
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source 2. Inform the IEC and ER. 3. Increase monitoring (site audit) frequency. 4. Discuss remedial actions with the IEC, ER and Contractor. 5. Monitor remedial action until rectification has been completed. 6. If exceedance stops, cease additional monitoring (site audit). 	<ol style="list-style-type: none"> 1. Check report 2. Check the Contractor's working method 3. Discuss with the Engineer's Representative and the Contractor on possible remedial measures 4. Advise the Engineer's Representative on effectiveness of proposed remedial measures 5. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor. 2. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Amend working methods. 2. Rectify damage and undertake remedial measures or any necessary replacement.

6 WASTE MANAGEMENT IMPLICATION

6.1 INTRODUCTION

6.1.1 Regular auditing should be carried out during the construction phase of the proposed Project to ensure wastes are being managed with the appropriate procedures or practices in accordance with relevant legislation and waste management guidelines as well as those recommended in the EIA Report. The audits will examine all aspects of waste management including waste generation, storage, recycling, transportation and disposal.

6.1.2 A Waste Management Plan (WMP), as part of Environmental Management Plan (EMP), should be prepared in accordance with ETWB TC(W) No. 19/2005 and submitted to the ER for approval. The recommended mitigation measures should form the basis of the WMP. The monitoring and auditing requirement stated in ETWB TC(W) No. 19/2005 should be followed with regard to the management of Construction and Demolition (C&D) materials.

6.2 MITIGATION MEASURES

6.2.1 With proper handling, collection, transportation and disposal of waste arising from the construction and operation of the proposed Project, it is anticipated that potential adverse environmental impacts would be avoided or minimised. During site inspections, the ER 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. The following waste management measures should be implemented by the Contractor:

Good Site Practices

- The Contractor shall prepare a Waste Management Plan (WMP) in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Site, for the ER approval. The WMP shall include monthly and yearly Waste Flow Tables that indicate the amounts of waste generated, recycled and disposed of (including final disposal site);
- The Contractor's waste management practices and effectiveness shall be audited by the ER on regular basis;
- The Contractor shall provide training for site staff for the concept of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling;
- The Contractor shall ensure sufficient waste disposal points and regular collection of waste;
- The Contractor shall use trucks with covering for the open-box bed and enclosed container shall be used to minimise windblown litter and dust during transportation of

waste; The Contractor shall implement regular cleaning and maintenance programme for drainage systems, pumps and oil interceptors;

- Separation of chemical wastes for special handling and appropriate treatment at a Chemical Waste Treatment Facility (CWTF);
- Encourage collection of aluminium cans, paper and plastic bottles by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce;
- Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads;
- Make provisions in contract documents to allow and promote the use of recycled aggregates where appropriate;
- No waste shall be burnt on-site;
- A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed;
- Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste; and
- Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilizing them. Night soil should be regularly collected by licensed collectors.

C&D Materials / Waste

- Use standard formwork or pre-fabrication as far as practicable so as to minimise the C&D Materials arising;
- Consider the use of more durable formwork or plastic facing for construction works;
- Avoid the use of wooden hoardings and substitute with metal hoarding to facilitate recycling;
- Purchase of construction materials should be carefully planned in order to avoid over-ordering and wastage;
- Establish a trip-ticket system in accordance with DevB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Construction Waste) Regulation in order to monitor the disposal of inert C&D Materials at public fill and the remaining C&D Waste to landfills, and control fly-tipping;
- Design foundation works to minimise the amount of excavated material to be generated;

- Sort construction debris and excavated materials on-site to recover reusable/recyclable portions (i.e. soil, broken concrete, metal, etc.) for backfilling and reinstatement;
- Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- Specify in design & build contract the use of recycled aggregates where appropriate;
- Plan and stock construction materials carefully to minimise the amount of waste to be generated and to avoid unnecessary generation of waste; and
- Recommend the use of metal fencing or building panels, which are more durable than wooden panels, for the erection of construction site hoarding.

Chemical Waste

- Chemical waste producers should be registered with the EPD;
- Chemical waste should be handled in accordance with the “Code of Practice on the Packaging, Handling and Storage of Chemical Wastes” including but not limited to the followings:
 - Good quality containers compatible with the chemical wastes should be used and maintained in good conditions and securely closed, with incompatible chemicals be stored separately.
 - Appropriate labels should be securely attached on each chemical waste container in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations.
 - A licensed collector to transport and dispose of the chemical wastes should be employed by the Contractor, to either the Chemical Waste Treatment Centre at Tsing Yi, or any other licensed facilities.
- Waste oils, chemicals or solvents should not be discharged to drain; and
- Routine cleaning and maintenance programme for drainage systems, sumps and oil interceptors during operation.

General Refuse

- Sufficient dustbins should be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws;
- Sufficient enclosed bins should be provided for general refuse, food and beverage waste to reduce odour, pest and litter impacts;
- General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes;
- A reliable waste collector should be employed to clear general refuse from the construction site on a daily basis and disposed of to the licensed landfill or refuse transfer station;

- Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated; and
- Waste separation facilities for paper, aluminium cans, plastic bottles, etc. should be provided on-site and collected by individual collectors should be encouraged.

6.3 AUDIT REQUIREMENTS

6.3.1 Regular audits and site inspection should be carried out by the ER, ET and Contractor to ensure that the recommended good site practices and other mitigation measure are implemented by the Contractor. The audits should examine all aspects of waste management 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 Manual. The audit programme will verify the implementation status and evaluate the effectiveness of the mitigation measures.

7 LAND CONTAMINATION

7.1 INTRODUCTION

- 7.1.1 As the land contamination at the Project site was identified to be insignificant during construction and operation phases with the implementation of good site practice and design, no EM&A in relation to contaminated land is required.

8 HAZARD TO LIFE

8.1 INTRODUCTION

8.1.1 As the individual and societal risks of the proposed Project and posed by hazardous installations are acceptable, while the increase in population from the proposed Project has negligible effect on the cumulative societal risk, no specific EM&A for hazard to life is required.

8.2 RECOMMENDATIONS

8.2.1 The following good site practices should be implemented by the Contractor and Operators and checked in routine site inspections and regular audits:

Construction Phase

- ignition of fire on site should be controlled throughout the construction programme;
- any temporary storage of fuel and flammable chemical should be minimised to reduce chance of causing explosion or escalation of fire in the case of emergency event at nearby potentially hazardous sources;
- fire extinguisher or other firefighting equipment should be made easily accessible to on-site workers; and
- establish communication channel and evacuation plan in the case of emergency event at nearby potentially hazardous sources.

Operation Phase

- arrangements and facilities for the storage of any flammable goods should be in strict compliance with relevant legislation and guidelines;
- the building should be carefully designed to allow for rapid evacuation of people in protected routes; and
- proper training on safety procedures and evacuation arrangement should be conducted to enhance building users' capability to handle emergencies. An emergency response plan should be adopted during the operation phase of the depot. The plan should list out emergency procedures, identify members of emergency response teams and summarise contact information of nearby potentially hazardous sources.

9 SITE ENVIRONMENTAL AUDIT AND COMPLIANTS

9.1 SITE INSPECTION

9.1.1 Site inspections should be conducted regularly to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented for the construction works activities associated with the proposed Project, as they are one of the most effective tools to enforce the environmental protection requirements at the works sites and works areas.

9.1.2 The ET Leader should be responsible for formulating the environmental site inspection, deficiency and action reporting system, and conducting the site inspection works. Within 21 days of the commencement of construction works, the ET Leader should submit a proposal for site inspection and deficiency and action reporting procedures to the Contractor for agreement and the IEC and ER for approval. The ET's proposal for rectification should be made known to the IEC.

9.1.3 Regular site inspections should be carried out and led by the ET and attended by the Contractor and ER at least once every week. The areas of inspection should not be limited to the environmental conditions, pollution control and mitigation measures within the works sites and works areas. It should also review the environmental conditions of locations that are beyond the boundary of the works sites and works areas likely to be affected directly or indirectly by the construction site activities. The ET Leader should make reference to the following information when conducting site inspection:

- The EIA and EM&A recommendations on the environmental protection and pollution control mitigation measures;
- On-going results of the EM&A programme;
- The works progress and programme;
- Proposals of individual works methodologies (which should include the proposal of the associated pollution control measures);
- Contract specifications on environmental protection and pollution prevention control;
- The relevant environmental protection and pollution control legislation; and
- Previous site inspection findings that were undertaken by the ET and/or others.

9.1.4 The Contractor should keep the ER and ET updated with all the relevant environmental related information on the construction contract to carry out the site inspections. The inspection findings and associated recommendations for improvements to the environmental protection and pollution control and outcome of the improvement should be recorded and followed up by the Contractor in an agreed timeframe.

9.1.5 The ER, ET and Contractor should also carry out ad hoc site inspections if significant environmental problems are identified. Inspections may also be required subsequent to the

receipt of environmental complaints, or as part of the investigation work, as specified in the Event and Action Plans for the EM&A programme.

9.2 COMPLIANCE WITH LEGAL AND CONTRACTUAL REQUIREMENTS

- 9.2.1 There are contractual requirements and legislation in Hong Kong on environmental protection and pollution control with which the construction activities must comply.
- 9.2.2 To ensure the works are in compliance with the contractual requirements, all method statements of major works should be submitted by the Contractor to the ER for approval and to the ET for vetting so as to ensure whether sufficient environmental protection and pollution control measures have been incorporated.
- 9.2.3 The ER and ET should also review the progress and programme of the construction works in order to check that the relevant environmental legislation has not been violated and that any foreseeable potential for violating laws can be prevented.
- 9.2.4 The Contractor should regularly provide the update of the relevant documents to the ER and ET, so that the checking can be carried out in good time. Such documents should at least include the updated Works Progress Reports, works programme, application letters for environmental licenses/ permits, and copies of all valid licenses/ permits. The Contractor's site diary and environmental records should also be available for inspection by the relevant parties.
- 9.2.5 The ER and ET should advise the Contractor of any non-compliance with the contractual and legislative requirements on the environmental protection and pollution control so that they can timely take the follow-up action as appropriate. If it would still be insufficient to comply with the environmental protection and pollution control requirements, the ER and ET should provide further advice to the Contractor to take remedial action to resolve the problems.
- 9.2.6 Upon the receipt of such advice, the Contractor should undertake the immediate action to remedy the situation. The ER should follow up to ensure that appropriate action has been taken in order to satisfy the contractual and legal requirements.

9.3 ENVIRONMENTAL COMPLAINTS

- 9.3.1 All environmental complaints should be referred to the ET for carrying out complaint investigation procedures. The ET shall prepare a flow chart of the complaint response procedures addressing complaint receiving channels responsible parties/contacts for information, the investigation process, procedures for the implementation of mitigation/remedial action, guidelines for communication and public relation with the complainant etc. The flow chart should be agreed by all parties and issued to the Contractor, ER and IEC for reference.
- 9.3.2 The following procedures should be followed upon receipt of any complaints:

- The ET to log complaint and date of receipt onto the complaint database and inform the ER and IEC immediately;
- The ET to investigate, with the ER, the complaint to determine its validity, and assess whether the source of the problem is due to construction works of the proposed Project with the support of additional monitoring frequency, stations and parameters, if necessary;
- The ET to identify remedial measures in consultation with the IEC and ER if a complaint is valid and due to the construction works of the proposed Project;
- The Contractor to implement the remedial measures as required by the ER and to agree with the ET and IEC any additional monitoring, stations and parameters, where necessary, for checking the effectiveness of the remedial measures;
- The ER, ET and IEC to review the effectiveness of the Contractor's remedial measures and the updated situation;
- The ET 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 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, for submission to EPD within the time frame assigned by the EPD; and
- 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 additional monitoring results in the monthly EM&A reports.

9.3.3 During the complaint investigation, the Contractor and ER should coordinate with the ET to provide all the necessary information and assistance for the completion of the investigation. If mitigation measures are identified to be required, the Contractor should promptly implement such measures and the ER should ensure that the measures have been carried out properly. A flow chart of the complaint response procedures is shown in *Appendix 9.1*.

10 REPORTING

10.1 INTRODUCTION

10.1.1 The types of reports that the ET should prepare and submit include the Baseline Monitoring Report, 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 made available to the Director of Environmental Protection (DEP). All monitoring data (baseline and impact) should be submitted in an electronic medium.

10.2 BASELINE MONITORING REPORT

10.2.1 The ET should prepare and submit a Baseline Monitoring Report within 10 working days of the completion of the baseline monitoring. Copies of the Baseline Monitoring Report should be submitted to the Contractor, IEC, ER and EPD. The ET should liaise with the relevant parties on the exact number of copies required.

10.2.2 The Baseline Monitoring Report should include at least the following information:

- An Executive Summary of up to half a page;
- A brief description of the project background;
- Drawing showing locations of the baseline monitoring stations;
- Monitoring results (in both hard and diskette copies) together with the following information:
 - Monitoring methodology;
 - Name of laboratory and types of equipment used and calibration details;
 - Monitoring parameters;
 - Monitoring locations;
 - Monitoring date, time, frequency and duration; and
 - Quality Assurance (QA)/ Quality Control (QC) results and detection limits.
- Details of the influencing factors, including:
 - Major activities, if any, being carried out on-site during the period;
 - Weather conditions during the period; and
 - Other factors which might affect the monitoring results.

- Determination of the Action and Limit Levels for each monitoring parameter and statistical analysis of the baseline data which should conclude if there is any significant difference between the control and impact stations for the parameters monitored, where appropriate;
- Revisions for inclusion in the EM&A Manual; and
- Comments, recommendation and conclusions.

10.3 MONTHLY EM&A REPORT

Background

- 10.3.1 The results and findings of the EM&A programme required in this Manual should be recorded in the Monthly EM&A Reports prepared by the ET and endorsed by IEC. The EM&A reports should be prepared and submitted within 10 working days from the end of each reporting month, with the first Monthly EM&A Report due in the month after the major construction works commences. Copies of each monthly EM&A report should be submitted to the Contractor, ER, IEC and EPD. Before the submission of the first Monthly EM&A Report, the ET should liaise with the relevant parties on the exact number of copies and format of the reports in both hard and electronic copies.
- 10.3.2 The ET should review the number and location of the monitoring stations and parameters every six months, or on as-needed basis, in order to cater for any changes in the surrounding environment and the nature of works in progress.

First Monthly EM&A Report

- 10.3.3 The first Monthly EM&A Report should include at least but not limited to the following information:
- Executive summary (1-2 pages):
 - Breaches of the Action and Limit levels;
 - Complaint log;
 - Notification of any summons and status of prosecutions;
 - Reporting changes made that affect the EM&A; and
 - Future key issues.
 - Basic project information:
 - The project organisation including key personnel contact names and telephone numbers;
 - The scope of works of the Project

- The construction programme;
- The management structure;
- Works undertaken during the reporting month ; and
- Drawings showing the project area, environmental sensitive receivers and locations of the monitoring and control stations.
- Environmental status:
 - Advice on the status of the statutory environmental compliance, e.g. EP conditions under the EIAO, submission status under the EP and implementation status of mitigation measures, etc.; and
- Works undertaken during the reporting month with illustrations (e.g. location of works, etc.). Summary of EM&A requirements:
 - All monitoring parameters;
 - Environmental quality performance limits (Action and Limit levels);
 - Event and Action Plans;
 - Environmental mitigation measures, as recommended in the EIA Report; and
 - Environmental requirements in contract documents.
- Implementation status:
 - Advice on the implementation status of environmental protection and pollution control mitigation measures as recommended in the EIA Report, summarised in the updated implementation schedule.
- Monitoring results (in both hard and diskette copies) together with the following information:
 - Monitoring methodology;
 - Name of laboratory and types of equipment used and calibration details;
 - Monitoring parameters;
 - Monitoring locations;
 - Weather condition during the period;
 - Monitoring date, time, frequency and duration;
 - Graphical plots of the monitoring parameters in the reporting month annotated against the following information:

- (i) Major activities being carried out on site during the reporting period;
 - (ii) Weather conditions that may affect the monitoring results;
 - (iii) Any other factors which might affect the monitoring results; and
 - (iv) QA/QC results and detection limits.
- The report on the non-compliance, complaints, notifications of summons and status of prosecutions:
 - Records of all non-compliance (exceedances) of the environmental quality performance limits (Action and Limit levels);
 - Records of all complaints received (written or verbal), including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
 - Records of all notifications 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;
 - The review of the reasons for an implications of non-compliances, complaint, summons and prosecutions including review of pollution sources and working procedures; and
 - Description of the actions taken in the event of non-compliances and deficiency reporting and any follow-up procedures related to the earlier non-compliances.
- Others:
 - A forecast of the works programme, impact predictions and monitoring schedule for the next three months;
 - 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;
 - Comparisons of the EM&A data in the reporting month with the EIA predictions and annotate with explanation for any discrepancies; and
 - Comments (e.g. the effectiveness and effectiveness and efficiency of mitigation measures), recommendations (e.g. any improvement in the EM&A programme) and conclusions.
- Appendices:
 - Action and Limit levels;

- Graphical plots of trends of the monitored parameters at key stations over the past four reporting periods for the representative monitoring stations annotated against the following information:
 - (i) Major activities being carried out on site during the reporting period;
 - (ii) Weather conditions during the reporting period; and
 - (iii) Any other factors that might affect the monitoring results.
- The monitoring schedule for the present and next reporting period;
- Cumulative statistics on complaints, notifications of summons and successful prosecutions; and
- Outstanding issues and deficiencies.

Subsequent Monthly EM&A Reports

10.3.4 The subsequent monthly EM&A reports during the construction phase should include the following information:

- Executive summary (1-2 pages):
 - Breaches of the Action and Limit levels;
 - Complaint log;
 - Notifications of any summons and status of prosecutions;
 - Reporting changes made that affect the EM&A; and
 - Future key issues.
- Basic project information:
 - The project organisation including key personnel contact names and telephone numbers;
 - The scope of works of the Project;
 - The construction programme;
 - The management structure;
 - Works undertaken during the reporting month; and
 - Drawings showing the project area, environmental sensitive receivers and locations of the monitoring and control stations.
- Environmental status:

- Advice on the status of statutory environmental compliance, status of compliance with 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
- Implementation status:
 - Advice on the implementation status of environmental protection and pollution control/ mitigation measures as recommended in the EIA Report, summarised in the updated implementation schedule.
- Monitoring results (in both hard and diskette copies) together with the following information:
 - Monitoring methodology;
 - Name of laboratory and types of equipment used and calibration details;
 - Parameters monitored;
 - Monitoring locations;
 - Weather conditions during the period;
 - Monitoring date, time, frequency and duration;
 - Graphic plots of the monitoring parameter in the month annotated against the following information:
 - (i) Major activities being carried out on site during the reporting period;
 - (ii) Weather conditions that may affect the monitoring results;
 - (iii) Any other factors which might affect the monitoring results; and
 - (iv) QA/QC results and detection limits.
- The report on non-compliances, complaints, notifications of summons and status of prosecutions:
 - Records of all non-compliance (exceedances) of the environmental quality performance limits (action and Limit levels);
 - Records of all complaints received (written or verbal), including the locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
 - Records of all notifications 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;
- The review of the reasons for and implications of non-compliances, complaints, summons and prosecutions including review of pollution sources and working procedures; and
 - Descriptions of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to the earlier non-compliances.
- Others:
 - A forecast of the works programme, impact predictions and monitoring schedule for the next three months;
 - 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;
 - Comparisons of the EM&A data in the reporting month with the EIA predictions and annotate with explanation for any discrepancies; and
 - Comments (e.g. the effectiveness and efficiency of the mitigation measures), recommendations (e.g. any improvement in the EM&A programme) and conclusions.
 - Appendices:
 - Action and Limit levels;
 - Graphical plots of trends of the monitored parameters at key stations over the past four reporting periods for the representative monitoring stations annotated against the following information:
 - (i) Major activities being carried out on site during the reporting period;
 - (ii) Weather conditions during the reporting period; and
 - (iii) Any other factors that might affect the monitoring results.
 - The monitoring schedule for the present and next reporting period;
 - Cumulative statistics on complaints, notifications of summons and successful prosecutions; and
 - Outstanding issues and deficiencies.

Final EM&A Review Report – Construction Phase

- 10.3.5 The EM&A programme should be terminated upon the completion of the construction activities that have the potential to cause significant environmental impacts.
- 10.3.6 Prior to the proposed termination, it may be advisable to consult the relevant local communities. The proposed termination should only be implemented after the proposal has been endorsed by the IEC, the ER and the Project Proponent followed by the approval from the Director of Environmental Protection. The EM&A programme will be proposed to be ceased based on following conditions:
- Completion of construction activities and insignificant environmental impacts of the remaining outstanding construction works;
 - Trends analysis to demonstrate the narrow down of monitoring exceedances due to construction activities and, return of ambient environmental conditions in comparison with baseline data; and
 - No environmental complaint and prosecution involved.
- 10.3.7 The ET should prepare and submit the Final EM&A Review Report within 14 working days after the completion of the construction activities that have the potential to cause significant environmental impacts. The Final EM&A Review Report should contain at least the following information:
- Executive summary (1-2 pages);
 - Drawings showing the project area, environmental sensitive receivers and locations of the monitoring and control stations;
 - The basic project information including a synopsis of the project organisation, contacts of key management, and a synopsis of works undertaken during the course of the project or past twelve months;
 - A brief summary of EM&A requirements including:
 - Environmental mitigation measures implemented as recommended in the EIA Report;
 - Environmental impact hypotheses tested;
 - Environmental quality performance limits (Action and Limit levels);
 - Monitoring parameters; and
 - Event and Action Plans.
 - A summary of the implementation status of environmental protection and pollution control/ mitigation measures, as recommended in the EIA Report, summarised in the updated environmental mitigation implementation schedule;

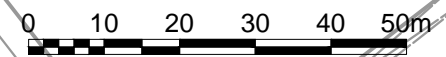
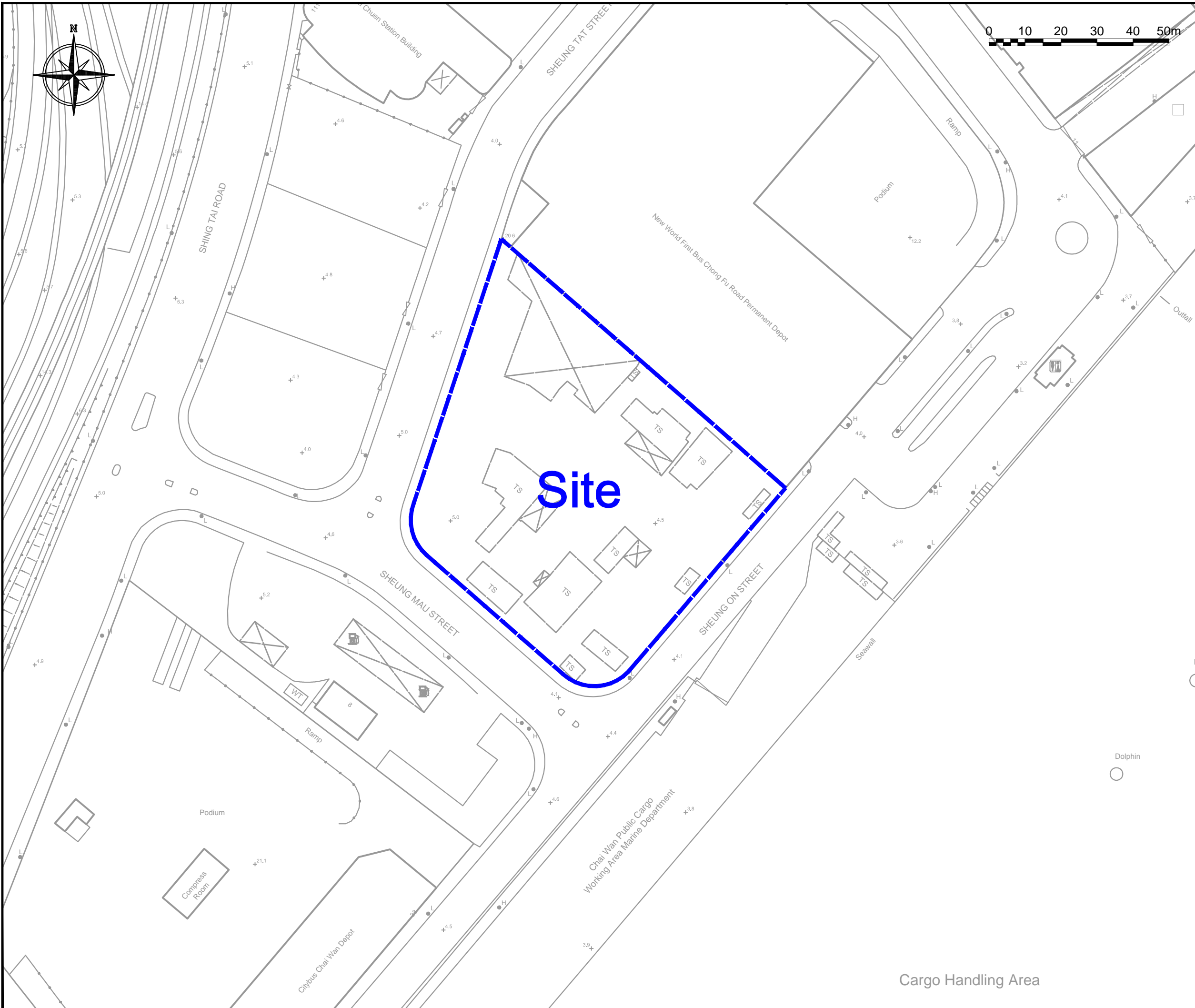
- Graphical plots and statistical analysis of the trends of the monitored parameters over the course of the project, including the post-project monitoring for all monitoring stations annotated against:
 - Major activities being carried out on site during the reporting period;
 - Weather conditions during the reporting period;
 - Any other factors which might affect the monitoring results; and
 - Baseline condition.
- A summary of non-compliance (exceedances) of the environmental quality performance limits (Action and Limit levels);
- A review of the reasons for and implications of non-compliances including the review of pollution sources and working procedures as appropriate;
- A description of the action taken in the event of non-compliances;
- A summary record of all complaints received (written or verbal), liaison and consultation undertaken, action and follow-up procedures taken;
- A summary record of the notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislation, locations and nature of the breaches, follow-up investigation taken and results;
- A review of the validity of EIA predictions and identification of shortcomings in the recommendations of the EIA study;
- Comments (e.g. a review of the effectiveness and efficiency of the mitigation measures and of the performance of the environmental management system, i.e., of the overall EM&A programme); and
- Recommendations and conclusions (e.g. a review of the success of the overall EM&A programme to cost-effectively identify deterioration and to initiate prompt effective mitigation action when necessary).

10.4 DATA KEEPING

- 10.4.1 No site-based documents (e.g. the monitoring field records, laboratory analysis records, site inspection form, etc.) are required to be included in the EM&A reporting documents. However, any such documents should be properly maintained by the ET and be ready for inspection upon request. All relevant information should be clearly and systematically recorded in the document. The monitoring data should also be recorded in magnetic media form, and the electronic copy must be available upon request. All documents and data should be kept for at least one year following the completion of the construction phase EM&A for each construction contract.

10.5 INTERIM NOTIFICATION OF ENVIRONMENTAL EXCEEDANCE

- 10.5.1 With reference to the Event and Action Plans, when the environmental quality performance limits are exceeded, the ET should immediately notify the Contractor, ER, IEC and EPD, as appropriate. The notification should be followed up with advice to the IEC and EPD on the results of the investigation, proposed action and success of the action taken, with any necessary follow-up proposals. A sample template for the interim notification is presented in *Appendix 10.1* of this Manual.



NOTES :

--- Site Boundary

Consultant



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Project No. : 1158

File Name :

Project :
Chai Wan Government Complex
and Vehicle Depot

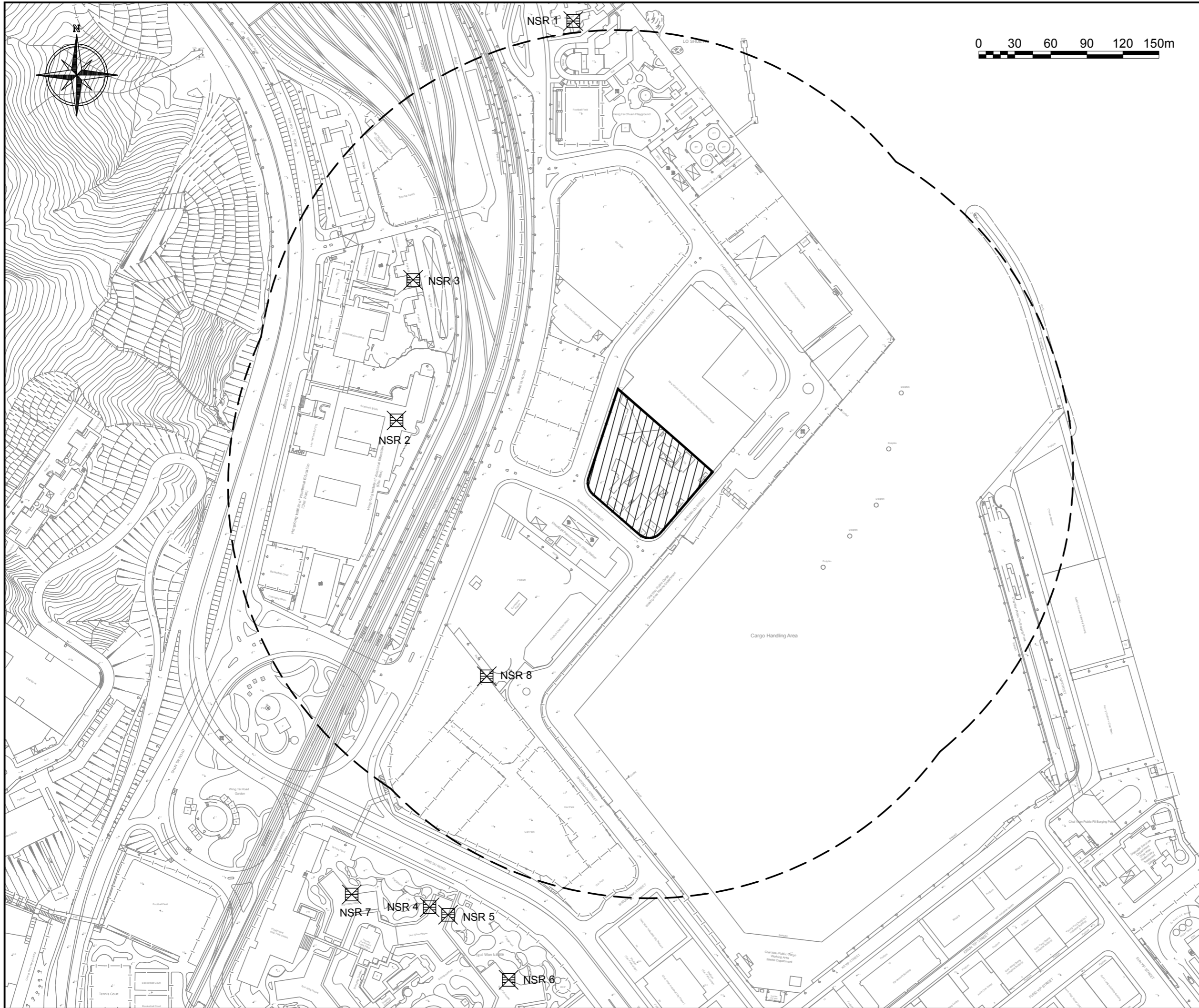
Drawing Title :
Site Location Plan

Drawing No : Figure 1.1	Revision : 1
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


Scale : As shown	Date : September 2014
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Cargo Handling Area



NOTES :

- 
NSR 1
Noise Sensitive Receiver
- 
300m from Site Boundary
- 
Project Site

Consultant



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Project No. : 1158

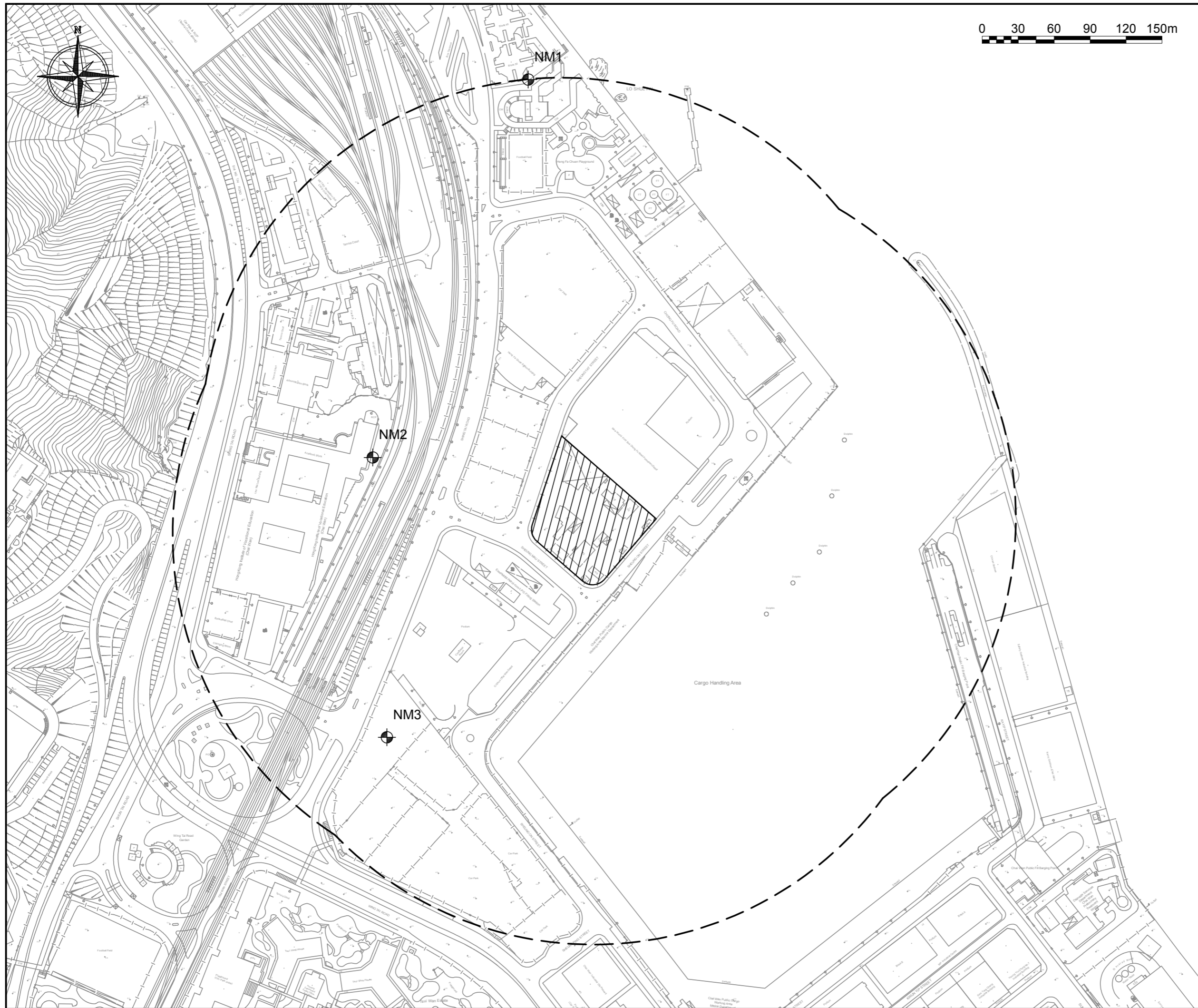
File Name :

Project :
 Chai Wan Government Complex
 and Vehicle Depot




Drawing Title :
 Locations of Representative Noise Sensitive
 Receivers

Drawing No : Figure 3.1	Revision : 2
Scale : As shown	Date : December 2014

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NOTES :

-  NM1 Noise Monitoring Point
-  300m from Site Boundary
-  Project Site

Consultant



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ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

Project No. : 1158

File Name :

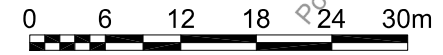
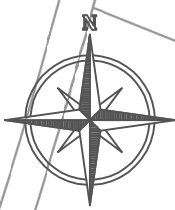
Project :
Chai Wan Government Complex
and Vehicle Depot

Drawing Title :
Locations of
Designated Noise Monitoring Stations





Drawing No : Figure 3.2	Revision : 1
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Scale : As shown	Date : December 2014
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NOTES :

-  Compensatory Tree
-  Shrubs
-  Paving
-  Building Boundary

* OM: Operation Mitigation Measure

Consultant



Allied Environmental Consultants Limited
ACOUSTICIANS & ENVIRONMENTAL ENGINEERS

Project No. : 1158

File Name :

Project :

Chai Wan Government Complex
and Vehicle Depot

Drawing Title :

Preliminary Master Landscape Plan

Drawing No. :

Figure 5.1

Revision :

3

Scale :

As shown

Date :

May 2015

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Appendix 1.1

Preliminary Construction Programme

Appendix 1.2

Environmental Mitigation Implementation Schedule (EMIS)

Implementation Schedule for Environmental Mitigation Measures (EMIS)

Note # DS = Design; C = Construction; O = Operation; DC = Decommissioning

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
Air Quality									
4.8.2	2.3.1	<p>Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices:</p> <ul style="list-style-type: none"> • Use of regular watering, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather; • Use of frequent watering for particularly dusty construction areas close to ASRs; • Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines; • Open temporary stockpiles should be avoided or covered. Prevent placing dusty material storage plies near ASRs; • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations; • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site; • Imposition of speed controls for vehicles on unpaved site roads. 8 km/hr is the recommended limit; • Routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) , if applicable, should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3-sides; and • Loading, unloading, transfer, handling or storage of large amount of cement or dry PFA should be carried out in a totally enclosed system or facility, and nay vent or exhaust should be fitted with the an effective fabric filter or 	All work sites	Contractor and sub-contractor(s)	Air Pollution Control Ordinance		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		equivalent air pollution control system.							
4.10.2	2.3.2	There will be metal tailgate cover and deodourisation system with odour removal efficiency of 85% or above equipped in every RCVs of the FEHD Depot to mitigate the spread of odour.	FEHD Depot	FEHD	Waste Disposal (Designated Waste Disposal Facility) Regulation			✓	
4.10.2	2.3.2	Activated carbon or scrubber will be equipped in the GL to treat the extracted gases from fumehood prior to discharge.	GL Specialist Laboratory	Contractor, sub-contractor(s) and GL	-	✓		✓	
Noise									
5.8.3	3.4.1 – 3.4.2	<p>Selection and Optimisation of Construction Processes</p> <ul style="list-style-type: none"> Carefully arrange the timing and sequencing of the various construction activities according to the actual site work situation; Limit the quantity of PME to be operated concurrently; In the case during school examination, more stringent construction noise criteria should be imposed, the potentially most disruptive construction activities should be avoided, and arranged to be conducted during school holidays as far as practicable; and Preparation of the Construction Noise Management Plan. 	All work sites	Contractor and sub-contractor(s)	EIAO, Noise Control Ordinance		✓		
5.8.4 – 5.8.6	3.4.1 – 3.4.2	<p>Use of QPME and Quiet Working Methods</p> <p>In order to reduce the excessive noise impacts at the NSRs, quieter PME are recommended. Whilst quieter PME are listed, the Contractor may be able to obtain particular models of plant that are quieter than the PMEs given in GW-TM. The associated mitigation measures to the particular PME should be reviewed by the Contractor.</p> <p>The use of plants with SWLs less than those in the GW-TM are summarized in Table 5.14 of the EIA report and the proposed mitigated plant inventory for the</p>	All work sites	Contractor and sub-contractor(s)	EIAO, Noise Control Ordinance		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		construction works of the proposed Project is detailed in <i>Appendix 5.8</i> .							
5.8.7 – 5.8.8	3.4.1 – 3.4.2	Use of movable noise barriers The use of movable noise barrier for certain PME could further minimize the construction noise impact. In general 5dB(A) reduction for mobile PME and 10dB(A) for stationary PME can be achieved provided that the direct line-of site of the PME is blocked. The Contractor shall be responsible for the design of the movable noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and the PME, as well as ensuring that the barriers should have no openings and gaps.	All work sites	Contractor and sub-contractor(s)	EIAO, Noise Control Ordinance		✓		
5.8.9	3.4.1 – 3.4.2	Good site practices <ul style="list-style-type: none"> • Use of well-maintained and regularly-serviced plant during the works; • Plant operating on intermittent basis should be turned off or throttled down to a minimum; • Plant known to emit noise strongly in one direction should be orientated to face away from the NSRs; • Silencers, mufflers and enclosures for plant should be used where possible and properly maintained throughout the works; • Where possible fixed plants should be sited away from NSRs; and • Stockpiles of excavated materials and other structures such as site buildings should be used effectively to screen noise from the works. 	All work sites	Contractor and sub-contractor(s)	EIAO, Noise Control Ordinance		✓		
5.8.10 – 5.8.11	3.4.3	Avoid the vehicle repair activities to be carried out during nighttime period.	EMSD Depot	EMSD	EIAO, Noise Control Ordinance			✓	
5.8.12 – 5.8.13	3.4.3	Provided that the fixed plants are properly selected with mitigation measures where necessary to meet the maximum allowable SWLs, no adverse residual impacts would be anticipated.	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s); HKPF, FEHD,	EIAO, Noise Control Ordinance	✓		✓	

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		<p>However, it is still recommended that the following noise reduction measures be considered as far as practicable during the processes of detailed design:</p> <ul style="list-style-type: none"> Apply noise mitigation measures including silencers, acoustic louvers and acoustic enclosure where necessary; As part of the design process, commissioning test should be conducted to ensure the compliance of relevant fixed plant noise criteria; and Develop and implement a regularly scheduled plant maintenance programme to ensure that equipment is properly operated and services in order to maintain controlled level of noise. The programme should be implemented by properly trained personnel. 		EMSD and GL					
Water Quality & Sewerage									
6.9.1	4.4.2	<p>In accordance with Professional Persons Environmental Consultative Committee Practice Notes (ProPECC PN) 1/94, potential water quality impact shall be minimised by the implementation of construction phase mitigation measures and general good site practice including the following:</p> <ul style="list-style-type: none"> At the establishment of works site, perimeter cut-off drains to direct off-site water around the Site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided to divert the stormwater to silt removal facilities. Dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the run-off discharge into an appropriate watercourse, through a silt/sediment trap. Silt/sediment traps should also be incorporated in the permanent drainage channels to enhance deposition rates; The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions. The sizes may vary depending upon the flow rate, but for a flow rate of 0.1m³/s, a sedimentation basin of 30m³ would be required and for a 	All work sites	Contractor and sub-contractor(s)	Water Pollution Control Ordinance		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		<p>flow rate of 0.5m³/s the basin would be 150m³. The detailed design of the sand/silt raps should be undertaken by the Contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> The construction works should be programmed to minimise surface excavation works during rainy seasons (April to September), as possible. All exposed earth areas should be completed and vegetated as soon as possible after completion of the earthwork, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means; The overall slope of works sites should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads should be protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during the prolonged periods of inclement weather and the reduction of surface sheet flows; All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure their proper and efficient operation at all times particularly following rainstorms. Deposited silts and grits should be removed regularly and disposed of by spreading evenly over stable, vegetated areas; Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet season is inevitable, they should be dug and backfilled in short sections wherever practicable. The water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities; All open stockpiles of construction materials (for example, aggregates, sand and fill materials) should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system; Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials 							

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						DS	C	O	DC
		<p>or debris being washed into the drainage system and storm run-off being directed into foul sewers;</p> <ul style="list-style-type: none"> • Precautions to be taken at any time of the year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted and during or after rainstorms, are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface run-off during storm events; • All vehicles and plants should be cleaned before leaving the Project site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at the exit of Project site where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-washing bay to public roads should be paved with sufficient backfall toward the wheel-washing bay to prevent vehicle tracking of soil and silty water to public roads and drains; • Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. Oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for oil interceptors to prevent flushing during heavy rain. Any drainage channels connecting storm drains via designed sand/silt removal facilities should be disconnected/removed after completion of construction stage to prevent any direct discharge to the stormwater system; • The construction solid waste, debris and rubbish on-site should be collected, handled and disposed of properly to avoid causing any water quality impacts. The requirements for solid waste management are detailed in Section 8 of EIA report; and • All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching the nearby WSRs. 							

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
6.9.3	4.4.3	There is a need to apply to the EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements as specified in the discharge licence. All the run-off and wastewater generated from the works areas should be treated so that it satisfies all the standards listed in the Technical Memorandum. Minimum distances of 100 m should be maintained between the discharge points of construction site effluent and the existing seawater intakes. In addition, no new effluent discharges in nearby typhoon shelters should be allowed. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., would minimise water consumption and reduce the effluent discharge volume.	All work sites	Contractor and sub-contractor(s)	Water Pollution Control Ordinance		✓		
6.9.4	4.4.4	Portable chemical toilets and sewage holding tanks are recommended for the handling of the construction sewage generated by the workforce. A licenced contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	All work sites	Contractor and sub-contractor(s)	Water Pollution Control Ordinance Waste Disposal (Chemical Waste)(General) Regulation		✓		
6.9.6	4.4.5	Any maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should be undertaken within the areas appropriately equipped to control these discharges.	All work sites	Contractor and sub-contractor(s)	Water Pollution Control Ordinance		✓		
6.9.7	4.4.6	All sewage arising from the proposed Project should be collected and diverted to the public foul water drainage system via proper connections to minimise water quality impact from the operation of the Project and ensure compliance with Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters under the Water Pollution Control Ordinance (WPCO-TM).	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), HKPF, FEHD, EMSD and GL	Water Pollution Control Ordinance	✓		✓	
6.9.8	4.4.7	Run-offs from the covered areas including vehicle washing bays and vehicle examination / maintenance / repair / testing area would be properly treated prior to discharge into the foul water drainage system. The wastewater treatment	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), HKPF, FEHD,	Water Pollution Control Ordinance	✓		✓	

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		facilities for the proposed Project, which comprised of petrol interceptor and sedimentation tank, would be designed using sedimentation process with adequate treatment capacity. Oily waste collected by petrol interceptors is considered and disposed of as chemical waste. The wastewater treatment facilities for the proposed Project will be designed during the detailed design stage and the treated effluent for discharging into the public foul water drainage system should comply with the effluent standards as stated in the WPCO-TM.		EMSD and GL					
6.9.9	4.4.8	Best practices with appropriate management should be implemented during transfer of operation chemicals. Each chemical container should be provided with drip trays at storage. In case of chemical spillage, licensed collector would be appointed for waste collection.	The Government Complex and Vehicle Depot	HKPF, FEHD, EMSD and GL	Water Pollution Control Ordinance			✓	
6.9.10	4.4.9	There is a need to apply to the EPD for a discharge licence for discharge of the operational effluent from the proposed Project under the Water Pollution Control Ordinance. The discharge quality must meet the requirements as specified in the discharge licence.	The Government Complex and Vehicle Depot	HKPF, FEHD, EMSD and GL	Water Pollution Control Ordinance			✓	
Landscape and Visual									
7.8.2	5.2.1	Hoardings should be provided with aesthetic treatment and designed to be subtle and camouflaged. It should be compatible with the surrounding landscape and visually “impermeable” to block the view of construction activities from VSRs.	All work sites	Contractor and sub-contractor(s)			✓		
7.8.3	5.2.1	Temporary landscape treatment, such as the provision of temporary landscape planting around the Site office in ornamental pots and application of green roof for Site office, should be considered during construction phase. Landscape planting in movable planters should also be considered as a temporary greening measure for the Project area (i.e. along Site hoarding). Design of the green roof and the type of species to be used shall be reviewed and confirmed during detailed design stage.	All work sites	Contractor and sub-contractor(s)		✓	✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
7.8.4	5.2.1	Disturbance to existing vegetation should be avoided as far as practicable. Where possible, the construction programme should retain all trees in situ that are not in direct conflict with the development proposals. Subject to the detailed design of the proposed Project, a review shall be carried out before commencement of construction phase to assess the potential conflict of the construction activities with existing roadside trees and the need of corresponding measures. Proper protective fencing should be provided by the Contractor to protect the preserved trees before commencement of any works within the Project site. The protective fencing should be erected along or beyond the perimeter of the tree protection zone of each individual tree.	All work sites	Contractor and sub-contractor(s)			✓		
7.8.5	5.2.1	Compensatory planting should be provided in the landscape area on Level 1 for the 12 trees that are proposed to be felled. The planting would follow the requirements as stipulated in Development Bureau Technical Circular (Works) (DEVB TC(W)) No. 10/2013, such as the provision of compensatory trees of heavy-standard size in a ratio of 1:1 in terms of number and aggregate diameter at breast height (DBH). The planting location and the type of compensatory plant species will be reviewed during detailed design stage. A compensatory tree planting proposal should be submitted together with tree removal application for approval by authorities in later stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator.	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), Operator	DEVB TC(W) No. 10/2013	✓	✓	✓	
7.8.6	5.2.1	Landscape areas should be provided along the Site boundary on Level 1 to soften the built structure of the proposed Project. An approximate of 700m ² of trees, shrubs or groundcovers shall provide year-round streetscape amenity as well as enhancing visual interest at street level. A mix of native and ornamental trees, shrubs or groundcovers shall be planted to articulate the spatial arrangements as well as to further add to the visual amenity. The type of species to be used will be	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), Operator		✓	✓	✓	

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		confirmed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator.							
7.8.7	5.2.1	A multi-patch of landscape area should be provided on the roof of the proposed building to soften the impact of the built structure. An area of approximately 2600m ² of shrub, which comprises of a mix of native and ornamental species, is proposed to be provided to enhance the aesthetics of views for those viewing the roof. The type of shrub species will be confirmed during detailed design stage. The planting should be commenced during construction stage and be completed before the completion of construction stage to ensure the measure will be implemented on Day 1 of operation stage. Vegetation maintenance should be provided by the Operator.	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), Operator		✓	✓	✓	
7.8.8 7.8.9	5.2.1	The exterior of the permanent structure of the proposed Project should use non-reflective external finishes in light colour that is visually unobtrusive with surrounding context. Non-reflective paving materials should be considered to reduce potential glare from surface reflectance. The finishing material and colour will be reviewed and confirmed during detailed design stage. Lighting should be efficiently designed so that minimum amount of lighting is required for safety and security. The design may make reference to the Guidelines on Industry Best Practices for External Lighting Installations by Environmental Bureau, EPD and EMSD. The mounting height and direction of exterior lighting fixtures shall be designed and arranged to point away from sensitive receivers where possible. Specification of lighting operation schedule shall be formed by the operator to impose restriction on lighting operation after business hours, such as limiting the operation of lighting except for security lighting only, and in areas with necessary night-time operation where applicable.	The Government Complex and Vehicle Depot	Contractor and sub-contractor(s), Operator		✓		✓	
Waste Management									

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
8.5.1	6.2.1	<p>Recommendations for good site practices:</p> <ul style="list-style-type: none"> The Contractor shall prepare a Waste Management Plan (WMP) in accordance with the requirements set out in the ETWB TCW No. 19/2005, Waste Management on Construction Site, for the Engineer's Representative approval. The WMP shall include monthly and yearly Waste Flow Tables that indicate the amounts of waste generated, recycled and disposed of (including final disposal site); The Contractor's waste management practices and effectiveness shall be audited by the Engineer's Representative on regular basis; The Contractor shall provide training for site staff for the concept of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling; The Contractor shall ensure sufficient waste disposal points and regular collection of waste; The Contractor shall use trucks with covering for the open-box bed and enclosed container shall be used to minimise windblown litter and dust during transportation of waste; The Contractor shall implement regular cleaning and maintenance programme for drainage systems, pumps and oil interceptors; Separation of chemical wastes for special handling and appropriate treatment at a Chemical Waste Treatment Facility (CWTF); Encourage collection of aluminium cans, paper and plastic bottles by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the workforce; Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; Wheel washing facilities shall be used by all trucks leaving the site to prevent transfer of mud onto public roads; 	All works sites	Contractor and Sub-contractors	Waste Disposal Ordinance, Land (Miscellaneous Provisions) Ordinance, DEVB TC(W) No. 6/2010, ETWB TC(W) No. 19/2005		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		<ul style="list-style-type: none"> • Make provisions in contract documents to allow and promote the use of recycled aggregates where appropriate; • No waste shall be burnt on-site; • A recording system for the amount of wastes generated, recycled and disposed (including disposal sites) should be proposed; • Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste; and • Adequate numbers of portable toilets should be provided for on-site workers. Portable toilets should be maintained in reasonable states, which will not deter the workers from utilizing them. Night soil should be regularly collected by licensed collectors. 							
8.5.1	6.2.1	<p><u>C&D Materials / Waste:</u></p> <ul style="list-style-type: none"> • Use standard formwork or pre-fabrication as far as practicable so as to minimise the C&D Materials arising; • Consider the use of more durable formwork or plastic facing for construction works; • Avoid the use of wooden hoardings and substitute with metal hoarding to facilitate recycling; • Purchase of construction materials should be carefully planned in order to avoid over-ordering and wastage; • Establish a trip-ticket system in accordance with DevB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Construction Waste) Regulation in order to monitor the disposal of inert C&D Materials at public fill and the remaining C&D Waste to landfills, and control fly-tipping; • Design foundation works to minimise the amount of excavated material to be generated; • Sort construction debris and excavated materials on-site to recover 	All work sites	Contractor and Sub-contractors	Waste Disposal Ordinance, Land (Miscellaneous Provisions) Ordinance, DEVB TC(W) No. 6/2010, ETWB TC(W) No. 19/2005		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		<p>reusable/recyclable portions (i.e. soil, broken concrete, metal, etc.) for backfilling and reinstatement;</p> <ul style="list-style-type: none"> Segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; Specify in design & build contract the use of recycled aggregates where appropriate; Plan and stock construction materials carefully to minimise the amount of waste to be generated and to avoid unnecessary generation of waste; and Recommend the use of metal fencing or building panels, which are more durable than wooden panels, for the erection of construction site hoarding. 							
8.5.1	6.2.1	<p><u>Chemical waste:</u></p> <ul style="list-style-type: none"> Chemical waste producers should be registered with the EPD; Chemical waste should be handled in accordance with the “Code of Practice on the Packaging, Handling and Storage of Chemical Wastes” including but not limited to the followings: <ul style="list-style-type: none"> Good quality containers compatible with the chemical wastes should be used and maintained in good conditions and securely closed, with incompatible chemicals be stored separately. Appropriate labels should be securely attached on each chemical waste container in English and Chinese according to the instructions prescribed in Schedule 2 of the Regulations. A licensed collector to transport and dispose of the chemical wastes should be employed by the Contractor, to either the Chemical Waste Treatment Centre at Tsing Yi, or any other licensed facilities. Waste oils, chemicals or solvents should not be discharged to drain; and Routine cleaning and maintenance programme for drainage systems, sumps 	The Government Complex and Vehicle Depot	Contractor and Sub-contractor; HKPF, FEHD, EMSD and GL	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, Waste Disposal (Chemical Waste) (General) Regulation		✓	✓	

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		and oil interceptors during operation.							
8.5.1	6.2.1	<p><u>General refuse:</u></p> <ul style="list-style-type: none"> Sufficient dustbins should be provided for storage of waste as required under the Public Cleansing and Prevention of Nuisances By-laws; Sufficient enclosed bins should be provided for general refuse, food and beverage waste to reduce odour, pest and litter impacts; General refuse arising on-site should be stored in enclosed bins or compaction units separately from C&D and chemical wastes; A reliable waste collector should be employed to clear general refuse from the construction site on a daily basis and disposed of to the licensed landfill or refuse transfer station; Office wastes can be reduced by recycling of paper if such volume is sufficiently large to warrant collection. Participation in a local collection scheme by the Contractor should be advocated; and Waste separation facilities for paper, aluminium cans, plastic bottles, etc. should be provided on-site and collected by individual collectors should be encouraged. 	The Government Complex and Vehicle Depot	Contractor and Sub-contractor; HKPF, FEHD, EMSD and GL	-		✓	✓	
Land Contamination									
N/A	N/A	N/A	N/A	N/A	N/A				
Hazard to Life									
10.11.1	8.2.1	<p>Recommendations for good site practices in construction phase:</p> <ul style="list-style-type: none"> ignition of fire on site should be controlled throughout the construction programme; any temporary storage of fuel and flammable chemical should be minimised to reduce chance of causing explosion or escalation of fire in the case of emergency event at nearby potentially hazardous sources; 	All works area	Contractor and sub-contractors	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes		✓		

EIA Ref.	EM&A Manual Ref.	Environmental Protection Measures	Location/ Duration of Measures/ Timing of Completion of Measures	Implementation Agent	Relevant Legislation & Guidelines	Implementation Stage #			
						DS	C	O	DC
		<ul style="list-style-type: none"> fire extinguisher or other firefighting equipment should be made easily accessible to on-site workers; and establish communication channel and evacuation plan in the case of emergency event at nearby potentially hazardous sources. 							
10.11.2	8.2.1	<p>Recommendations for good site practices in operation phase:</p> <ul style="list-style-type: none"> arrangements and facilities for the storage of any flammable goods should be in strict compliance with relevant legislation and guidelines; the building should be carefully designed to allow for rapid evacuation of people in protected routes; and proper training on safety procedures and evacuation arrangement should be conducted to enhance building users' capability to handle emergencies. An emergency response plan should be adopted during the operation phase of the depot. The plan should list out emergency procedures, identify members of emergency response teams and summarise contact information of nearby potentially hazardous sources. 	The Government Complex and Vehicle Depot	HKPF, FEHD, EMSD and GL	Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	✓		✓	

Appendix 3.1

Sample Data Record Sheet for Noise Monitoring

Noise Monitoring Field Record Sheet

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

Name & Designation

Signature

Date

Recorded By :

Checked By :

Appendix 3.2

Photos of Existing Representative Noise Sensitive Receivers

Photos of the Representative NSRs

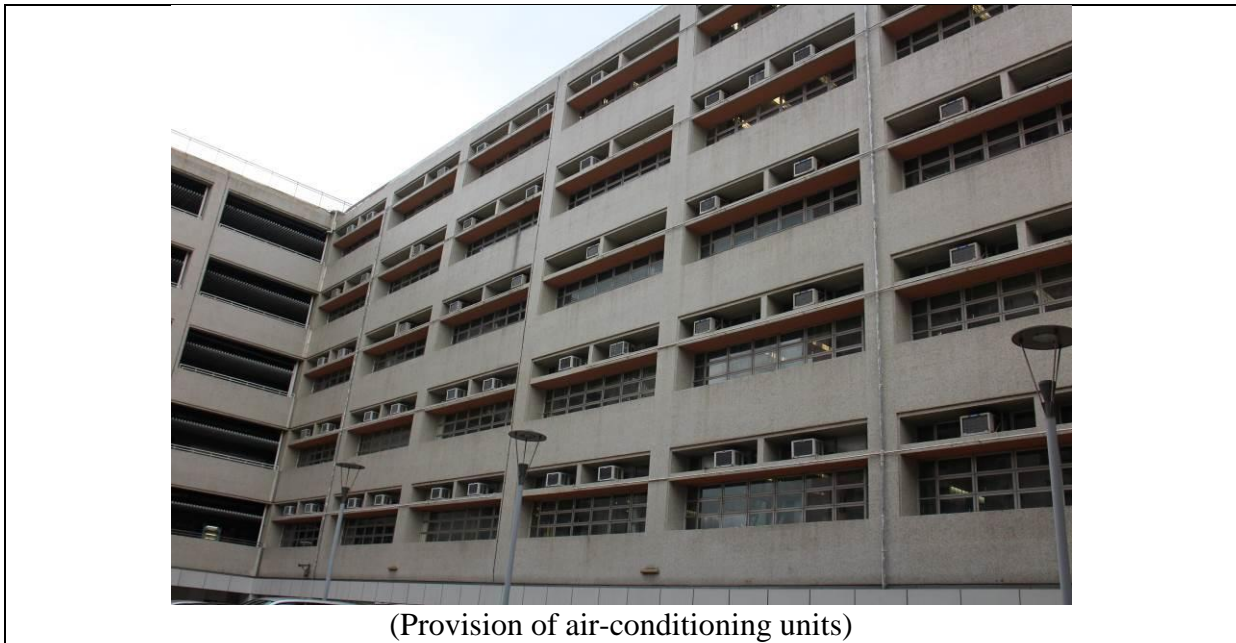
NSR 1 Heng Fa Chuen Block 50



NSR 2 Hong Kong Institute of Vocational Education (Chai Wan) - Academic Block



Photos of the Representative NSRs



NSR 3 Knight Court Flat C & D



NSR 4 Tsui Shou House, Tsui Wan Estate



Photos of the Representative NSRs

NSR 5 Endeavourers Chan Cheng Kit Wan Kindergarten



NSR 6 Tsui Fuk House, Tsui Wan Estate

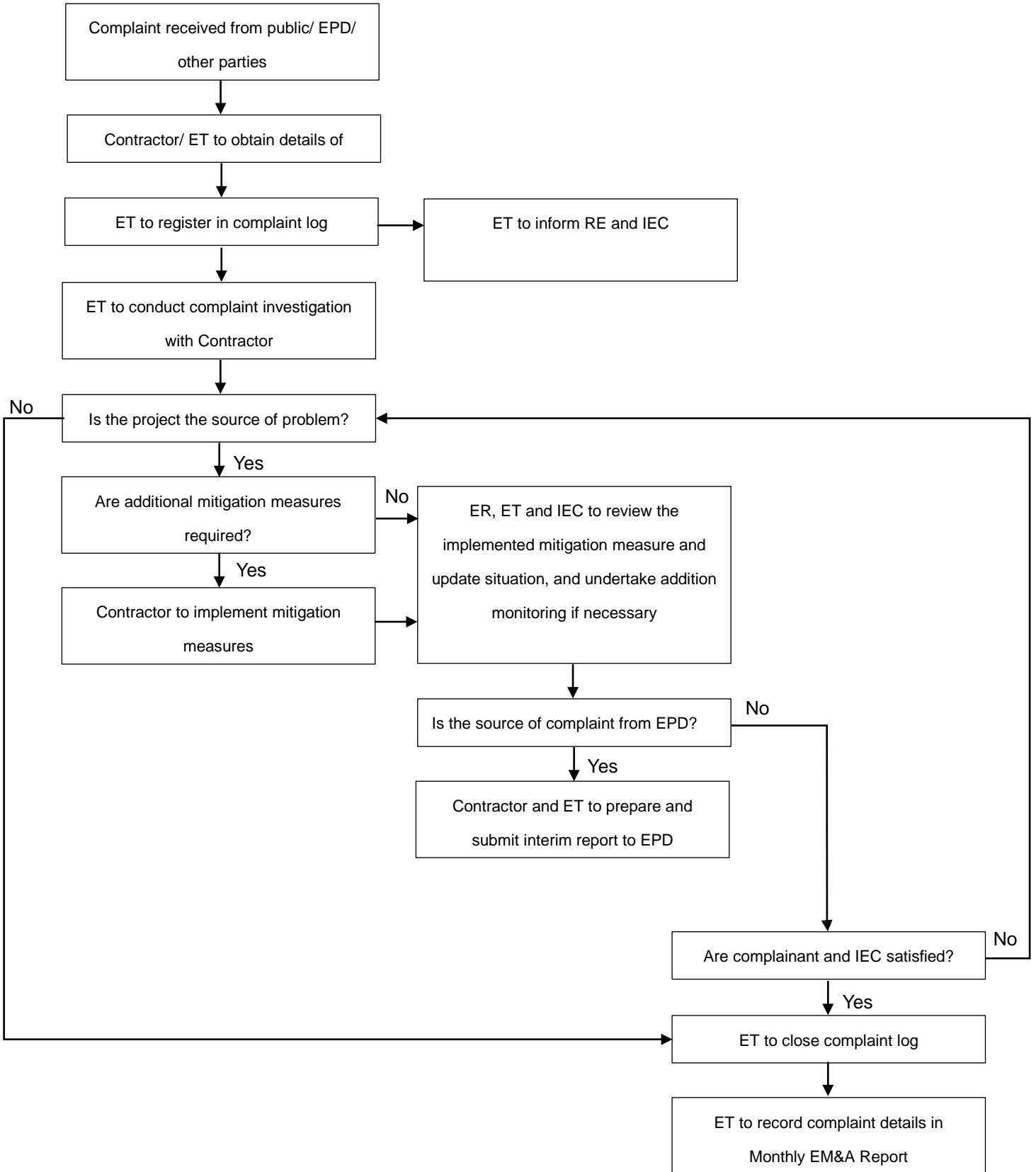


NSR 7 Tsui Hong House, Tsui Wan Estate



Appendix 9.1

Flow Chart of Complaint Response Procedures



Appendix 10.1

Interim Report on Non-compliance of Action/ Limit Level

Interim Report on Non-compliance of Action Level/ Limit Level

Project	
Date	
Time	
Monitoring Location	
Parameter	
Action/ Limit Levels	
Measured Level	
Possible Reason(s) for Non-compliance of Action/ Limit Level	
Action(s) Taken/ to be Taken	
Remarks	

Name & Designation

Signature

Date

Recorded by:

Checked by:

