



**M A E D A**

# Expansion of Shek Wu Hui Sewage Treatment Works

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Monthly EM&A Report No. 5  
for April 2006

May 2006

Report no: 01284R0132

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Monthly EM&A Report No. 5 for April 2006

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**Certified by Environmental Team Leader**  
**Sharifah Or**



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# 1 Executive Summary

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The expansion of Shek Wu Hui Sewage Treatment Works (SWHSTW) aims to increase the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas. It is considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Thus, the procedures under the EIAO have been followed and an Environmental Monitoring and Audit (EM&A) Programme has to be carried out. The present report documents the outcomes of the EM&A Works undertaken during April 2006.

## Breaches of Action and Limit Levels

### *Noise*

No non-compliance of action/limit level was recorded at all monitoring stations for noise during the reporting month.

### *1-hr TSP*

No non-compliance of action/limit level was recorded at all monitoring stations for 1-hr TSP during the reporting month.

### *24-hr TSP*

No non-compliance of action/limit level was recorded at all monitoring stations for 24-hr TSP during the reporting month.

## Complaints Log

During this reporting month, no environmental complaint was received.

## Notifications of Any Summons and Successful Prosecutions

During the reporting month, no notification of summons or successful prosecution was recorded.

## Reporting Changes

There was no reporting change during the reporting month.

## Future Key Issues

The construction activities for the coming three months will include the construction of mini piles, the loading test for piles, cable/ utilities diversion, the relocation of FeCl<sub>3</sub> tank, excavation, pile cap construction, sheet piling work, sub-structure and superstructure construction, pipe works and internal/external finishing of switch room.

## 2 Introduction

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### 2.1 Basic Information

Shek Wu Hui Sewage Treatment Works (SWHSTW) provides treatment to the wastewater generated from Fanling/Sheung Shui areas before discharge it into Mai Po Inner Deep Bay Ramsar Site through River Indus and Shenzhen River, thus helps protecting the water quality of River Indus, Shenzhen River and Mai Po Inner Deep Bay Ramsar Site. The expansion of SWHSTW aims to expand the treatment capacity of the existing SWHSTW to cope with the increasing wastewater flows and loads as a result of the population growth in the catchment area of Fanling/Sheung Shui and the committed extension of sewerage system to unsewered areas.

In accordance with Section 9(2)(g) of the Environmental Impact Assessment Ordinance (EIAO), the SWHSTW is an exempted designated project as the existing SWHSTW has been in operation before the EIAO came into effect on 1 April 1998. However, since the proposed works involve physical expansion and alternation to the existing SWHSTW (hereafter called “the Project”) and may cause adverse environmental impacts if mitigation measures are not in place, it shall be considered as a project constituting a material change to an exempted designated project under Schedule 2 of EIAO. Hence the procedures under the EIAO have been followed. A Project Profile (PP) for direct application of the EP (Application No.DIR-121/2005) was approved by Environmental Protection Department (EPD) in May 2005 and an environmental permit (EP-218/2005) was obtained prior to the commencement of the expansion works.

Drainage Services Department (DSD) awarded the civil contract of the expansion of SWHSTW to Maeda Corporation (Maeda) in September 2005. Maeda appointed Hyder Consulting Limited (HCL) as the Contractor’s Environmental Team (ET) during the construction period. CH2M HILL Hong Kong Limited (formerly known as CH2M-IDC Hong Kong Limited) is the independent environmental checker (IEC). The construction contract commenced in September 2005 and the total construction period is approximately 36 months. The notified commencement date of work to the Director of EPD is 14 December 2005.

### 2.2 Management Structure and Project Organisation

The Engineer (DSD) is responsible for overseeing the construction works and ensuring that they are undertaken by the Contractor (Maeda) in accordance with the specification and contractual requirements. The Contractor shall report to the Engineer. The ET is employed by the Contractor and is responsible for conducting the EM&A programme. The IEC shall advise the Engineer on the environmental issues related to the Project.

The key personnel contact names and telephone number are summarised in Table 2-1. The project organisation is shown in Appendix 1.

Party	Position	Name	Telephone number
Project Proponent - DSD	Project Manager	Raymond Lee	2594 7457
	Engineer's Representative	Tim Tsoi	2594 7460
Contractor - Maeda	Site Agent	George Cheung	9268 1918
ET - Hyder	ET Leader	Sharifah Or	2911 2730
IEC – CH2M HILL	IEC	David Yeung	2872 2934

**Table 2-1 Key Personnel Contact Names and Telephone Number for the Project**

## 2.3 Construction Programme

Construction programme of the Project is attached in Appendix 2.

## 2.4 Works Undertaken during the Reporting Month

Works undertaken during the reporting month included:

- Construction of permanent piles;
- Loading tests for the piles;
- Excavation;
- Cable/ utilities diversion;
- Relocation of FeCl<sub>3</sub> tank; and
- Post-drilling.

## 2.5 Status of Environmental Permit/ Licence

The status of the Environmental Permit/Licence for the Project is shown below.

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
Environmental Permit	21 May 2005	16 June 2005	EP-218/2005	N/A
Notification was made to EPD pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation (Form NA was submitted)	22 Sep 2005	N/A	N/A	N/A
Registration as a chemical waste producer	26 Sep 2005	4 Nov 2005	WPN: 5213-624-M2446-06	N/A
Effluent Discharge Licence	11 Nov 2005	20 Dec 2005	Licence No.: W5/11287/1	19 Dec 2010

Permit/Licence	Application Date	Date of issue	Ref. No.	Valid Until
Application for Exemption Account for Disposal of Construction Waste	12 Dec 2005	Approved by EPD on 31 Dec 05	Application No.: RN/00134	25 Sep 2008

Table 2-2 Status of Permit/Licence for the Project

## 3 Environmental Status

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### 3.1 Works Undertaken during the Month with Illustrations

The site has been subdivided into different Works Areas/Portions as illustrated in Appendix 3. The construction of permanent piles was undertaken at Portions 2 and 3. Loading tests for the piles, cable/ utilities diversion and post-drilling were undertaken at Portion 2. Excavation was undertaken at Portions 1, 2 and 3. The relocation of FeCl<sub>3</sub> tank was undertaken at Portion 1.

### 3.2 Project Area, Environmental Sensitive Receivers and Monitoring Locations

The site is located at the existing Shek Wu Hui Sewage Treatment Plant, next to Chuk Wan Street. Project area, environmental sensitive receivers and monitoring locations are shown in Appendix 4.

## 4 Brief Summary of EM&A Requirements

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### 4.1 Monitoring Parameters

#### 4.1.1 Air Quality

During the construction phase impact monitoring, 1-hour and 24-hour Total Suspended Particulates (TSP) levels should be measured at the selected air monitoring locations in accordance with the EM&A Manual. These two parameters are aimed to indicate the impacts of construction dust on air quality.

#### 4.1.2 Noise

The construction noise level should be measured in terms of the A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ) for 30 minutes.  $L_{eq(30\text{ min})}$  is used as the monitoring parameter for the period between 0700 and 1900 hours on normal weekdays. For all other time periods, three consecutive  $L_{eq(5\text{ min})}$  are employed for comparison with the Noise Control Ordinance (NCO) criteria.



Other noise parameters such as  $L_{10}$  and  $L_{90}$  should also be obtained for reference.

## 4.2 Action and Limit Levels

### 4.2.1 Air Quality

The baseline monitoring results documented in the Baseline Monitoring Report for the Project (our report ref.: EA01284R0012) form the basis for derivation of the Action and Limit Levels for air quality impact monitoring. Appendix 5 shows the derived Action and Limit Levels for the Project. If the air quality criteria are exceeded due to the Project, the Event/Action Plan summarised in Table 4-3 should be triggered immediately.

### 4.2.2 Noise

The Action and Limit Levels for construction noise are defined in Appendix 5. If valid non-compliance of the criteria occurs, actions in accordance with the Event and Action Plan in Table 4-4 should be implemented. If construction works are undertaken during the restricted hours, a construction noise permit under NCO shall be obtained by the Contractor.

## 4.3 Event and Action Plans

The Event and Action Plans for air quality and noise monitoring are shown in Tables 4-3 and 4-4, respectively.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC and ER;</li> <li>Repeat measurement to confirm finding.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method.</li> </ul>	<ul style="list-style-type: none"> <li>Notify Contractor.</li> </ul>	<ul style="list-style-type: none"> <li>Rectify any unacceptable practice;</li> <li>Amend working methods if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Identify source, investigate the cause of exceedance and propose remedial measures ;</li> <li>Inform IEC and ER;</li> <li>Advise ER on the effectiveness of the proposed remedial measures;</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ET on the</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit proposals for remedial to ER within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with IEC and ER;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<p>effectiveness of the proposed remedial measures;</p> <ul style="list-style-type: none"> <li>Supervise Implementation of remedial measures.</li> </ul>		
<b>LIMIT LEVEL</b>				
Exceedance for one sample	<ul style="list-style-type: none"> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform IEC, ER, Contractor and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>	<ul style="list-style-type: none"> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise ER on the effectiveness of the proposed remedial measures;</li> <li>Supervise implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Amend proposal if appropriate.</li> </ul>
Exceedance for two or more consecutive samples	<ul style="list-style-type: none"> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source, investigate the cause of exceedance and propose remedial measures;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be</li> </ul>	<ul style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Ensure remedial measures properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by ER until the exceedance is abated.</li> </ul>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>		<ul style="list-style-type: none"> <li>and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ul>	

**Table 4-3 Event/ Action Plan for Air Quality Monitoring**

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
Action Level	<ul style="list-style-type: none"> <li>Notify IEC and ER;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractors;</li> <li>Discuss with the Contractor and formulate remedial measures;</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ul>	<ul style="list-style-type: none"> <li>Review the analysed results submitted by the ET;</li> <li>Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measure.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures are properly implemented.</li> </ul>	<ul style="list-style-type: none"> <li>Submit noise mitigation proposal to IEC;</li> <li>Implement noise mitigation proposals.</li> </ul>
Limit Level	<ul style="list-style-type: none"> <li>Identify source;</li> <li>Inform IEC, ER, EPD and Contractor;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to check mitigation effectiveness;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> </ul>	<ul style="list-style-type: none"> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>Supervise the implementation of remedial measures.</li> </ul>	<ul style="list-style-type: none"> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>Ensure remedial measures properly implemented;</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is</li> </ul>	<ul style="list-style-type: none"> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control;</li> <li>Stop the relevant portion of works as determined by th ER until the exceedance is abated.</li> </ul>

EVENT	Action			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>If exceedance stops, cease additional monitoring.</li> </ul>		abated.	

**Table 4-4 Event/ Action Plan for Noise Monitoring**

## 4.4 Environmental Mitigation Measures and Requirements

The recommended measures for mitigating air quality, water quality, noise, waste and all other possible environmental impacts due to the construction works have been stated clearly in the EM&A Manual. The details of the measures implemented by the Contractor are shown in Appendix 6.

## 5 Implementation Status of Environmental Protection and Pollution Control/ Mitigation Measures

The status of the mitigation measures implemented by the Contractor is listed in Appendix 6.

## 6 Monitoring Results

### 6.1 Monitoring Methodology

#### 6.1.1 Air Quality

1-hr and 24-hr TSP monitoring works were undertaken by the ET using high volume samplers (HVS). The sampling procedures followed the standard sampling method as set out in High Volume Method for Total Suspended Particulates, Part 50 Chapter 1 Appendix B, Title 40 of the Code of Federal Regulations of the USEPA.

During the sampling, dust laden air was drawn through a HVS fitted with a conditioned, pre-weighted filter paper, at a controlled rate. After sampling for 1 hour and 24 hours, the filter paper with retained particles was collected and returned to the laboratory for drying in a desiccator followed by accurate weighing. Respective 1-

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hour and 24-hour TSP levels were calculated from the ratio of the mass of particulates retained on the filter paper to the total volume of air sampled.

The HVSs were equipped with an electronic mass flow controller and calibrated against a traceable standard at regular intervals. All equipment, calibration kit and filter papers were clearly labelled.

The sampling procedures and specifications were the same for 1-hour and 24-hour baseline air quality monitoring except the sampling duration. The specifications were as follows:

- 0.6-1.7 m<sup>3</sup>/min (20-60SCFM);
- Equipped with a timing/control device with +/- 5 minutes accuracy for 24 hours operation;
- Installed with elapsed time meter with +/- 2 minutes accuracy for 24 hours operation;
- Capable of providing a minimum exposed area of 406 cm<sup>2</sup> (63in<sup>2</sup>);
- Flow control accuracy: +/- 2.5% deviation over 24-hr sampling period;
- Equipped with a shelter to protect the filter and sampler;
- Incorporated with an electronic mass flow rate controller or other equivalent devices;
- Equipped with a flow recorder for continuous monitoring;
- Provided with a peaked roof inlet;
- Incorporated with a manometer;
- Able to hold and seal the filter paper to the sampler housing at horizontal position;
- Easy to change the filter; and
- Capable of operating continuously for a 24-hour period.

Relevant environmental data including temperature, pressure, weather conditions, elapsed-time meter reading for the start and stop of the sampler, identification and weight of the filter paper, and other special phenomena observed and work progress of the concerned site were also recorded.

Filter papers of size 8"x10" were labelled before sampling. They were inspected clean with no pin holes and conditioned in a humidity-controlled chamber for over 24-hr and be pre-weighed before use for the sampling.

After sampling, the filter papers loaded with dust were kept in a clean and tightly sealed plastic bag, and then returned for reconditioning in the humidity controlled chamber followed by accurate weighing by an electronic balance with a readout down to 0.1 mg. All the collected samples would be kept in a good condition for 6 months before disposal.

The weight of filter paper was measured by a HOKLAS accredited laboratory.

## 6.1.2 Noise

Weatherproof logging sound level meters which comply with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications were used to measure the construction noise at the designated monitoring locations. Noise parameters of the A-weighted levels  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were measured with a sampling period of 5 minutes throughout the monitoring. The average of six consecutive 5-minute readings was used to provide  $L_{eq(30\text{ minutes})}$  for non-restricted hours. A facade correction of 3dB(A) would be applied to all free field measurements.

During the impact monitoring, information such as date, weather condition, equipment used, measurement results and major noise sources were recorded on the field data record sheet. Noise measurements would not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed would be checked with a portable wind speed meter capable of measuring wind speed in m/s. All measurements were recorded to the nearest 0.1dB(A).

## 6.2 Name of Laboratory, Types of Equipment Used and Calibration Details

### 6.2.1 Name of Laboratory

Filter papers used for air quality monitoring were sent to ALS Environmental, a HOKLAS accredited laboratory, for weighing. Other sampling and analytical works were conducted by Hyder Consulting Limited, the ET.

### 6.2.2 Types of Equipment Used and Calibration Details

HVS - Model GBM2000H1, manufactured by Anderson Instruments Inc., was used for TSP monitoring. It complies with the USEPA specifications in Appendix B Part 50 - Reference Method for the Determination of Suspended Particulate matter in the Atmosphere (High-Volume Method) of the Code of Federal Regulation dated July 1, 1991. Initial calibration of dust monitoring equipment was conducted upon installation and prior to commissioning. One point flow rate calibration would be carried out every two months. Five-point calibration would be carried out every six months. All the calibration data were converted into standard temperature and pressure condition.

Orific HVS Calibration Kit model G2523 was used for the calibration of HVSs. Calibration of calibration kit would be carried out annually. Appendix 7 presents the monitoring equipment calibration records.

For noise monitoring, Bruel & Kjaer (B&K) Precision Integrating Sound Level Meters of Type 2238 in compliance with the International Electrotechnical Commission Publication 651: 1979 (Type 1) and 804: 1985 (Type 1) Specifications were used.

Prior to and following each noise measurement, the accuracy of the sound level meter was checked using an acoustic calibrator (B&K Type 4230) generating a known

sound pressure level at a known frequency. Measurements were considered as valid only if the calibration level from before and after the noise measurement agree to within 1dB. All sound level meters and calibrators would be calibrated annually. Appendix 7 presents the monitoring equipment calibration records.

Table 6-5 summarises the types of monitoring and calibration equipment.

Equipment Type	Manufacturer	Model	Serial Number/I.D.
Sound Level Meter	B&K	Type 2238	2448529
Sound Level Meter	B&K	Type 2238	2285726
Sound Level Calibrator	B&K	Type 4231	1770806
High Volume Sampler	Anderson	GBM 2000 H1	1071
High Volume Sampler	Anderson	GBM 2000 H1	1101
Orific HVS Calibration Kit	Tisch Environmental	G2523	517N

**Table 6-5 Monitoring Equipment**

## 6.3 Parameters Monitored

Parameters monitored are described in Sections 4.1.1 and 4.1.2.

## 6.4 Monitoring Locations

There are two designated air quality monitoring locations identified in the EM&A Manual. Due to the access constraint, alternative monitoring locations were selected and approved by ER, IEC and EPD prior the commencement of monitoring. These alternative locations for air quality monitoring are summarised in Table 6-6 and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
CAM1a	San Po Street Pumping Station	Ground floor level
CAM2a	Sheung Shui Heung Floodwater Pumping Station	Ground floor level

**Table 6-6 Air Quality Monitoring Locations**

There are two designated noise monitoring locations identified in the EM&A Manual and their locations are described below and shown in Appendix 4.

Monitoring Station ID	Name of Premises	Monitoring Location
NM1	Wai Loi Tsuen	1.2m above ground

Monitoring Station ID	Name of Premises	Monitoring Location
NM2	Temporary Domestic Structure	1.2m above ground

Table 6-7 Noise Monitoring Locations

## 6.5 Monitoring Date, Time, Frequency and Duration, Weather Condition and Other Factors

Monitoring frequency for 1-hr TSP and 24-hr TSP is 3 times every 6 days and once every 6 days, respectively. One set of noise measurements will be conducted between 0700 and 1900 on normal weekdays at each monitoring station on a weekly basis, when noise-generating activities are underway. Monitoring date, time and duration for noise and air quality monitoring and all other factors related to the monitoring result, such as weather condition, are listed in the following tables.

Station	Date	Time	Duration	Weather Condition
1-hr TSP				
CAM1a	6-Apr-06	0951-1304	3 X 1 hour	Fine
	12-Apr-06	0930-1230	3 X 1 hour	Sunny
	18-Apr-06	0924-1227	3 X 1 hour	Fine
	24-Apr-06	0944-1223	3 X 1 hour	Cloudy
	29-Apr-06	0905-1204	3 X 1 hour	Fine
CAM2a	6-Apr-06	1005-1310	3 X 1 hour	Fine
	12-Apr-06	0940-1245	3 X 1 hour	Sunny
	18-Apr-06	0935-1237	3 X 1 hour	Fine
	24-Apr-06	0954-1330	3 X 1 hour	Cloudy
	29-Apr-06*	N/A	3 X 1 hour	N/A
24-hr TSP				
CAM1a	6-Apr-06	1308-1307	24 hours	Fine
	12-Apr-06	1230-1230	24 hours	Sunny
	18-Apr-06	1230-1230	24 hours	Fine
	24-Apr-06	1410-1410	24 hours	Cloudy
	29-Apr-06	1205-1205	24 hours	Fine
CAM2a	6-Apr-06	1317-1332	24 hours	Fine
	12-Apr-06	1245-1245	24 hours	Sunny
	18-Apr-06	1240-1240	24 hours	Fine
	24-Apr-06	1401-1401	24 hours	Cloudy



Station	Date	Time	Duration	Weather Condition
	29-Apr-06*	N/A	24 hours	Fine

\* There was a mechanical failure of the HVS at CAM2a on 29 April 2006. The HVS was replaced on 2 May 2006 and the dust monitoring was re-scheduled to 3 May 2006. The monitoring results would be reported in the monthly report for May 2006.

**Table 6-8 Sampling Schedule of Air Quality Monitoring**

Station	Date	Time	Duration	Weather Condition
NM1	6-Apr-06	1020-1050	30 minutes	Fine
	12-Apr-06	0945-1015	30 minutes	Sunny
	18-Apr-06	0940-1010	30 minutes	Fine
	24-Apr-06	1000-1030	30 minutes	Cloudy
NM2	6-Apr-06	1120-1150	30 minutes	Fine
	12-Apr-06	1055-1125	30 minutes	Sunny
	18-Apr-06	1045-1115	30 minutes	Fine
	24-Apr-06	1115-1145	30 minutes	Cloudy

**Table 6-9 Sampling Schedule of Noise Monitoring**

## 6.6 Results and Graphical Plots of Monitoring Parameters

Air quality monitoring results of 1-hour and 24-hour TSP are summarised in Table 6-10 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8.

Station	Date	Measured Level ( $\mu\text{g}/\text{m}^3$ )		Action/Limit Level ( $\mu\text{g}/\text{m}^3$ )	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
CAM1a	6-Apr-06	144.6	135.3	342.7/500	203.3/260
		132.9			
		136.9			
	12-Apr-06	194.4	72.3		
		188.6			
		253.0			
	18-Apr-06	206.1	119.7		
		203.6			
		151.5			

Station	Date	Measured Level ( $\mu\text{g}/\text{m}^3$ )		Action/Limit Level ( $\mu\text{g}/\text{m}^3$ )	
		1-hr TSP	24-hr TSP	1-hr TSP	24-hr TSP
	24-Apr-06	128.8	118.4	340.2/500	201.6/260
		142.5			
		115.2			
	29-Apr-06	150.0	93.0		
		133.0			
		142.5			
CAM2a	6-Apr-06	34.6	67.8		
		28.2			
		58.7			
	12-Apr-06	171.3	49.9		
		81.1			
		59.1			
	18-Apr-06	105.2	51.1		
		94.9			
		95.9			
	24-Apr-06	37.3	59.0		
		83.7			
		52.4			
	29-Apr-06 <sup>#</sup>	N/A	N/A		
		N/A			
		N/A			

Note:

\* Shaded area indicates an exceedance of Action/Limit Level.

# There was a mechanical failure of the HVS at CAM2a on 29 April 2006. The HVS was replaced on 2 May 2006 and the dust monitoring was re-scheduled to 3 May 2006. The monitoring results would be reported in the monthly report for May 2006.

**Table 6-10 Air Quality Monitoring Results**

Noise monitoring results are summarised in Table 6-11 and detailed in Appendix 8. Graphical plots of the monitoring results are also provided in Appendix 8. As all

monitoring was conducted at free field condition, a facade correction of 3dB(A) was applied to each of the noise measurements.

Station	Date	Measured Noise Level, dB(A)			Limit Level for Leq(30 min), dB(A)
		L <sub>90</sub> (30min)	L <sub>10</sub> (30min)	L <sub>eq</sub> (30min)	
NM1	6-Apr-06	54.6	61.8	59.2	75
	12-Apr-06	55.9	60.9	58.8	
	18-Apr-06	53.1	61.5	58.7	
	24-Apr-06	54.6	61.5	58.9	
NM2	6-Apr-06	53.0	58.1	55.6	
	12-Apr-06	58.0	62.1	60.4	
	18-Apr-06	50.3	54.5	53.1	
	24-Apr-06	53.6	57.3	55.6	

Note : (1) Shaded area indicates an exceedance of Limit Level.

(2) A facade correction of 3dB(A) was applied to each of noise measurements.

**Table 6-11 Noise Monitoring Results**

## 6.7 Factors Which Might Affect the Monitoring Results

Dust from other sources such as roads with the movement of heavy vehicles in the vicinity of the monitoring stations would affect the air quality monitoring results.

## 6.8 QA/QC Results and Detection Limit

The quality assurance (QA) / quality control (QC) results and detection limit are shown in Appendix 9 (to be provided).

# 7 Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

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## 7.1 Non-compliance of Action and Limit Levels

No non-compliance of Action or Limit Level was recorded for air quality and noise monitoring.

## 7.2 Complaints Received

In case of an environmental complaint received, all related parties should follow the complaints response procedures specified in the EM&A Manual.

During this reporting month, no environmental complaint was received. Cumulative number of environmental complaint is shown in Appendix 10.

## 7.3 Notifications of Summons and Successful Prosecutions

No notification of summons or successful prosecution was recorded during the reporting month. The cumulative number of notifications of summons and successful prosecutions are shown in Appendix 10.

## 7.4 Review of the Reasons and Implications of Non-compliance, Complaints, Summons and Prosecutions

### 7.4.1 Non-compliance of Acton/Limit Level

No non-compliance was recorded during the reporting period.

### 7.4.2 Complaints, Summons and Prosecutions

No complaints, summons and prosecutions were recorded during the reporting period.

## 7.5 Site Inspection

Weekly site inspections were carried out on 6, 10, 19 and 25 April 2006. The findings of the site inspections and appropriate mitigation measures were recorded in the site inspection checklists.

The observations raised during the site inspections, corresponding recommendations and rectification status are summarised in Table 7-12.

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
6-Apr-06	<ol style="list-style-type: none"> <li>Oil container without drip tray was observed near wheel washing bay, sedimentation tanks and WetSep at Portion 2.</li> <li>The drip tray for air</li> </ol>	<ol style="list-style-type: none"> <li>Drip tray should be provided or the container should be removed.</li> <li>Prompt removal was needed.</li> <li>The manhole should</li> </ol>	<ol style="list-style-type: none"> <li>Oil containers were removed as observed on 10 April 2006.</li> <li>The situation was rectified as observed on 10 April 2006.</li> <li>The manhole was</li> </ol>	<ol style="list-style-type: none"> <li>The Contractor reported that larvicide had been applied for the sump pits and stagnant water. It was recommended that larvicide should be applied regularly and stagnant water should</li> </ol>

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
	<p>compressor (AR5) was full of oily water at Portion 2.</p> <p>3. The manhole near the slaughterhouse was not sealed at Portion 2.</p> <p>4. Stockpiles of soil were not covered at Portion 3.</p>	<p>be sealed.</p> <p>4. The soil should be covered with tarpaulin.</p>	<p>sealed as observed on 10 April 2006.</p> <p>4. The stockpiles of soil were covered with tarpaulin as observed on 10 April 2006.</p>	<p>be removed as far as possible.</p> <p>2. Grouting works were undertaken. Wastewater from grouting works is high in pH value. The wastewater from treatment plant should be tested before discharge, to ensure the compliance of Effluent Discharge Licence requirements.</p>
10-Apr-06	<p>1. It was observed that there was contaminated water inside the drip tray for a generator at Portion 2.</p> <p>2. A stockpile of soil was found uncovered at Portion 3.</p>	<p>1. The Contractor was recommended to remove the contaminated water and dispose of it as chemical waste.</p> <p>2. The Contractor was reminded to provide cover for the stockpiles.</p>	<p>1. The drip tray and generator at Portion 2 has been removed from site as observed on 19 April 2006.</p> <p>2. The stockpile of soil was properly covered with tarpaulin sheet as observed on 19 April 2006.</p>	<p>1. There were stockpiles of soil at Portion 3. The Contractor was recommended to remove them before rain to avoid silty water leaking outside the site boundary.</p> <p>2. It was observed that the wastewater was washed onto the haul road at Portion 2. The Contractor was recommended to pump the wastewater into the sedimentation tank for treatment.</p>
19-Apr-06	No observation.	N.A.	N.A.	<p>1. Stagnant water was observed near the Contractor site office. Larvicide should be applied to prevent mosquito breeding.</p> <p>2. Stagnant water was observed in trench at Portion 2 near site exit. Stagnant water should be drained after rain and larvicide should be applied to the remaining water.</p>
25-Apr-06	<p>1. An oil drum on bare ground was observed at Portion 2.</p>	<p>1. The provision of drip tray is required.</p>	<p>1. The oil drum was removed as observed on 3 May 2006.</p>	<p>1. Standing water was observed at several areas. The Contractor was reminded to inspect</p>

Inspection Date	Deficiencies	Recommendation	Status	Note / Reminder
				and maintain the mosquito controlling measures after rainstorms.

**Table 7-12 Summaries of Site Inspections and Recommendations**

The site audit conducted by IEC was carried out on 19 April 2006 and the Contractor has undertaken appropriate actions in response to the IEC's findings.

No EPD inspection was undertaken in the reporting month.

There was no outstanding issue or deficiency for the observations arising during the weekly site inspections. However, the Contractor has been reminded to inspect the effluent quality to ensure the compliance of discharge requirements, remove stockpiles of soil before rain to prevent silty water leakage, and apply mosquito control measures including draining stagnant water and applying larvicide.

## 8 Waste Management Status

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According to the information provided by the Contractor, the following waste materials were generated during the reporting month:

- Inert C&D materials – 3,458 m<sup>3</sup>; and
- General Refuse – 143 m<sup>3</sup>.

C&D materials were disposed of at Tuen Mun Area 38 public fill. General refuse was collected and disposed of at NENT Landfill properly. No chemical waste was produced during the reporting month. Trip ticket system was implemented and disposal records were in order on site. The Waste Management Plan was followed.

## 9 Future Key Issues

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The construction activities for the coming three months are summarized below:

- The construction of mini piles;
- Loading test for piles;
- Excavation;
- Cable/ utilities diversion;
- The relocation of FeCl<sub>3</sub> tank;

- Pile cap construction
- Sheet piling work;
- Sub-structure and superstructure construction;
- Pipe works; and
- Internal / external finishing of switch room.

The upcoming EM&A schedule for the future three months is shown in Appendix 11.

## 10 Comments, Recommendations and Conclusions

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EM&A works have been undertaken in April 2006 for the Project based on the requirements set in the EM&A Manual.

All monitoring equipments have been calibrated and all monitoring protocols have been carried out properly according to the EM&A Manual.

No valid exceedance of Action/Limit Level was recorded during the reporting month.

No compliant, notification of summons or successful prosecution was recorded during the reporting month.

Four weekly site inspections were carried out during the reporting month. In response to the observations raised by ET, the Contractor has undertaken follow-up actions to rectify the condition.

# Appendix 1

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## Project Organization

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# Appendix 2

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Construction Programme

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# Appendix 3

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Location of Works

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# Appendix 4

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Project Area, Environmental Sensitive Receiver and  
Monitoring Location

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# Appendix 5

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## Action and Limit Levels

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# Appendix 6

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## Environmental Requirements and Implementation Status

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# Appendix 7

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## Calibration Records

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# Appendix 8

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## Monitoring Results and Graphical Plots

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# Appendix 9

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QA/QC Results and Detection Limit

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# Appendix 10

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Cumulative Statistics of Complaint, Notification of  
Summons and Successful Prosecution

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# Appendix 11

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Upcoming EM&A Schedule

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