

**KINGSFORD ENVIRONMENTAL (H.K.) LTD.**

Consultancy Engineering & Contracting



**CONTRACT NO. DE/2005/03**

**SUPPLY AND INSTALLATION OF ELECTRICAL AND MECHANICAL EQUIPMENT FOR  
EXPANSION OF SHEK WU HUI SEWAGE TREATMENT WORKS**

***ENVIRONMENTAL MONITORING AND AUDIT***

**MONTHLY EM&A REPORT NO. 1**

**JUNE 2006**

*for*

**The Biwater Man Lee Limited**

*Submitted by*

**Kingsford Environmental (H.K.) Ltd.**

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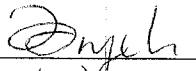
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PROJECT NAME: **Supply and Installation of Electrical and Mechanical Equipment for Expansion of Shek Wu Hui Sewage Treatment Works**

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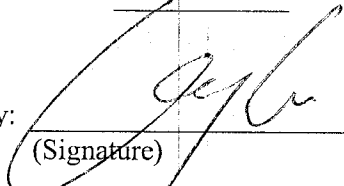
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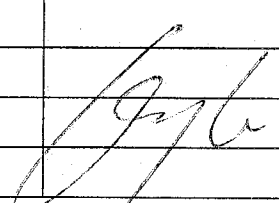
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## APPROVAL & DISTRIBUTION SHEET

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Certified by : ET Leader

Signature: \_\_\_\_\_

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Date: \_\_\_\_\_

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Independent Environmental Checker (CH2M HILL Hong Kong Limited)	Mr. David Yeung	1

## EXECUTIVE SUMMARY

This is the first monthly Environmental Monitoring and Audit (EM&A) Report for the Drainage Services Department Contract No. DE/2005/03 entitled "Supply and Installation of Electrical and Mechanical Equipment for Expansion of Shek Wu Hui Sewage Treatment Works". The contract start date was 14 February 2006. The E&M Contractor has employed an independent Environmental Team (ET), Kingsford Environmental (H.K.) Ltd., to monitor the implementation of the environmental protection measures, as required in the contract. This report contains the approved procedure for the site inspection and deficiency and remedial action reporting.

The ET's duties are to review/comment on the contractor's method statements regarding actions, investigate complaints, provide monthly and quarterly reports on the environmental status, and certification of reports and all submissions under the EP in accordance to the requirement of the EM&A manual and the Environmental Permit. The Independent Environmental Checker (IEC) for the project is to review and verify the reports and all submissions under the EP.

For the environmental monitoring activities, Action and Limit (A/L) Levels are defined levels of impact recorded which represent levels at which a prescribed response is required. Action Limit is an indication of a deteriorating ambient environment for which appropriate remedial actions are likely to be necessary to prevent environmental quality from falling outside the Limit Levels. If these are exceeded construction, works should not proceed without appropriate remedial action, including a critical review of the methods.

On 19 June 2006, Final Sedimentation Tank No. 8 and pH Control System for Bioreactors were taken over by the Contractor but no site work was carried out in June 2006. The major site activities in June 2006 included the joint site survey and the preparation work for installations of E&M equipment at Final Sedimentation Tank No. 8 and pH Control System.

Weekly site inspection by the Environmental Team commenced on 19 June 2006. For this month, the site inspections by an ET technician were carried out on 20 and 27 of June 2006. Joint site audits was conducted on 27 of June 2006 with the representatives of the Engineer.

No deficiency was found during the site inspections in June 2006. Thus, the work activities and mitigation measures were in compliance with the environmental protection regulations, contract requirement and the requirement of the environmental permit.

A monthly EM&A meeting was attended on 8 June 2006 with all of the parties (DSD, Civil and E&M contractors, ETs, and the IEC).

There were no complaints received or notifications of summons or successful prosecutions in June 2006.

The planned activities for July – September 2006 as regards E&M equipment are mainly the installation and T&C (if required) for the following two scheduled site works:- 1) Final Sedimentation Tank Nos. 5, 7 and 8 for installation of density current baffles and modification of existing scrapers, and 2) pH Control System.

## **1 Introduction**

This is the first monthly Environmental Monitoring and Audit (EM&A) Report for the Drainage Services Department Contract No. DE/2005/03 entitled "Supply and Installation of Electrical and Mechanical Equipment for Expansion of Shek Wu Hui Sewage Treatment Works". The report was prepared by the Environmental Team, Kingsford Environmental (H.K.) Ltd., of the E&M Contractor, Biwater Man Lee Limited. This report is submitted to the Client, the Drainage Services Department, and her Independent Environmental Checker, CH2M HILL Hong Kong Limited, for the project. In addition, this report is to be submitted to EPD in accordance to the requirement of the environmental permit (EP218-2005) and EM&A manual of the project.

This report only presents the results of the environmental auditing of the project activities regarding to the E&M equipment installation conducted in the month of June 2006. The auditing works include mainly regular site inspections for verification of the mitigation measures implementation as recommended in the EM&A Manual and as detailed in the Project Profile for the project.

## **2 Basic Project Information**

The works for the installation of the E&M equipment and for testing and commissioning of the various systems has commenced on 19 June 2006 and to be completed by 16 November 2008. The master construction program schedule from the Particular Specification is attached in Appendix 1. The major E&M work packages are listed below in Table 1.

The major parties involved in the project with respect to environmental protection are shown in Appendix 2 (Ref.: EM&A Manual). These include the E&M Contractor and her Environmental Team, the DSD Client and the Independent Environmental Checker (IEC). A chart showing the duties of the parties regarding inspections and follow-up is presented.

The E&M Contractor's management and project team including her Environmental Team (ET) is shown in Appendix 2. The ET consists of an ET Leader and 1-2 environmental technicians. The ET will co-ordinate with the E&M Contractor's Site Agent for site inspections.

**Table 1: Master Construction Program for E&M Works**

<b>Section</b>	<b>Task Description</b>	<b>Date</b>
I	- Submissions and approval of Process Design, Equipment, Schematics, GA and Civil Works Requirements.	28 Feb '06 – 27 Jun '06
II	- E&M equipment installation, T&C for Density Current Baffles for 3 Existing Final Sedimentation Tanks.	3 Jul '06 – 30 Sep '06
III	- E&M equipment installation, T&C for pH Control System for Bioreactors.	3 Jul '06 – 30 Oct '06
IV	- E&M equipment installation, T&C for Density Current Baffles for 4 Existing Final Sedimentation Tanks.	1 Jun '07 - 28 Sep '07
V	- E&M equipment installation, T&C for SAS Thickening Centrifuges.	1 Jun '07 – 28 Oct '07
VI	- E&M equipment installation, T&C for New Air Blower House No. 2.	26 Nov '07 – 31 Oct '08
VII	- E&M equipment installation, T&C for New Flow Division Pump Pits. - E&M equipment installation, T&C for Bioreactor No. 5. - E&M equipment installation, T&C for Final Sedimentation Tank Distribution Chamber.	24 Jan '08 – 31 Oct '08
VIII	- E&M equipment installation, T&C for New Final Sedimentation Tanks. - E&M equipment installation, T&C for RAS/SAS Pumping Station.	24 Mar '08 – 31 Oct '08
IX	- E&M equipment installation, T&C for New Sludge Conditioning Tanks. - E&M equipment installation, T&C for Press House Extension. - E&M equipment installation, T&C for DG Store and Chemical Waste Store.	28 Jul '08 – 30 Nov '08
X	- E&M equipment installation, Remaining Works.	28 Feb '06 – 30 Nov '08



The contact information for the key personnel is shown in Table 2.

**Table 2: Contact information for Key Personnel**

Name	Title	Telephone	Fax
Mr. P. W. Lam (DSD)	Engineer's Representative	2594-7305	2827-8532
Mr. K. K. Cheung (DSD)	Engineer's Representative	2594-7338	2827-8532
Mr. Henry M. N. Yip (DSD)	Engineer's Representative	2594-7339	2827-8532
Mr. W. S. Lui (BML)	Site Agent	2416-2828	2413-6278
Mr. K. H. Lau (BML)	Deputy Site Agent	2416-2828	2413-6278
Mr. S. M. Ho (BML)	Site Waste Manager/Co-ordinator	2416-2828	2413-6278
Mr. C. C. Lui (BML)	Site Supervisor	2416-2828	2413-6278
Mr. Stanley Lau (KEL)	ET Leader	2612-2817	2614-7012
Ms. Angela Lau (KEL)	ET Site Inspector	2612-2817	2614-7012
Mr. David Yeung (CH2M)	The Independent Environmental Checker	2507-2203	2507-2293

### 3 Environmental Requirements

The works performed for this contract shall comply with the relevant Hong Kong government ordinances, regulations, guidelines, practice notes, etc. as regards environmental protection, as detailed in the Project Profile, the Environmental Monitoring and Audit Manual and Environmental Permit.

The environmental monitoring and audit (EM&A) requirements are detailed in the EM&A Manual for the project. The Manual requires that the E&M Contractor employs an independent Environmental Team and that the Client employs an Independent Environmental Checker. The Manual defines the responsibilities of each party, i.e. the E&M Contractor, Client, ET, and IEC, and the lines of communication (Appendix 2). The ET's duties are to review/comment on the contractor's method statements regarding environmental aspects, perform regular site inspections, report deficiencies, develop remedial actions, investigate complaints, and provide monthly reports on the environmental status.

The EM&A Manual specifies environmental auditing to ensure that the mitigation measures recommended in the Project Profile are effectively implemented. A summary of the required environmental protection and mitigation measures for the construction phase extracted from Annex B of the Manual ("Implementation Schedule of Mitigation Measures") is attached in Appendix 3.

The environmental aspects for the construction phase include plant noise, dust, water quality, and waste materials (including chemicals). Action and Limit (A/L) Levels are defined levels of impact recorded by the environmental monitoring activities which represent levels at which a prescribed response is required. The Event and Action Plans (EAPs) is to provide, in association with the monitoring and audit activities, procedures for ensuring that if any significant environmental incident (either accidental or through inadequate implementation of mitigation measures) does occur, the cause will be quickly identified and remediated, and the risk of a similar event recurring is reduced. This also applies to the exceedances of A/L criteria identified in the EM&A Manual. A summary of the event/action plan for the construction phase and operation phase extracted from EM&A Manual is attached in Appendix 3.

The job nature of the E&M contractor is mainly for installation of E&M equipment, all hand-held's breakers, bulldozer, concrete lorry mixer, dump truck and hand-held's poker, vibratory would not be used so that the impact from noise and dust would be low. Also, the distance to the nearest sensitive receivers is large. Therefore, the potential environmental impact imposed to the sensitive receivers would be low. Routine environmental monitoring would only be considered when deficiencies and complaints were received.

The Environmental Permit conditions, i.e. section 1.39 of the Particular Specification, are shown in Appendix 3. The Permit is attached in Appendix 4.

#### **4 Work Activities during the Month**

The major site activities this month included the joint site survey and the preparation work for installations of E&M equipment at Final Sedimentation Tank No. 8 and pH Control System. The Contractor's program for their activities, i.e. the master construction program, is shown in Appendix 1. The activities and dates of occurrence of each activity are summarized below in Table 3. The project area including the activities work area during this month is shown in Appendix 6.

**Table 3: Work Activities for June 2006**

Joint site survey	15 June '06
<b><i>Final Sedimentation Tank No. 8</i></b>	
Installation of E&M equipment	18 Jun '06 – 28 Jul '06*
<b><i>PH Control System</i></b>	
Installation of E&M equipment	18 Jun '06 – 17 Oct '06*

\* *Scheduled dates only for completion of the activities.*

## 5 Status of Environmental Protection

### Air Quality

Appropriate mitigation measures for the activities are in place. Plastic covers with stakes/weights are readily available and used for covering of exposed material for control of dust. Water spray is available for dust suppression, if necessary.

### Water Quality

The plastic covers for exposed soil, etc. are available for minimization of silt in the run-off water during rainstorms, if necessary. Sandbags will be provided for preventing surface run-off discharging directly into public drain area. Note that wastewater generated from the off-site project office was collected in a storage tank and tanker-away regularly by a licensed collector.

Anti-mosquito preventive measures, e.g. regular removal of stagnant water (if possible) and/or spraying larvicide (if necessary) at any site area, are taken for mosquito control and prevention, particularly for control of Dengue Fever and Japanese Encephalitis diseases.

### Noise

Plants with low noise emittance are preferred and are operated/maintained to reduce noise. In this reporting month, work was carried out during normal working hours (7am – 7pm Monday to Saturday) or otherwise specified in the contract. In the event of a schedule change such that construction work would be performed during the restricted hours (11pm – 7am and during general public holidays including Sundays), a Construction Noise Permit would be required.

### Waste / Chemical Management

The construction waste materials are preferred to be removed promptly from the site. Recyclable hard inert C&D materials should be taken to a public filling area (the fill bank at WENT landfill at Nim Wan) whereas the non-inert C&D waste should be disposed of to NENT landfill at Ta Kwu Ling or other disposal site approved by the control authority. Note that the inert C&D materials should be reduced, reused and recycled if possible, before disposal. Any substance identified as chemical waste would be disposed of properly by a licensed collector. A trip ticket system for the disposal of C&D waste should be conducted as required by the Waste Management Plan. Rubbish bins are provided on-site for collecting general refuses as necessary. The general refuse would be removed regularly and disposed to landfills by a licensed collector. A proper record of each waste disposal, including the new bar-coded disposal delivery form, would be kept to verify proper handling and disposal.

The status of permits and licenses is summarized in Table 4.

**Table 4: Status of Permits and Licenses**

Description	Permit No.	Valid Period		Ref.	Status
		From	To		
Environmental Permit	EP-218/2005	16/06/05	End of Project	PS1.39*	Granted

\* Particular Specification of Contract No. DE/2005/03

## 6 Site Inspections

The site inspection by the Environmental Team commenced on 19 June 2006 to observe the preparation works and the conditions of the site areas for the project. Site inspections by an ET technician were conducted on 20 and 27 of June 2006. Joint site audits was conducted on 27 of June 2006 with the representatives of the Engineer.

Weekly site inspections of the work areas by an ET technician were conducted this month. An approved three-page checklist is used which lists all of the mitigation measures/key EM&A requirements that summarized from the EM&A Manual. The locations inspected were marked on a layout plan and the location code was recorded on the checklist.

The major site activities this month included the joint site survey and the preparation work for installations of E&M equipment at Final Sedimentation Tank No. 8 and pH Control System.

No deficiencies were found during this month. Refer to checklists in Appendix 6. Whereas all of the environmental aspects were inspected in the work areas, the most applicable are addressed below.

### Air Quality

No dusty material was found from the site areas or activities this month.

### Water Quality

After drained down Final Sedimentation Tank No. 8 completely, accumulation of final effluent was observed in effluent channel at Final Sedimentation Tank No. 8 in end of June 2006. The final effluent was removed accordingly. In addition, accumulated final effluent in hopper at Final Sedimentation Tank No. 8 was sprayed with larividal oil and bleach agent in end of June 2006.

No surface run-off was observed during the site inspections this month. Note that the regular inspections and preventive measures for the mosquitoes are being conducted and recorded at least weekly by the Contractor.

### Noise

During this month, the work activities and equipment used did not generate significant noise. In this reporting month, no work was carried out during general public holidays including Sundays.

### Waste / Chemical Management

A refuse bins and waste storage/sorting area were provided for the collection of general refuse and sorting the C&D materials.

No packaging wastes and construction wastes were disposed to landfill by the licensed waste collector this month.

The type and quantity of waste for final disposal during June 2006 is shown in Table 5. Note that a record of each disposal is being kept.

**Table 5: Type and Quantity of Waste Disposed of in June 2006**

<b>Types of Waste</b>	<b>Quantity</b>
Inert C&D Material	Nil
Non-inert C&D Waste	Nil
Chemical Waste	Nil
General Refuse*	Nil

\* Included the site office.

## **7 Baseline Monitoring**

Baseline monitoring was conducted by the Civil Contractor in November 2005. A Copy of the baseline monitoring report is annexed in Appendix 5.

## **8 Summary of Deficiencies and Remedial Actions**

A procedure for the EM&A site inspections, deficiency and remedial action reporting system was approved by the ER (Appendix 3), as required in the EM&A Manual (section 6.1.2). The site inspection checklists, reporting and interaction between the relevant parties was detailed.

There were no deficiencies noted from the site inspections of June 2006.

## **9 Summary of Complaints and Remedial Actions**

No complaints were received in June 2006. In the event of complaints, the procedure for handling of the complaints is detailed in the EM&A Manual.

## **10 Summary of Summons and Prosecutions**

No notification of summons and no prosecutions occurred in June 2006.

## **11 Monthly Environmental Auditing for the Coming Months**

The planned activities for the coming three months (July – September 2006) as regards E&M equipment consists of E&M equipment installation and T&C (if required), as listed below:-

- Final Sedimentation Tank Nos. 5, 7 and 8 for installation of density current baffles and modification of existing scrapers
- pH control System

The anticipated environmental issues for July – September 2006 will be as follows:-

- Final Sedimentation Tank Nos. 5, 7 and 8 for installation of density current baffles and modification of existing scrapers
  - The anticipated environmental issues will be related to the waste disposal from the E&M equipment installation.
  - The anticipated environmental issues will be related to the stagnant water, as testing/commissioning of equipment/system will be involved.
- pH control System
  - The anticipated environmental issues will be related to:-
    - the waste disposal from E&M equipment installation.
    - the stagnant water, as testing/ commissioning of equipment/system will be involved.
    - the chemical handling (if any) during the T&C period.

## **12 Conclusions and Comments**

The required weekly site inspections have been conducted. No deficiencies, i.e. non-compliances, were noted.