

**Contract No. : EP/SP/52/06**  
**Development of EcoPark in Tuen Mun Area 38**

**ENVIRONMENTAL MONITORING AND AUDIT**  
**FINAL CONSTRUCTION EM&A REPORT**

**Environmental Pioneers & Solutions Limited**

Flat B, 6/F., Hop Shi Factory Building,  
29 Lee Chung Street, Chaiwan, Hong Kong  
Tel: 2889 0569 Fax: 2856 2010

## **APPROVAL SHEET**

DOCUMENT DATE: 22 December 2010

Prepared and Certified by: ET Leader (Environmental Pioneers & Solutions Limited)

Signature: \_\_\_\_\_  
Miss Patricia Chung

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

Verified by: \_\_\_\_\_  
IEC\*

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

\* IEC – Independent Environmental Checker

**TABLE OF CONTENTS**

EXECUTIVE SUMMARY .....	4
1. BASIC PROJECT INFORMATION .....	5
2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS.....	7
3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS....	8
4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES .....	12
5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION .....	12
6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS .....	12
7. CONCLUSION .....	13
APPENDIX 1 - SITE LAYOUT PLAN.....	14
APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38 .....	15
APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS.....	16
APPENDIX 4 – CUMULATIVE LOG OF COMPLAINTS .....	17

## **EXECUTIVE SUMMARY**

This is the fifty-four (FINAL) monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled “Development of EcoPark in Tuen Mun Area 38”. (Environmental Permit No. EP-226/2005/A).

This report mainly concluded the EM&A works undertaken during the entire construction period, from July 2006 to November 2010.

The construction works was completed and there is insignificant environmental impacts of the remaining outstanding construction works.

LFG monitoring required as all excavation pits are filled since February 2010. The construction noise permit was expired on 18<sup>th</sup> of July, 2010.

The construction completed in November 2010, so no further construction activities are anticipated hereafter.

.

## **1. BASIC PROJECT INFORMATION**

### **1.1 Introduction**

This is the fifty-four (FINAL) monthly Environmental Monitoring and Audit (EM&A) Report for the Environmental Protection Department Contract No. EP/SP/52/06 entitled “Development of EcoPark in Tuen Mun Area 38”. The site layout plan is shown in Appendix 1. The report was prepared by the Environmental Team, Environmental Pioneers & Solutions Limited, of the Works Contractor, Kaden Construction Limited. The report is to be submitted to the Works Contractor, the Engineer and the Environmental Protection Department for the project.

This report mainly concluded the EM&A works undertaken during the entire construction period, from July 2006 to November 2010. This included regular site inspections once per week for verification of implementation of the mitigation measures as recommended in the EM&A Manual and the Contractor’s Environmental Management Plan (EMP).

The construction works of Phase I have already commenced in July 2006 and have been completed in November 2008.

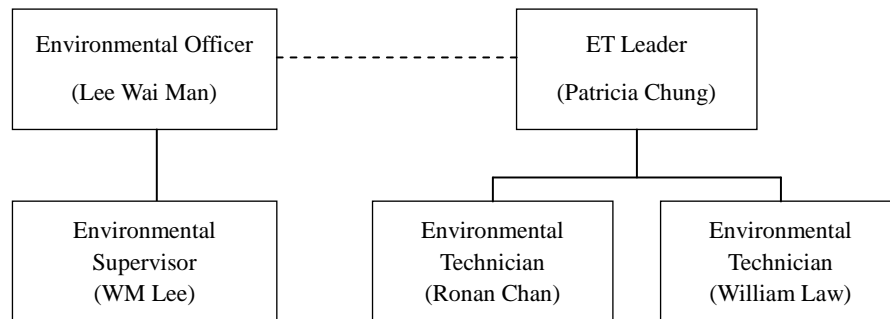
The construction works of Phase II commenced in December 2008 and was completed in November 2010.

The contact person and telephone number of key personnel for the captioned project are shown in Appendix 2.

### **1.2 Project Organization and Management**

The Works Contractor has commissioned Environmental Pioneers & Solutions Limited as the Environmental Team, which comprises the environmental team leader and the environmental technicians to undertake the environmental monitoring and audit work for this project. The project Organization Chart of Environmental Team is shown in Figure 1.1.

Figure 1.1 Organization Chart of Environmental Team



## **2. SUMMARY OF WORK ACTIVITIES AND CONSTRUCTION STATUS**

### **2.1 Summary of Major Construction Works (July 2006 – November 2010)**

- Construction of Site Office
- Excavation and Site Formation Works
- Construction of Electrical Sub-stations
- Construction of Drainage and Sewerage
- Construction of Administration Building
- Construction of Marine Front Management Office
- Landscaping Works

### **2.2 Future Key Issues**

The construction completed in November 2010, so no further construction activities are planned hereafter.

### **3. STATUS OF ENVIRONMENTAL PROTECTION AND SITE INSPECTIONS**

#### **3.1 Environmental Site Inspections**

Environmental site inspections are required to inspect the construction activities of the Development of EcoPark in order to ensure that appropriate environmental protection and pollution control mitigation measures are properly implemented. Regular site inspections were be carried out by the ET once per week during construction phase.

A detailed checklist of each site inspection together with comments, relevant photos and maps have been filed and kept.

#### **3.2 Air Dust**

Dust problem may be arisen when dusty roads are not dampened during dry or windy conditions. Dust suppression measures such as water spraying have been applied in the reporting month.

#### **3.3 Noise**

The major noise source was vehicle movement and machinery in the EcoPark. Since the nearby NSRs were remote, the noise impact was minimal. There was no specific observation noted regarding noise issue. The Contractor has obtained the Construction Noise Permit on 19 Jan 2010 and it was expired on 18 Jul 2010. There are no more overnight construction works planned, so the Construction Noise Permit is no longer required.

#### **3.4 Surface Water Quality**

Since there was no water discharge at manhole, the Contractor removed the silt curtain installed at discharge point on 4 April 2007, as agreed by the Engineer's Representative. Muddy water was observed at discharge point for Phase I construction site on 14



August 2009. The contractor was reminded to consider using a silt curtain if the discharge continues. As informed by Engineer's Representative, there was no direct water discharge at manhole in Phase II construction site. No muddy water discharge is expected.

Chemical toilets (1 nos.) have been provided in Phase II construction site by a licensed contractor, of which sewage generated, is collected every three to five days without causing contamination on surface water. The Effluent Discharge License was issued to the Contractor on 20 November 2006.

The temporary storage tank was used to store the effluent of aerobic wastewater treatment system and the stored effluent was pumped away regularly. As checked by the ET, there was no effluent discharge into the storm water drain. To avoid any sewage overflow, frequent checking is required after the commencement of Phase II construction works.

### 3.5 Visual and Landscape Impact

Nil.

### 3.6 Waste / Chemical Waste

The Contractor implemented visual inspection and distributed flyers/ notices to ensure all dump trucks have mechanical covers closed when leaving EcoPark site.

Separate waste collection bins were made available for collecting aluminum cans, waste paper and plastic bottles etc. The Contractor has provided the revised site layout plan for refuse collection points as shown in Appendix 3.

Waste dumpsters were used for the collection and storage of general waste. Temporary storage areas for waste metals and waste tires were established in Phase I construction

site. For Phase II construction site, a designated refuse collection point has been established and location is shown in Appendix 3.

Excavated materials are reused as back-fill material to balance cut and fill and hence reduce the generation of materials. Surplus materials are returned to stock in centralized area with suitable protective measures. The Contractor was reminded to comply with the requirements and conditions for disposal at public fill facility and all oversized aggregates should be crushed to less than 250mm before delivering to the public fill.

Materials are recycled and re-used at site as much as practicable to minimize waste generation. Timbers are recycled to make temporary tools and assess ladders etc. Excavated rocks, concrete and asphalts are stored for future re-use in land formation and structural construction etc.

Registered waste collectors will be arranged to collect and transport the wastes whenever necessary.

Since no chemical waste will be generated from the construction site in the future, chemical waste storage was removed from construction site on 7<sup>th</sup> October 2010.

### 3.7 Landfill Gas

There was no LFG monitoring required as all excavation pits are filled since February 2010.

Table 3.5 Action Levels, Limit Levels and Event and Action Plan for LFG (From EM&A Manual)		
Parameter	Level	Action
Oxygen	Action Level < 19% O <sub>2</sub>	Ventilate trench/ void to restore O <sub>2</sub> to >19%
	Limit Level < 18% O <sub>2</sub>	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O <sub>2</sub> to > 19%

Methane (CH <sub>4</sub> )	Action Level >10% LEL	Post “No Smoking” signs Prohibit hot works Increase ventilation to restore CH <sub>4</sub> to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH <sub>4</sub> to <10% LEL
Carbon Dioxide (CO <sub>2</sub> )	Action Level >0.5% CO <sub>2</sub>	Ventilate to restore CO <sub>2</sub> to < 0.5%
	Limit Level >1.5% CO <sub>2</sub>	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CO <sub>2</sub> to < 0.5%

#### 4. SUMMARY OF ENVIRONMENTAL PERMIT AND LICENCES

ET has checked with the Contractor for the status of all environmental permits and licenses for this project as in November 2010, which is summarized in Table 4.1. ET will follow the application process of the outstanding permits / licenses and will provide suitable assistance whenever appropriate.

Table 4.1 Summary of Environmental Permits/Licences				
<b>Description</b>	<b>License / Permit No.#</b>	<b>Date of Issue</b>	<b>Date of Expiry</b>	<b>Status/Remarks</b>
Environmental Permit	EP-226/2005/A	9-Sep-2005	--	Issued
Registration of Waste Producer	5111-421-K2869-02	27-Jul-2006	--	Issued
Construction Noise Permit	GW-RW0012-10	19-Jan-2010	18-Jul-2010	*Expired
Effluent Discharge Licence	EP760/421/011762/I	20-Nov-2006	1-Dec-2011	Issued

\*Note: Construction Noise Permit for overnight works was no longer required.

#### 5. CUMULATIVE LOG OF COMPLAINTS AND REMEDIAL ACTION

The cumulative log of complaints is referred in Appendix 4.

#### 6. CUMULATIVE LOG OF NOTIFICATION OF SUMMONS AND PROSECUTIONS

No notification of summons and no prosecutions occurred in the entire construction period of Phase I and II.

## **7. CONCLUSION**

There is no summon nor prosecutions reported in the entire construction period of Phase I and II.

Contractor has implemented some mitigation measures to address those problems as advised by ET. Some of the measures taken by the contractor were considered as effective to minimize negative impact to the environment. Since the major construction activities are completed, only minor activities and environmental issues are anticipated.

The Contractor has been using the waste management and record system including allocation of waste storage areas and the trip ticket system as proposed in the Environmental Management Plan.

There was no LFG monitoring required as all excavation pits are filled since February 2010. The construction noise permit has been expired on 18<sup>th</sup> of July, 2010.

[illegible]

**APPENDIX 2 - THE CONTACT PERSONS, TELEPHONE NUMBERS OF KEY PERSONNEL FOR DEVELOPMENT OF ECOPARK IN TUEN MUN AREA 38**

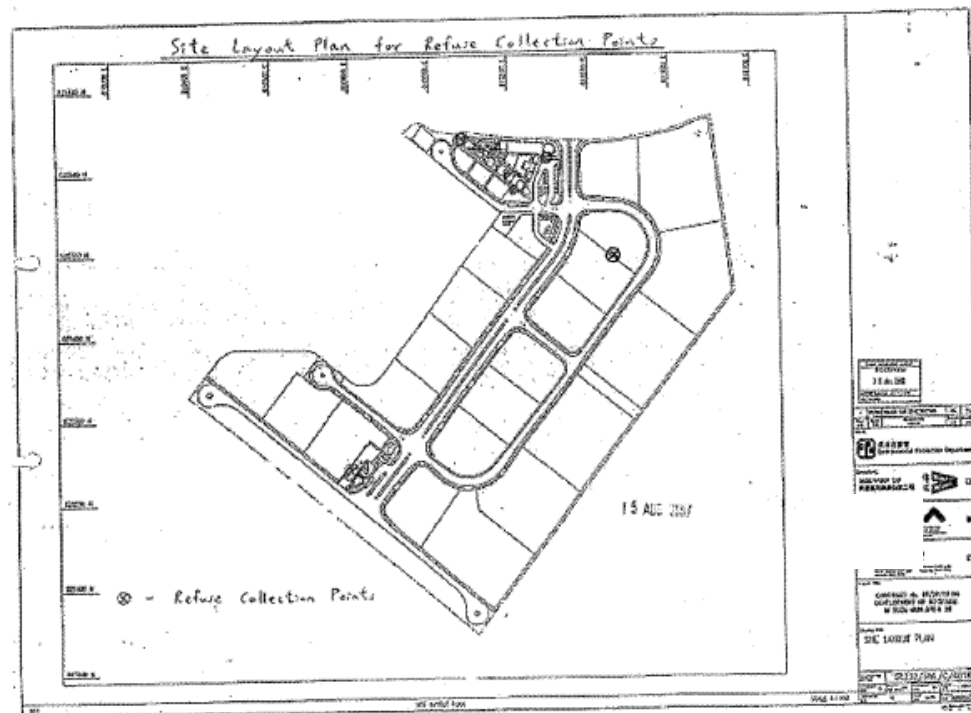
<b>Company/Department</b>	<b>Name</b>	<b>Position</b>	<b>Telephone</b>
Scott Wilson Ltd.	Harold Insley	Independent Environmental Checker	2410 3858
Scott Wilson Ltd.	Mr. Andy Cheung	Resident Engineer	6111 9703
Scott Wilson Ltd.	Mr. T W Wong	Inspector	6111 9705
Kaden Construction Limited	Mr. K M Book	Project Manager	9193 8680
Kaden Construction Limited	Mr. Stephen Leung	Section Agent	9071 7657
Environmental Pioneers & Solutions Limited	Miss. Patricia Chung	Environmental Team Leader	2965 0888
Environmental Pioneers & Solutions Limited	Mr. William Law	Environmental Technician	2965 0882
Environmental Pioneers & Solutions Limited	Mr. Ronan Chan	Environmental Technician	2965 0881

### APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS

Development of EcoPark in Tuen Mun Area 38

Contract No. EP/SP/52/06  
EM&A Report No. 30 (December 2008)

### APPENDIX 3 – REVISED SITE LAYOUT PLAN FOR REFUSE COLLECTION POINTS





**APPENDIX 4 – CUMULATIVE LOG OF COMPLAINTS****CUMULATIVE LOG OF COMPLAINTS**

<b>Environmental Parameters</b>	<b>No. of Outstanding Complaints</b>	<b>Cumulative no. of complaints received since the commencement of project</b>
Air	0	2
Noise	0	0
Water	0	0
Waste	0	0
Total	0	2

**DETAILS OF COMPLAINTS AND REMEDIAL ACTIONS**

<b>Log Ref.</b>	<b>Date of Compliant received</b>	<b>Location</b>	<b>Complainant /Date</b>	<b>Details of Complaint</b>	<b>Investigation /Mitigation Action</b>	<b>Investigated by/ Date</b>
-	-	-	-	-	-	-