

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

ENVIRONMENTAL MONITORING AND AUDIT

MONTHLY EM&A REPORT for

March 2010

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APPROVAL SHEET

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EXECUTIVE SUMMARY

This is the forty-fifth 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 contains the results and findings of site inspection activities and EM&A works carried out by the Environmental Team (ET) of the Works Contractor as required in the contract during March 2010.

The site activities in the reporting period mainly consisted of excavation and site formation works and construction of drainage in Phase II construction site.

Several environmental issues, such as the housekeeping issues and dust and soil were spread over Roads A, B and D, have been identified by ET during weekly site inspections in the reporting month. 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. On-going investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in the following month.

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

There were no notifications of summons or successful prosecution during March 2010.

Planned activities for April 2010 with regard to development of EcoPark consist of:

- 1) Site formation works,
- 2) Road formation works and
- 3) Construction of drainage, sewerage & water mains

1. BASIC PROJECT INFORMATION

1.1 Introduction

This is the forty-fifth 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 presents the results of the environmental monitoring of the project activities conducted during the month of March 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.

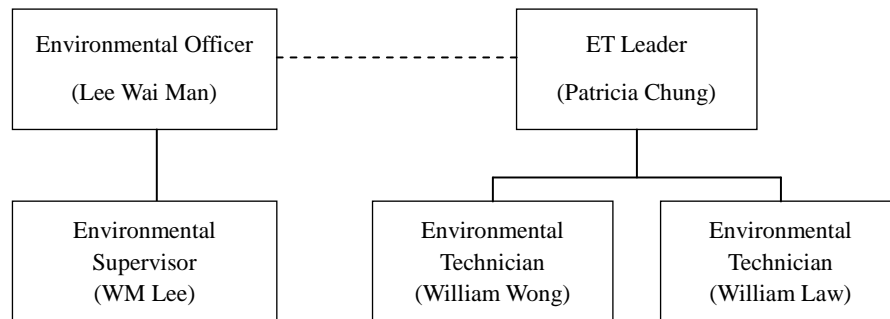
The construction works of Phase II commenced in December 2008 and is anticipated to be completed in April 2010.

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 Works Undertaken during the Month

A summary of the site installation works in this month, with the information of locations, activities, equipment/materials and dates of occurrence, is provided by the Contractor, as shown in Table 2.1.

Table 2.1 Work Activities for March 2010		
Item	Work Activities & Location	Date of Occurrence
1	Site formation works	01 March 2010 – 31 March 2010
2	Road Formation works	01 March 2010 – 31 March 2010
3	Construction of drainage	01 March 2010 – 31 March 2010

Machineries		
	Equipment/ Plant	Quantity
1	Mobile Crane	0
2	Excavator	6
3	Generator	2
4	Air Compressor	1
5	Roller	0
6	Loader	1
7	Grab Lorry	0
8	Crane Lorry	1
9	Water Truck	1
10	Dump Truck	1

Remarks:

- As informed by the Contractor, most equipment is mobile at site subject to work progress.
- Refer to Appendix 1 – Site layout plan for location of construction activities.

2.2 Future Key Issues

The Contractor has provided an updated construction program in Table 2.2 to show the planned activities for the coming month (April 2010). The anticipated environmental issues are summarized as follow:

Table 2.2 Construction Program and Anticipated Environmental Issues		
Item	Works	Anticipated Environmental Issues
1	Site formation works, excavation works & road works	<ul style="list-style-type: none"> - Generation of C&D waste should be reused as much as practicable. - Dust may be generated; the wheel washing machine should be in operation. - Haul road should be sprayed regularly, by truck or sprinkler. - Stagnant water should be removed. - Mosquito mitigation measures should be implemented.
2	Construction of drainage, sewerage & water mains	<ul style="list-style-type: none"> - Generation of C&D waste; excavated material should be used as much as practicable - Dust may be generated; the wheel washing machine should be in operation

The site inspection schedule for the next month (April 2010) is designated on 1st, 8th, 15th, 22nd and 29th of April 2010.

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 should be carried out by the ET once per week during construction phase.

Outstanding issues at the end of February 2010 includes:

- 1) The automatic wheel washing machine was found to be severely damaged on 18 September 2009. Contractor was reminded to manually wash the vehicles leaving the construction site before automatic wheel washing machine is repaired or replaced. This issue is closed on 11 March 2010.
- 2) Road A near construction site exit is covered with dirt and dust. Contractor was reminded to manually wash the vehicles leaving the construction site before the automatic wheel washing machine is repaired or replaced. This issue is closed on 4 March 2010.
- 3) A pile of waste was observed in the middle of Lot 10. Contractor took action to remove and disposed of the contaminated soil on 4 March 2010. Contractor was reminded to improve the housekeeping practice on site and properly dispose of C&D waste. This issue is closed on 4 March 2010.
- 4) General waste was piled in Lot 14. Contractor scheduled more frequent waste pick up to clean of the piled waste. Contractor was reminded to monitor the waste collecting schedule and revise if the existing schedule does not adequately meet the current needs. This issue is closed on 18 March 2010.

Site inspections for Phase II construction site were conducted on 4th, 11th, 18th and 25th of March 2010.

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

The findings and results of site inspections are provided in Table 3.1:

Table 3.1 Summary of Site Inspections for Phase II construction site during March 2010				
Date	Observations	Advice from ET	Action taken	Closing Date
11 September 09 to 4 March 10	The automatic wheel washing machine malfunctioned on 11 September and found to be severely damaged on 18 September 2009.	Contractor was reminded to repair the automatic wheel washing machine and instruct workers to properly wash wheels of construction vehicles by hand.	Lot 7 was handed over to user, hence site entrance has been relocated to Lot 10 and the damaged wheel washing machine was removed from site.	11 March 2010.
09 October 09 to 25 March 10	Road A near construction site exit is covered with dirt and dust.	Contractor was reminded to manually wash the vehicles leaving the construction site before the automatic wheel washing machine is repaired or replaced.	Site entrance was relocated to Lot 10 facing Road D.	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)
11 December 09 to 31 March 10	Roads A and D are covered with dirt and dust.	Contractor was reminded to manually wash the vehicles leaving the construction site before the automatic wheel washing machine is repaired or replaced.	Contractor instructed drivers and workers to manually wash wheels of vehicles until further notice.	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)
05 February 10 to 28 February 10	A pile of waste was observed in the middle of Lot 10.	Contractor was reminded to improve the housekeeping practice on site and properly dispose of C&D waste.	Contractor took action to frequently remove waste on site and reduced the pile of waste in Lot 10.	4 March 2010
25 February 10 to 11 March 10	General waste was piled in Lot 14.	Contractor was reminded to monitor the waste collecting schedule and revise if the existing schedule does not adequately meet the current needs.	Contractor took action to frequently remove waste on site and removed the pile of waste in Lot 14.	18 March 2010
11 March 10 to 31 March 10	Stockpile was observed in Phase II construction site.	Contractor was reminded to cover open stockpiles with tarpaulin to minimize the amount of air-borne dust.	--	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)
18 March 10 to 31 March 10	Oil was observed on the ground near chemical storage area.	Contractor was reminded to properly collect and dispose of the contaminated soil.	--	To be followed in the next reporting month. (Tentative closing date: 1 April 2010)

Table 3.1 Summary of Site Inspections for Phase II construction site during March 2010				
Date	Observations	Advice from ET	Action taken	Closing Date
25 March 10	General waste was piled near waterfront.	Contractor was reminded to monitor the waste collecting schedule and revise if the existing schedule does not adequately meet the current needs.	--	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)
25 March 10	General waste was piled near the Contractor's site office.	Contractor was reminded to monitor the waste collecting schedule and revise if the existing schedule does not adequately meet the current needs.	--	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)
25 March 10	Road B near construction site exit is covered with dirt and dust.	Contractor was reminded to thoroughly wash the vehicles before leaving the construction site.	--	To be followed in the next reporting month. (Tentative closing date: 30 April 2010)

3.2 Air Dust

Excavation work is being carried out in Phase II construction site. Dust problem may be arisen when stockpiles of excavated materials are not enclosed, covered or dampened during dry or windy conditions. Dust suppression measures such as water spraying have been observed 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 will be expire on 18 Jul 2010.

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 slit 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.

The automatic wheel washing machine was found to be severely damaged on 18 September 2009. Contractor was reminded to manually wash the vehicles leaving the construction site before automatic wheel washing machine is repaired or replaced. Since Lot 7 was handed over to user, therefore site entrance has been relocated to Lot 10 and the damaged wheel washing machine was removed from site.

Road B near the new site entrance was covered with dirt and dust. Contractor was reminded to thoroughly wash the vehicles before leaving the construction site.

3.5 Visual and Landscape Impact

Hoarding was erected at the site egress and aligned along the site boundary along Lung Mun Road. Hoardings were specially designed to be movable for future re-use in other locations.

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 access 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.

Table 3.4 provides a summary table of waste disposal in March 2010. The Contractor has been reminded to keep good record at site in order to have a clear presentation of waste disposal.

Table 3.4 Summary of Waste Disposal in March 2010			
Type of Waste	Disposal Site	Quantity	Remarks
General Waste	WENT Landfill	45.73 tonnes*	-
Inert C&D Material	Public Fill Facility	0 tonnes	-

*NOTE: Quantity increased due to removal of site offices.

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 ₂	Ventilate trench/ void to restore O ₂ to >19%
	Limit Level < 18% O ₂	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore O ₂ to > 19%
Methane (CH ₄)	Action Level >10% LEL	Post “No Smoking” signs Prohibit hot works Increase ventilation to restore CH ₄ to <10% LEL
	Limit Level >20% LEL	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CH ₄ to <10% LEL
Carbon Dioxide (CO ₂)	Action Level >0.5% CO ₂	Ventilate to restore CO ₂ to < 0.5%
	Limit Level >1.5% CO ₂	Stop works Evacuate personnel/prohibit entry Increase ventilation to restore CO ₂ 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 at March 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				
Description	License / Permit No.#	Date of Issue	Date of Expiry	Status/Remarks
Environmental Permit	EP-226/2005/A	9-Sept-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	Issued
Effluent Discharge Licence	EP760/421/011762/I	20-Nov-2006	1-Dec-2011	Issued

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 during March 2010.

7. CONCLUSION

There is no summon nor prosecutions reported during March 2010.

Several environmental issues, such as the housekeeping issues and dust and soil were spread over Roads A, B and D, have been identified by ET during weekly site inspections in the reporting month. 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. On-going investigation will be carried out to observe performance and effectiveness of those measures. Outstanding environmental items will be inspected in

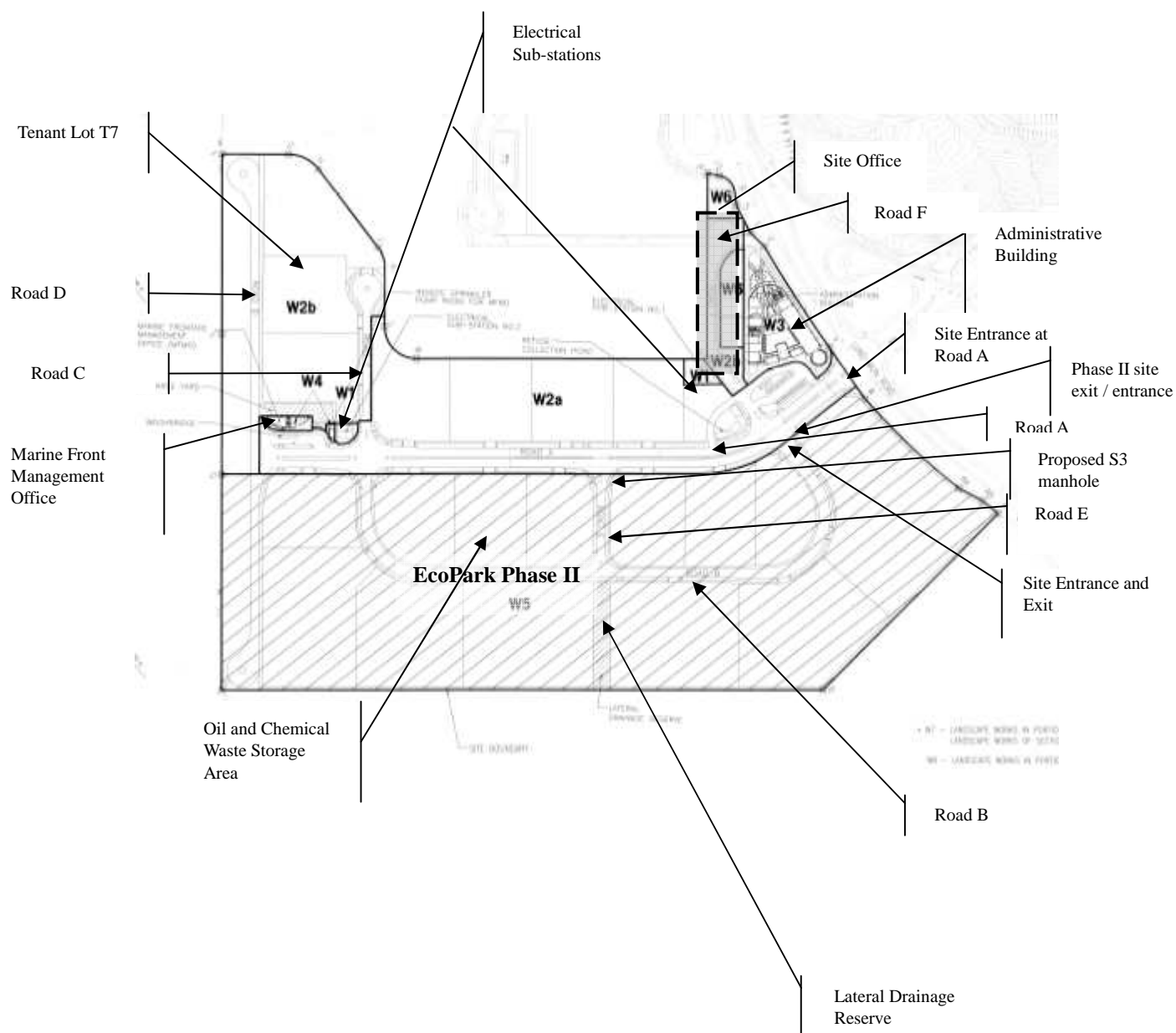
the following month.

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 ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirement.

APPENDIX 1 - SITE LAYOUT PLAN



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

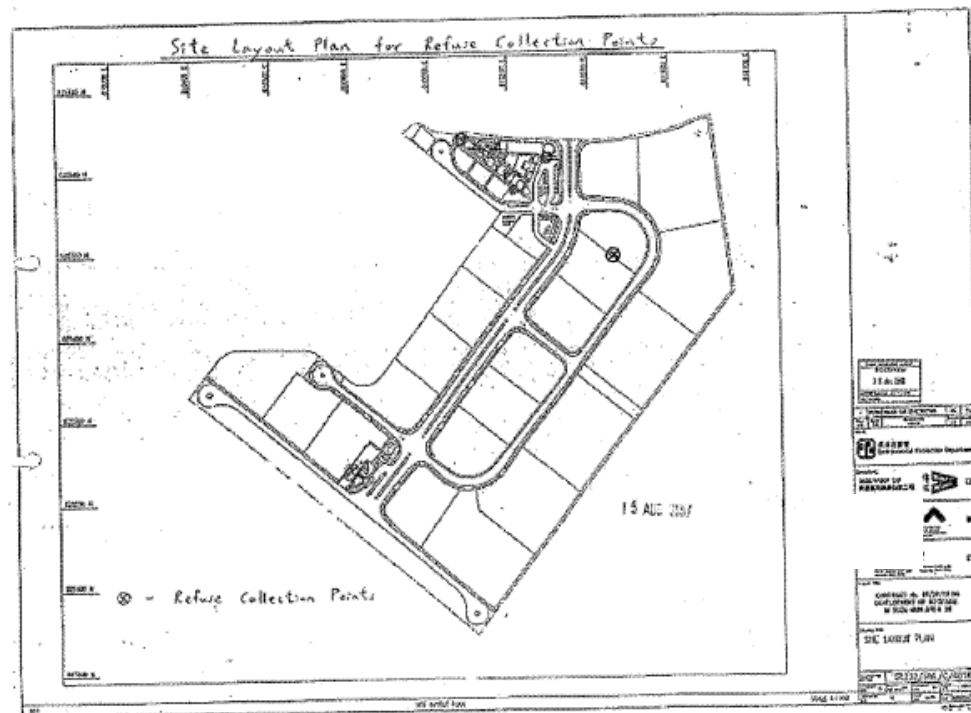
Company/Department	Name	Position	Telephone
Scott Wilson Ltd.	Harold Insley	Independent Environmental Checker	2410 3858
Scott Wilson Ltd.	Mr. Andy Cheung	Resident Engineer	6111 9703
Scott Wilson Ltd.	Mr. T W Wong	Inspector	6111 9705
Kaden Construction Limited	Mr. K M Book	Project Manager	9193 8680
Kaden 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 Wong	Environmental Technician	2965 0818
Environmental Pioneers & Solutions Limited	Mr. William Law	Environmental Technician	2965 0882

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**

Environmental Parameters	No. of Outstanding Complaints	No. of complaints received in March 2010	Cumulative no. of complaints received since the commencement of project
Air	0	0	2
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	2

DETAILS OF COMPLAINTS AND REMEDIAL ACTIONS

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