



AECOM

Ocean Park Master Redevelopment Project

Monthly Environmental Monitoring & Audit
Report – October 2009



Table of Content

Part 1 Project Overview

Executive Summary

| | | |
|------------|--|-----------|
| 1. | Introduction..... | 3 |
| 2. | Project Organisation | 4 |
| 3. | Construction Works Undertaken during the Reporting Month..... | 4 |
| 4. | Permits and License Status..... | 5 |
| 4.1. | ENVIRONMENTAL PERMIT | 5 |
| 4.2. | CNP | 6 |
| 4.3. | OTHER PERMITS & LICENSES | 7 |
| 5. | EP Submissions Status | 8 |
| 6. | Materials Management..... | 9 |
| 7. | Environmental Monitoring and Results | 9 |
| 7.1. | REQUIREMENTS | 9 |
| 7.2. | MONITORING LOCATIONS | 10 |
| 7.3. | MONITORING RESULTS..... | 11 |
| 7.4. | EXCEEDANCES | 12 |
| 8. | Site Audit..... | 12 |
| 8.1. | IEC SITE AUDIT | 12 |
| 8.2. | NON- COMPLIANCE | 12 |
| 9. | Implementation Status of Environmental Mitigation Measures..... | 12 |
| 10. | Summary of Complaint, Summon or Prosecution | 12 |
| 11. | Future Issues | 13 |
| 12. | Conclusion and Recommendation | 14 |
| 12.1. | CONCLUSION | 14 |
| 12.2. | RECOMMENDATION | 14 |

Appendix A IEC's Site Inspection Records

| | |
|---------------|--------------------------------------|
| Part 2 | CI-07 EM&A Monthly Report |
| Part 3 | CW-02 EM&A Monthly Report |
| Part 4 | CS-02 EM&A Monthly Report |

Part 1 Project Overview

Executive Summary

This is the combined monthly EM&A Report for Ocean Park Master Redevelopment Project, which includes CI07 “Entry Plaza, Aqua City and Grand Aquarium”, CW02 “The Astounding Asia” and CS02 “Rainforest”. This report presents the results of EM&A works conducted in the reporting month of October 2009 (from 26 September 2009 to 25 October 2009).

A summary of monitoring and audit activities conducted in the reporting period is listed below:

| | |
|--|--|
| 1-hour TSP monitoring | 16 sessions for all air quality monitoring stations, |
| 24-hour TSP monitoring | 5 sessions for air quality monitoring stations, |
| Daytime noise monitoring | 4 sessions for all noise monitoring stations, |
| Evening or night time noise monitoring | 0 sessions for all noise monitoring stations, |
| Holiday time noise monitoring | 0 session, |
| Coral monitoring | 0 session, and |
| Environmental Site Inspection | 5 sessions (including IEC audit) |

No exceedance was recorded on the 1-hour TSP monitoring, 24-hour TSP monitoring and Day-time noise monitoring.

No complaint, non-compliance from IEC, summons or prosecution related to environmental issues was made against the Ocean Park Master Redevelopment Project in the reporting period of October 2009.

1. Introduction

The “Master Redevelopment Project of Ocean Park” (hereinafter known as the “Project”) is implemented by the Ocean Park Corporation at its existing site of Ocean Park and Nam Long Shan, Aberdeen. The Project involves both reconstruction/modification of existing facilities and expansion of the Park, and therefore under Environmental Permit, EP-249/2006/A.

The construction works of the project consists of various contracts. Details of the contracts, which are required to perform the EM&A programme, are shown below.

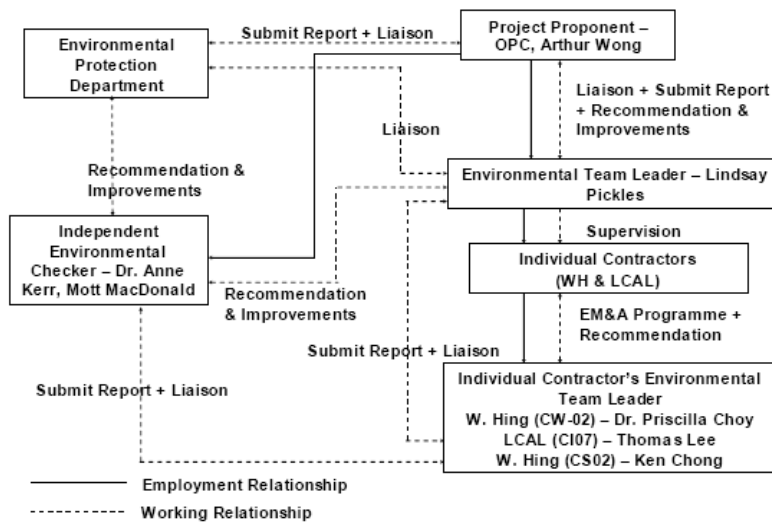
| Contract No. | Contract Title | Contractor | Construction Commencement |
|--------------|--|----------------------------------|--|
| CI-05 | Site Formation, Funicular Tunnel and Miscellaneous Works | Dragages-Bouygues JV | 12 March 2007 and Construction phase has ceased in early June 2009 |
| CS-01 | Back of House for Marine Mammal Veterinary Hospital | Kaden – ATAL JV | 26 March 2007 and Construction phase has ceased in mid-October 2008. |
| CW-02 | Astounding Asia | W. Hing Construction Co. Ltd. | 1 August 2007 |
| CI-07 | Entry Plaza, Aqua City and Grand Aquarium | Leighton Contractors (Asia) Ltd. | 15 August 2008 |
| CS-02 | Rainforest | W. Hing Construction Co. Ltd. | 11 May 2009 |

The Contractors will conduct environmental monitoring and audits during the construction stage and produce contract specific monthly EM&A reports. The RSS will prepare a combined monthly EM&A report for the project. This is the combined monthly EM&A Report including the IEC audit findings, CI07, CW02 and CS02 Monthly EM&A Report. This report presents the results of EM&A works conducted in the reporting month of October 2009 (from 26 September 2009 to 25 October 2009).

2. Project Organisation

The structure of the environmental management team is shown in below figure.

Figure 1.1 Management Organization



3. Construction Works Undertaken during the Reporting Month

In the reporting month, the construction activities summarise as follows.

CI-05

- Construction phase has ceased in early June 2009.

CW-02

- Excavation works at Main (Emerald) Aviary.
- RC works for footings & superstructure at Main (Emerald) Aviary.
- Underground & surface drainage works at Main (Emerald) Aviary.

CS-02

- Defects rectification works at Funicular Plaza.
- RC Structure, U/G utilities installation, Erection of Tower Crane at the Exhibition House.
- Drainage works, Retaining wall construction, Draw-pit construction, Duct laying and Preparation of demolition of Footbridge.

CS-01

- Construction phase has ceased in mid-October 2008.

CI-07

- Footing and column construction, pipe works, gas ducting, U/G drainage, E&M works, block works and plastering at Entry Plaza;
- Column, wall, beam, slab construction, plastering, screeding and E&M works for East & West Building at Aqua City;
- Footing, ducting and U/G drainage work at Carousel Plaza;
- Slab and wall construction, retaining wall at Lagoon;
- Parapet wall, Backwash tank and E&M room construction at Grand Aquarium; and
- Excavation, beam and slab construction at Grand Aquarium Transformer Room.

4. Permits and License Status

4.1. Environmental Permit

The Environmental Impact Assessment (EIA) Report of the Project has been approved by the Environmental Protection Department (EPD) (Register No.: AEIAR-101/2006) on 12 July 2006. Subsequently, EPD issued Environmental Permit (EP) for the construction and operation of the project. Table below is a full list of the EPs.

| EP No. | Issue Date | Key Variation |
|---------------|-------------------|--|
| EP-249/2006 | 28 July 2006 | First EP |
| EP-249/2006/A | 25 September 2006 | <ul style="list-style-type: none">• Enhance the roosting habitat for freshwater birds by enlarging Pond 35 and its surrounds with a total area of no less than 120 squares meters and no construction works and discharge from construction sites shall be allowed within Pond 35 after enhancement.• Filling of Pond 37 at the Lowland Area.• Submission of the as-built drawings showing the enhancement works of Pond 35. |

4.2. CNP

Table below shows a list of CNP within the reporting month.

| Permit No. | Starting Date | Expired Date | Valid Time | Location | Contract No. | Status |
|-------------------------|---------------|--------------|---|---------------------------|--------------|---------|
| CI-07 (Leighton) | | | | | | |
| GW-RS0245-09 | 10-Apr-09 | 9-Oct-09 | <i>For water pumps, generator and wastewater treatment plant operation from 19:00-23:00 (general holiday including Sunday)</i> | Ocean Park Road | CI-07 | Expired |
| GW-RS0422-09 | 15-Jun-09 | 14-Dec-09 | <i>For water pump and wastewater treatment plant operation for any day 23:00 to 07:00 on next day</i> | Ocean Park Road | CI-07 | Valid |
| GW-RS0764-09 | 14-Oct-09 | 13-Apr-10 | <i>For water pumps, generator and wastewater treatment plant operation from 19:00-23:00 (general holiday including Sunday)</i> | Ocean Park Road | CI-07 | Valid |
| CW-02 (W. Hing) | | | | | | |
| GW-RS0163-08 | 1-Mar-09 | 31-Aug-09 | <i>Crane, tower (electric), hand-held drill (electric), super silenced generator (70 dBA at 7m) and submersible water pump (electric)</i> | Wong Chuk Hang Road | CW-02 | Expired |
| CS-02 (W. Hing) | | | | | | |
| GW-RS-756-09 | 10-Oct-09 | 13-Mar-10 | <i>Crane, tower (electric), hand-held drill (electric) and super silenced generator (70 dBA at 7m)</i> | Top of Nam Long Shan Road | CS02 | Valid |

4.3. Other Permits & Licenses

Tables below show lists of other permits & license for individual contracts.

CI-07

SPOT

| Permit/Ref/No | Valid Period | | Section | Status |
|--|--------------|-----------|---|------------|
| Notification of Construction Work under APCO | | | | |
| 001032366 | 15-Aug-08 | - | Entry Plaza, Aqua City & Grand Aquarium | Notified |
| Effluent Discharge License | | | | |
| EP820/W2/XW246 | 05-Sep-2008 | 30-Sep-13 | Entry Plaza, Aqua City & Grand Aquarium | Valid |
| Registration as Chemical Waste Producer | | | | |
| 5213-199-L2174-28 | 22-Sep-09 | N/A | Entry Plaza, Aqua City & Grand Aquarium | Registered |
| Construction Waste Disposal Charging Scheme | | | | |
| 7007576 | - | - | Entry Plaza, Aqua City & Grand Aquarium | Issued |

CW-02

SW 02

| Permit/Ref/No | Valid Period | | Section | Status |
|--|--------------|-----------|---|------------|
| Notification of Construction Work under APCO | | | | |
| 001022480 | 11-July-07 | - | Astounding Asia | Notified |
| Effluent Discharge License | | | | |
| EP820/W9/XW240 | 12-Oct-07 | 31-Oct-12 | Astounding Asia | Valid |
| Registration as Chemical Waste Producer | | | | |
| 5213-199-W2894-18 | 20-Aug-07 | - | Form Oil, Lubricant oil, paint, solvent and diesel. | Registered |
| Construction Waste Disposal Charging Scheme | | | | |
| 7005864 | - | - | Astounding Asia | Issued |

CS-02

03/02

| Permit/Ref/No | Valid Period | | Section | Status |
|--|--------------|-----------|--|------------|
| Notification of Construction Work under APCO | | | | |
| 305349 | N/A | N/A | Rainforest | Notified |
| Water Discharge License | | | | |
| WT00004136-2009 | 19-Jun-09 | 30-Jun-14 | Discharge of industrial trade effluent arising from the Sedimentation tank to communal storm water drain | Valid |
| Registration as Chemical Waste Producer | | | | |
| WPN5214-176-W1150-03 | 13-May-09 | N/A | Form Oil, Lubricant oil, paint, solvent and diesel. | Registered |
| Construction Waste Disposal Billing Account with EPD | | | | |
| WFG07578 | N/A | N/A | Rainforest | Issued |

5. EP Submissions Status

Environmental submissions to EPD since the commencement of construction works at Ocean Park, i.e. from 12 March 2007 to 25 October 2009 are as below.

| Contract | Submissions |
|-----------------------------------|---|
| CI-05 | <ul style="list-style-type: none"> • Notification of Commencement Date • Management Organisation Chart • Construction Programme • Drainage Proposal • Silt Curtain Proposal • Waste Management Plan • Baseline Air Quality and Noise Monitoring Report • Transplantation Proposal for Uncommon Species • Baseline Coral Survey Report • As-built Drawings of Pond 35 • Detailed Compensatory Planting As-built Drawing |
| CW-02, CI07 and CS02 | <ul style="list-style-type: none"> • Combined Monthly EM&A Report (September 2009) • Quarterly EM&A Report (July to September 2009) |
| City Bus Limited | <ul style="list-style-type: none"> • Written Notice on Completion of TPH Contaminated Soil Disposal • Written Notice on Completion of Solidification Treatment of Heavy Metals Contaminated • As-built Remediation Plan |
| Hong Kong School of Motoring Ltd. | <ul style="list-style-type: none"> • Confirmation Letter to confirm that Land Contamination remediation Works within HKSM has been completed |

6. Materials Management

Section 6.17 in the EIA report specified the disposal of materials to the public fill reception facilities should be considered as last resorts with the preferred approach to reuse the material within the project and/or other projects.

The amounts of different types of materials generated by the activities of the Project in the month are shown in following table. The total materials quantities of the project showed that the reuse of materials was maximized and the disposal to the public filling facilities was minimized. Mitigation measures under the Waste Management Plan (WMP) revision D have been implemented during the reporting period.

| Materials Type | Disposal Locations | CW-02 | CI-07 | CS-02 | Total |
|----------------|---------------------------------|---------------|-----------------|---------------|----------------|
| C&D Waste | SENT | 8.11 tonnes | 247.4 tonnes | 20.55 tonnes | 276.06 tonnes |
| | TKOSF | 11.55 tonnes | -- | -- | 11.55 tonne |
| | TMSF | -- | -- | -- | 0.00 tonne |
| C&D Material | QBBP/ CWPFBP | 469.31 tonnes | 6,125.00 tonnes | 256.09 tonnes | 6,850.4 tonnes |
| | TKOFB | 12.10 tonnes | -- | -- | 12.10 tonne |
| Chemical Waste | Collected by licensed collector | -- | -- | -- | 0.00 litre |
| General Waste | Collected by licensed collector | -- | -- | -- | 0.00 tonne |

7. Environmental Monitoring and Results

7.1. Requirements

Under EP-249/2006/A condition 3.2, impact environmental monitoring including sampling, measurements and necessary remedial action should be conducted in accordance with the requirements of the EM&A Manual. The environmental monitoring including air quality and noise were conducted by the Contract of CI-07 within the reporting period.

The items below would not be described in Part 1 report and would be described in CI-07 monthly EM&A report.

- Methodology and Criteria
- Action and Limit Levels
- Event and Action Plan

7.2. Monitoring Locations

Air Quality (TSP)

The locations of the air monitoring stations are presented in the table below. The figure was shown in the CI-07 Monthly EM&A Report.

| Air Quality Monitoring Stations | Identity/Description |
|---------------------------------|--|
| AM1 | Whisker's Theatre, Ocean Park |
| AM2 | San Wai Village, Wong Chuk Hang |
| AM3A | Open Area of PMR & OPC temporary Site Offices (from 14 September 2007) |

Construction Noise

The locations of the noise monitoring stations are presented in the table below. The figure was shown in the CI-07 Monthly EM&A Report.

| Noise Monitoring Stations | Identity/Description |
|---------------------------|--|
| CN1 | Open Area adjacent to Police Training School |
| CN2 | Project Development Office, Ocean Park |
| CN3 | Rinniped House, Ocean Park |
| CN4 | Manly Villa |

Terrestrial Ecology

Monitoring of the health and condition of the transplanted plant species of conservation interest should be conducted at least once a month during the first 12 month after transplantation. Proposed monitoring location would be next to the Contract CI-05 site office.

Coral

The locations of the coral monitoring stations are presented in the table below. The figure was shown in the Coral Survey Report (Part 5 of this report).

| Coral Impact Monitoring Stations | Identity/Description |
|----------------------------------|---|
| Site 1 | Seaside near the Lowland |
| Site2 to Site 5 | Around Headland |
| Control Station | Between Near Round Island and Chung Hom Kok |

7.3. Monitoring Results

Air Quality (TSP)

The monitoring data reported below was provided by the CI-07 Contractor's Environmental Team Coordinator.

| Monitoring Period | 1-hr TSP ($\mu\text{g}/\text{m}^3$) | | |
|----------------------------------|---------------------------------------|--------|--------|
| | AM1 | AM2 | AM3A |
| 26 September 09 to 25 October 09 | 43-152 | 54-175 | 60-311 |

| Monitoring Period | 24-hr TSP ($\mu\text{g}/\text{m}^3$) | | |
|----------------------------------|--|--------|--------|
| | AM1 | AM2 | AM3A |
| 26 September 09 to 25 October 09 | 30-89 | 23-130 | 85-151 |

Construction Noise

The monitoring data reported below was provided by the CI-07 Contractor's Environmental Team Coordinator.

| Monitoring Period | Daytime Noise Level, Leq (30min), dB(A) | | | |
|----------------------------------|---|-----------|-----------|-----------|
| | CN1 | CN2 | CN3 | CN4 |
| 26 September 09 to 25 October 09 | 62.9-65.9 | 58.5-63.0 | 58.9-62.4 | 57.9-61.4 |

| Monitoring Period | Evening time Noise Level, Leq (15min), dB(A) | | | |
|----------------------------------|--|-----|-----|-----|
| | CN1 | CN2 | CN3 | CN4 |
| 26 September 09 to 25 October 09 | N/A | N/A | N/A | N/A |

Terrestrial Ecology

According to the requirement in the EM&A Manual, the monitoring of transplanted plants at the receptor has been completed in August 2008. No further monitoring is recommended and regular inspection would be carried out.

Coral

No impact subtidal ecology monitoring was conducted in the reporting period of October 2009 since there was no exceedance recorded at all monitoring stations and control site and the monitoring frequency has been revised to once in every quarter until the end of construction period. The next scheduled monitoring would be in November 2009.

7.4. Exceedances

No exceedance was recorded on the 1-hour TSP monitoring, 24-hour TSP monitoring and Day-time noise monitoring.

8. Site Audit**8.1. IEC Site Audit**

IEC conducted monthly site audit on CW-02, CI-07 and CS02 on 30 October 2009. Audit checklists are attached in Appendix A of Part 1.

CW-02 Observations:

- Stockpile of idle excavated materials were not covered.

CI-07 Observations:

- Stagnant water and general refuse were accumulated on the deck. The Contractor shall remove them as soon as possible.

CS-02 Observations:

- A few oil drums were placed on bare-ground. Drip tray should be provided to avoid oil spillage.
- A stockpile of excavated material was not covered. Tarpaulin sheet should be provided to suppress dust.

8.2. Non-Compliance

No non-compliances were recorded in October 2009.

9. Implementation status of Environmental Mitigation Measures

Please see Part 2, Part 3 and Part 4 of the individual contractual reports for the details of the implementation of environmental mitigation measures.

10. Summary of Complaint, Summon or Prosecution

No complaint, summon or prosecution in the reporting month.

11. Future Issues

Key Issues to be considered in the coming month include:

CI-05

- Construction phase had ceased in early June 2009.

CS-01

- Construction phase had ceased in mid-October 2008.

CW-02

- Dust generation from stockpiles.
- Noise generated from operation equipment and machinery on-site.
- Storage of chemicals / fuel and chemical waste / waste oil on site.
- Sorting of C&D materials at source.
- Ensure proper collection and disposal of rubbish generated on site.
- Larviciding against mosquito breeding in stagnant water should be carried out at least on a weekly basis.

CI-07

- Dust generating from breaking existing concrete / bitumen paving and excavation work
- Dust generating from temporary stockpile, unpaved areas, loading / unloading dusty materials and haul road
- Noise generating from operation of construction plants and sheet piling by drop hammer
- Water generating from wheel washing, underground water and surface run-off
- Storage of diesel drums on site
- Sorting C&D materials on site.

CS-02

- Dust generation from stockpiles.
- Noise generated from operation equipment and machinery on-site.
- Storage of chemicals / fuel and chemical waste / waste oil on site.
- Sorting of C&D materials at source.
- Ensure proper collection and disposal of rubbish generated on site.
- Larviciding against mosquito breeding in stagnant water should be carried out at least on a weekly basis.
- Treatment of wastewater before discharge.
- Carryout wheel wash for all vehicles leaving the site.

12. Conclusion and Recommendation

12.1. Conclusion

Environmental impact monitoring was performed in October 2009. All monitoring results in the reporting month were checked and reviewed.

No exceedance was recorded on the 1-hour TSP monitoring, 24-hour TSP monitoring and Day-time noise monitoring.

No complaint non-compliance from IEC, summons or prosecution related to environmental issues was made against the Ocean Park Master Redevelopment Project in the reporting period of October 2009.

12.2. Recommendation

According to the environmental audit performed in the reporting month, the following recommendations are made:

Air Quality Impact

- To prohibit any open burning on site.
- To regular maintain the machinery and vehicles on site.
- To follow up any exceedance caused by the construction works.
- To implement dust suppression measures on dry surfaces.

Noise Impact

- To inspect the noise sources from inside and outside of the site.
- To follow up any exceedance caused by the construction works.
- To space out noisy equipment and position as far away as possible from sensitive receivers.
- To have regular maintenance of vessels and equipment used.

Water Quality Impact

- To minimize water discharge runoff into nearby water body.
- To treat site surface runoffs and wastewater generated from various construction activities with wastewater treatment system (comprised of chemical coagulation, sedimentation and pH control)
- To review and implement temporary site drainage management plan.
- Silt removal facilities, channels, manholes and wastewater treatment system should be frequently cleaned the deposited silt and grit to maintain in proper condition.
- To review the adequacy of the desilting facilities' capacity.

Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site.
- To avoid any discharge of chemical waste or oil directly from the site.
- To regularly and properly collect, store and dispose of all waste types, including floating refuses around the silt curtain.

Appendix A

Part 1 Independent Environmental Checker's Site Inspection Records

Ocean Park Master Redevelopment Project
Contract P007
Independent Environmental Checker
MONTHLY SITE INSPECTION CHECKLIST

| | | | | | |
|-----------------|----------------------|------|-------|--------------|--|
| Inspection Date | 30/10/2009 | Time | 09:30 | Inspected By | EM: A Leung IEC: Florence Yuen Contractor: CW02: K Kwok CI07: K Yip CS02: K Cheng |
| Site Location | CW02 CI07 CS02 | | | | |

Weather

| | | | | | | | |
|-------------|--|--|-----------------------------------|--|--|--------------------------------|-------------------------------|
| Condition | <input type="checkbox"/> Sunny | <input checked="" type="checkbox"/> Fine | <input type="checkbox"/> Overcast | <input type="checkbox"/> Drizzle | <input type="checkbox"/> Rain | <input type="checkbox"/> Storm | <input type="checkbox"/> Hazy |
| Temperature | 28°C | | Humidity | <input checked="" type="checkbox"/> High | <input type="checkbox"/> Moderate | <input type="checkbox"/> Low | |
| Wind | <input checked="" type="checkbox"/> Calm | <input type="checkbox"/> Light | <input type="checkbox"/> Breeze | <input type="checkbox"/> Strong | Direction <input style="width: 100px;" type="text"/> | | |

| | | Close-out on last comments Y/N | N/A or not obs | Yes | No | Photo/Remarks |
|---------------------------|---|---|-------------------------------------|-------------------------------------|--------------------------|---------------|
| Construction Noise | | | | | | |
| S2.18 | Is a valid Construction Noise Permit (CNP) obtained for works during restricted hours? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| S2.26 | Good Site Practices: | | | | | |
| | • Are the operating plants well-maintained and serviced regularly? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are silencers or mufflers utilized on construction equipment? Are they properly maintained? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the mobile plant sited far enough from NSRs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are intermittently used machines and plants shut down between work periods? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the plant known to emit noise strongly in one direction, if any, oriented to direct noise away from the NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the stockpile or other structures utilized effectively, wherever practicable, in screening noise from the works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.27 | Are suitable quiet plants adopted? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| S2.28 | Are movable barriers used for both movable PME and stationary PME? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.29 | Do the screening materials used achieve the predicted noise reduction? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.30 | Are the noisy works avoided during examination period of the nearby school? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Blasting Noise | | | | | | |
| S2.32 | • Are the NSRs informed of the blasting work in advance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

- Is sufficient time allowed for alerting all the potential NSRs prior to every blasting work?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are proper procedures put in place to alert and minimise any startling effect on the staff working in Ocean Park?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the optimal amount of charge used evaluated for noise reduction?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Landscape and Visual

S3.10 Consideration on existing surrounding vegetation:

- Are temporary tree nurseries set up?
- Is "no-intrusion zones" implemented?
- Is the existing vegetation protected from damage?
- Are hill fire prevention measures taken?
- Is dust and erosion controlled for exposed soil?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

- Are the irrigation networks set up throughout the Establishment Period?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is Quarterly Report on existing trees to be retained or transplanted prepared by the Contractor?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

S3.11 Consideration on appearance and view:

- Is the appearance of hoardings suitable?
- Is the appearance of construction workers, plants/machines suitable?
- Are the screening and alignment of the temporary barging point and conveyor system suitable?
- Are the selected security floodlights suitable?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Ecology

S4.5 Transplantation:

- Is the transplantation work supervised by a qualified botanist/horticulturalist in the ET?
- Are the transplanted plant species of conservation interest monitored during the first 12 months after transplantation?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

S4.7 Construction:

- Is the runoff entering watercourses avoided by control measure, especially during heavy rain?
- Is the site runoff directed to regularly cleaned and maintained silt traps (or oil separators)?
- Are sediment traps included in drainage to collect and control construction run-off?
- Is suitable size silt traps or oil interceptor used?
- Is vegetation survey carried out to determine the feasibility and suitability of individual plants for transplantation?
- Are the trees located within the works area preserved suitably?
- Are individual plants of conservation interest transplanted prior to the construction phase?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

- Are the equipments and stockpiles placed in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are construction activities restricted to the work areas demarcated?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are waste skips provided to collect general refuse and construction wastes?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are the wastes disposed of timely and properly off-site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is open burning on works sites prohibited?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are native plant species made use of as far as possible on newly formed land?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

Construction Waste

- S5.4 Good Site Practices
- Are arrangements made for collection and effective disposal of all wastes generated?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the waste management and chemical handling procedures followed?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 CS02(C) P1080/29
 - Are sufficient waste disposal points provided?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the wastes disposed of regularly?

| | | | |
|---|--|--|--|
| ✓ | | | |
|---|--|--|--|
 - Are appropriate measures taken to minimise windblown litter and dust during transportation of waste by either covering trucks or transporting wastes in enclosed containers?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the drainage systems, sumps and oil interceptors regularly cleaned and maintained?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.5 Waste Reduction Measures:
- Is the C&D waste from demolition and decommissioning of existing facilities sorted to recover recyclable materials?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are different types of wastes segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling and the proper disposal?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are aluminium cans segregated in labelled bins and collected by individual collectors for recycling?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are proper storage and site practices maintained to minimise the potential for damage or contamination of construction material?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the construction materials planned and stocked carefully to avoid unnecessary generation of waste?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.7 General Refuse
- Is the general refuse stored in enclosed bins or compaction units separate from C&D material?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 CS07 @ P1080/24
 - Is the general refuse removed regularly by a waste collector?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.8 C&D Material
- Are the excavated materials from site formation of the expansion areas and tunnel construction for the funicular system reused on-site as backfilling material and for landscape works?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
 - Are the surplus rock and other inert C&D material disposed of at the public fill sites?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Is a waste management plan prepared?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | | | |
|-------|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | <ul style="list-style-type: none"> Is a recording system present for the record of amount of wastes generated, recycled and disposed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the trip-ticket system required in ETWB TCW No.31/2004 followed on site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| S5.9 | Chemical Wastes Is chemical wastes generated from the works? And if yes, | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the Contractor registered as a Chemical Waste Producer? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are good quality containers used for separating and storing chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | <ul style="list-style-type: none"> Are appropriate labels securely attached on each chemical waste container to indicate their corresponding chemical characteristics? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the Contractor licensed to transport and dispose of the chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Land Contamination | | | | |
| S6.11 | <ul style="list-style-type: none"> Is the contact of construction workers with contaminated materials minimised by using bulk earth-moving excavator equipment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are appropriate cloth, personal protective equipment, hygiene and washing facilities provided to minimise exposure to any contaminated material? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is stockpiling of contaminated excavated materials avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the use of contaminated soil for landscaping without proper treatment prohibited? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are vehicles containing excavated materials covered properly to limit potential dust emissions or contaminated wastewater runoff? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the speed of the trucks carrying contaminated materials controlled? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the necessary waste disposal permits obtained from appropriate authorities in according with Waste Disposal (Chemical Waste) (General) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are silt removal facilities provided with retention time for silt/sand traps of 5 minutes under maximum flow conditions? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the records maintained for quantity of wastes generated and disposal of? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| S6.12 | Remediation Process <ul style="list-style-type: none"> Is biopile covered by tarpaulin or low permeable sheet to avoid dust emission? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is vented air from biopile treated by blower and carbon adsorption system before released to the atmosphere? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the materials which may generate airborne dust emissions adequately wetted prior to and during the loading, unloading and handling operations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are silencers installed at biopile blower to minimise noise impact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are quiet plants such as generator and blower used for biopile? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- Are the mixing process and other associated material handling activities properly scheduled to minimise potential noise impact?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are impermeable liners placed at the bottom of biopile?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is leachate collection sump construction along the perimeter of biopile?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is the leachate recycled back to the biopile or truck away to Chemical Waste Treatment Centre for disposal?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is the mixing of contaminated soils and cement/water/other additive(s) undertaken at a solidification plant to minimise the potential for leaching?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is a concrete bund construction along the perimeter of the solidification/stabilisation area to prevent runoff?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the loading, unloading, handling, transfer and storage of cement carried out in an enclosed system?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the contaminated soils transported by roll-off trucks (contrainerisation)?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is temporary hoarding provided around the treatment area to minimise the visual impact?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Air Quality

S7.23

Good Site Practices

- Is watering carried out regularly with complete coverage to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is watering frequently carried out for particularly dusty construction areas, temporary stockpiles and areas close to ASRs?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are the aggregate or dusty material storage piles covered with their side enclosed to reduce emissions? Or if this is not practicable, is watering applied to aggregate fines?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 } CW02 @ P1080116
- Is open stockpiles avoided or covered and placed far enough from the ASRs?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 } CS02 @ P1080130
- Is the dropping height of material restricted to minimise the fugitive dust from unloading/loading?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is tarpaulin used to cover all dusty vehicle loads transported to, from and within the site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are vehicle wheel and body washing facilities available at the exit points of the site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are wind shield and dust extraction units or similar dust mitigation measures provided at the loading points? If dust generation is likely during the process, particularly in dry seasons, is water sprinklers provided at the loading site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Do the vehicles comply with the recommended speed limit of 10 km/h on unpaved roads?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are dusty activities rescheduled during high-wind conditions?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the routing of vehicles and positioning of construction plants at maximum possible distance from the ASRs?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is suitable buffer zone provided and work areas fenced off with hoarding (not less than 2.4m from ground level)?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

S7.24

Drilling & Blasting

| | | | | | | |
|-------|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--|
| | • Is watering carried out on the exposed area after blasting? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is vacuum extraction drilling method used? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the blasting process carefully sequenced? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the firing of explosive carried out in the morning prior to opening of the Park? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S7.25 | Crushing Plant | | | | | |
| | • Is water sprayed on the crusher? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are fabric filters installed for the crushing plant? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is chute or dust curtain used for controlling dust when transferring materials from crusher to the conveyors? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S7.26 | Barging Point & Conveyor Belt System | | | | | |
| | • Are the conveyors placed within enclosed structures? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is profiled steel cladding provided at two sides of loading point? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are dust suppression sprays installed and operated at the feeding inlet and outlet? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the barging point placed within an enclosed structure incorporating an enclosed chute for material transfer to the barge? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is a flexible curtain hanged on the enclosed chute to prevent dust emission when excavated materials/rocks transported into the barge? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Water Quality | | | | | |
| S8.3 | Site Run-off and Drainage | | | | | |
| | • Are all sewer and drainage connections sealed to prevent debris, soil, sand etc. from entering public sewer before commencing any site formation work? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are temporary ditches provided to facilitate runoff discharge into appropriate watercourses, via appropriate sized silt retention pond? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are cut-off ditches provided for all major site clearance/excavation works where soils would be exposed to control runoff from the areas? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are channels, earth/concrete bunds and sand bags deployed to direct surface runoff? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are catchpits and perimeter channels constructed in advance of relevant site formation works? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are the boundaries of earthworks marked and surrounded by dykes or embankments for flood protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are sand/silt traps and sediment basins provided to remove sand/silt particles from runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are silt removal facilities, channels and manholes maintained and deposited silt/grit removed regularly to ensure that these facilities are functioning properly at all times? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are exposed soil surfaces covered? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the water pumped out from foundation excavations discharged into silt removal facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are exposed soil areas minimised to reduce potential for increased siltation and contamination of runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| | | | | | |
|-------|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| | • Are earthwork final surfaces well compacted and is subsequent permanent work or surface protection performed immediately? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is the rainwater pumped out from trenches or excavation directed to silt removal facilities before discharge? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are open stockpiles of construction materials or construction wastes of more than 50m ³ covered with tarpaulin during rainstorm? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | In case of an excavation in rainy seasons: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Is temporary exposed slope/soil surfaces covered by tarpaulin as far as practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are intercepting channels provided to prevent storm runoff from washing across exposed soil surfaces? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are surface protection measures and arrangements implemented to prepare for arrival of a rainstorm? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| S8.4 | Coral Sites | | | | |
| | • Are enhanced (with the use of flocculants added) sand/silt removal facilities employed for treatment of runoff from the major excavation at the Summit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is a silt curtain system used to enclose the construction phase discharge point at Tai Shue Wan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are debris and refuse collected, handled and disposed of properly to avoid entering any nearby water bodies and public drainage system? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are stockpiles of cement and other construction materials kept covered when not being used? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are oils and fuels used and stored in designated areas which have pollution prevention facilities (Fuel tanks and storage areas provided with locks and sited on sealed areas, within bunds of a capacity equality to 110% of the storage capacity of the largest tank)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are temporary sanitary facilities, such as portable chemical toilets, employed on-site where necessary to handle sewage from the workforce? Is a licensed contractor employed for disposal of waste matter and maintenance of these facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is a reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are aluminium cans recovered from the waste stream and collected separate labelled bins? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are office wastes reduced through the recycling of paper? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are training provided to workers on site cleanliness & waste management procedure? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Cultural Heritage | | | | |
| S10.6 | If there is any work planned within one metre of the grave, is a one metre buffer zone provided around the grave and is the grave demarcated by temporary fence? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Hazard to Life | | | | |
| S11.3 | Good Site Practices: | | | | |
| | • Is the area around the magazine free of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- Is the control of (small) fires planned and provided through the following?

- Weekly checking of fire fighting equipment and the on-site fire water tank level.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Daily checking of all critical safety equipment on vehicle, including the fire extinguishers.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Maintaining back-up means of fighting fire on the explosive vehicles.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Providing safety training for drivers and other personnel present during explosive delivery with regard to operating fire hydrants and fighting of explosive fires.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the magazine secured against unauthorised entry and theft of explosive through the following?

- Maintaining a list of persons authorised to enter the magazine and ensuring the list is available to the magazine security guard.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Activating an alarm system that limits times at which explosive can be removed from the magazine and connecting the system to central security station.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Incorporating "Duress code" function in the alarm system.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Maintaining alarm system in good condition.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the magazine security guard located separately from the magazine complex?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the communication maintained in emergency with the following measures?

- Providing non-hazardous electronic equipment for persons working within 60 m of detonators.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Ensuring availability of phone numbers for all key personnel.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- If there is a typhoon signal no. 3 or above, or black rainstorm signal, are all operations at magazine and transport ceased?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the risk of detonators explosion on vehicle reduced during transit through the following?

- Ensuring that magazine within vehicle is lined.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Limiting off-site transport to 5 to 6 a.m. each day.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Escorting vehicles with separate security vehicle when using the public road.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Ensuring that UN 1.4B packaging of detonators remains intact until handed over at blasting site.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the fuel isolation switch available on vehicle to prevent fire spreading in case a fire breaks out?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is an experienced driver with accident-free record employed for explosive vehicle and security escort?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are the drivers checked for health before employing?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are the vehicles regularly checked to maintain in good condition to reduce chance of accident due to breaking down?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the truck fuel fire escalating to cause explosion avoided through the following means?

- Ensuring that the Contractor is aware of the potential hazards to site.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | | |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| - Maintaining appropriate fire fighting equipment. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Requiring the Contractor to plan and make emergency arrangements. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is spare/redundant fire fighting equipment provided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Can communications be maintained between two vehicles (drivers and security) during the trip to prevent collision of two explosive vehicles in case of an accident? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the processes of checking of condition of drivers to suspend any driver of concern carried out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Project specific measures: | | | | |
| • Is the speed of vehicle limited along the Ocean Park portion of Nam Long Shan Road within 100 m of the explosives magazine to 25 km/hr? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is other contractors' use of the Ocean Park Internal service road restricted during delivery of explosives, i.e. 6 to 7 a.m? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the Ocean Park guard required to call to the magazine guard on an hourly basis when explosives are stored in magazines? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the evacuation of part or all of Ocean Park Headland Area arranged in case of the explosive magazine being engulfed in fire? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the risk to the public from accidental initiation during charging and blasting limited by the following means? | | | | |
| - Closing the Ocean Park from commencement of charging holes until completion of blasting each day. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Arranging for relevant authorities to post notices to mariners – warning them of blasting operations and advising them to stay away from a strip 100m wide immediately to the east of Headland from commencement of charge holes until completion of blasting each day (i.e. 9 a.m). | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Not operating amusement rides in the event of accidental explosion until confirmed free of critical damage. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • If unexploded explosives are found in blasthole(s), is the opening of Ocean Park delayed or is part of the Ocean Park delayed when there are unspent explosives? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the opportunity for arson/deliberate initiation of explosive reduced with the following means? | | | | |
| - Paying attention to the security alert status from the Government. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Developing a security plan to address high alert level. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is an emergency plan developed to address uncontrolled fire in magazine area? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the transfer of explosives between 5 to 6 a.m agreed by Mines Division? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the road surface along the explosive transportation route maintained? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the contractor's driver and security escort tested in respect of safety plan? Is the route driven before the driver undertakes the first delivery of explosives? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is adequate space provided for the explosive vehicle to manoeuvre without reversing close to the magazine to limit | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

the likelihood of vehicle accident?

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

- Is lighting for explosive vehicles provided on temporary road(s)?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

S11.4

- Is ammonium nitrate emulsion (ANE) delivered outside of Park opening times?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Observation for this month

- ① Stockpile of idle excavated material were not covered.

IEC Representative

Environmental Manager

Contractor's
Representative
CW02

Florence Yuen

(Florence Yuen)

PP Andy Leung

(Andy Leung)

Dan

(KAN POK)

Observation for this month

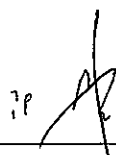
- ① Stagnant water and general refuse were accumulated on the deck.
The Contractor shall remove them as soon as possible.

IEC Representative



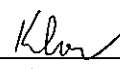
(Florence Yuen)

Environmental Manager



(AVAL Kwan)

Contractor's
Representative
CI07

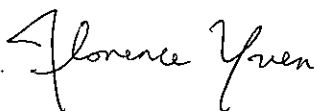


(Kelvin Yip)

Observations for this month

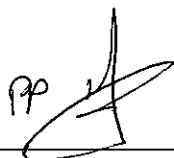
- ① A few oil drums were placed on bareground. Drip tray should be provided to avoid oil spillage.
- ② A stockpile of excavated material was not covered. Tarpaulin sheets should be provided to suppress dust.

IEC Representative



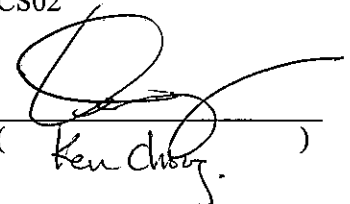
(Florence Yuen)

Environmental Manager



(ANDY Leung)

Contractor's
Representative
CS02



(Ken Choy)

Part 2 CI-07 EM&A REPORT (October 2009)

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

OCEAN PARK REDEVELOPMENT PROJECT

CONTRACT NO. CI07

ENTRY PLAZA, AQUA CITY AND GRAND AQUARIUM

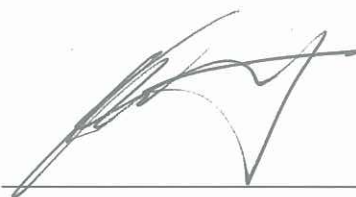
Monthly EM&A Report – October 2009

Prepared by:



Thomas Lee
Project Environmental
Coordinator

Reviewed by:



Jerry Wong
Construction Manager

Authorised by:



Darren Beasley
Project Director

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

TABLE OF CONTENTS

| | |
|--|----------|
| EXECUTIVE SUMMARY | 1 |
| 1 INTRODUCTION | |
| 1.1 Background | 4 |
| 1.2 Project Organizations | 8 |
| 1.3 Construction Programme | 8 |
| 1.4 Summary of EM&A Requirements | 9 |
| 2 AIR QUALITY MONITORING | |
| 2.1 Monitoring Requirements | 10 |
| 2.2 Monitoring Equipment | 10 |
| 2.3 Monitoring Parameters, Frequency and Duration | 10 |
| 2.4 Monitoring Locations | 10 |
| 2.5 Monitoring Methodology | 11 |
| 2.6 Results and Observations | 12 |
| 3 NOISE MONITORING | |
| 3.1 Monitoring Requirements | 14 |
| 3.2 Monitoring Equipment | 14 |
| 3.3 Monitoring Parameters, Frequency and Duration | 14 |
| 3.4 Monitoring Locations | 15 |
| 3.5 Monitoring Methodology | 15 |
| 3.6 Results and Observations | 16 |
| 4 ENVIRONMENTAL AUDIT | |
| 4.1 Environmental Site Audit | 17 |
| 4.2 Status of Environmental Licensing and Permitting | 17 |
| 4.3 Status of Waste Management | 18 |
| 4.4 Implementation Status of Environmental Mitigation Measures | 19 |
| 4.5 Summary of Exceedances | 19 |
| 4.6 Implementation Status of Event Action Plans | 19 |
| 4.7 Summary of Complaints and Prosecutions | 19 |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

5 FUTURE KEY ISSUES

| | | |
|-----|---|----|
| 5.1 | Key Issues for the Coming Month | 19 |
| 5.2 | Construction Programme for the Next Month | 20 |

6 CONCLUSIONS AND RECOMMENDATIONS

| | | |
|-----|-----------------|----|
| 6.1 | Conclusions | 20 |
| 6.2 | Recommendations | 20 |

LIST OF TABLES

| | |
|-----------|--|
| Table 1.1 | Key Project Contacts |
| Table 2.1 | TSP Monitoring Equipment |
| Table 2.2 | Air Quality Monitoring Parameters and Frequency |
| Table 2.3 | Location of Air Quality Monitoring Stations |
| Table 2.4 | Monitoring Results of 1-hr TSP |
| Table 2.5 | Monitoring Results of 24-hr TSP |
| Table 3.1 | Noise Monitoring Equipment |
| Table 3.2 | Noise Monitoring Parameters, Period and Frequency |
| Table 3.3 | Noise Monitoring Locations |
| Table 3.4 | Monitoring Results of Daytime Noise |
| Table 4.1 | Observations and Recommendations of Site Audits |
| Table 4.2 | Summary of Environmental Licensing and Permit Status |

LIST OF FIGURES

| | |
|------------|--|
| Figure 1.1 | Site Layout Plan |
| Figure 1.2 | Locations of Air Quality and Noise Monitoring Stations |

LIST OF APPENDICES

| | |
|---|---|
| A | Action and Limit Levels |
| B | Environmental Monitoring Schedules |
| C | Air Quality Monitoring Results |
| D | Noise Monitoring Results |
| E | Calibration Details |
| F | Environmental Mitigation Implementation Schedule (EMIS) |
| G | Event Action Plans |
| H | Complaint Flow Diagram and Complaint Log |
| I | Tentative Works Programme |
| J | Site Audit Summary |
| K | Summary of Waste Generated |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

EXECUTIVE SUMMARY

Introduction

This is the fifteenth Monthly Environmental Monitoring and Audit (EM&A) Report prepared by Leighton Contractors (Asia) Limited for the Ocean Park Redevelopment Project Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium (hereinafter called the Project). The Project was commenced on 15 August 2008. Leighton Contractors (Asia) Limited was instructed by the Project Manager Representative to takeover the contract CI05 noise and air quality monitoring works at the Waterfront effective from 1 March 2009. This document reports the results of the EM&A works conducted in Oct 2009 (26 Sept 2009 to 25 Oct 2009).

The major site activities undertaken in the reporting month included:

- Footing and column construction, pipeworks, gas ducting, U/G drainage, E&M works, blockworks and plastering at Entry Plaza;
- Column, wall, beam, slab construction, plastering, screeding and E&M works for East & West Building at Aqua City;
- Footing, ducting and U/G drainage work at Carousel Plaza;
- Slab and wall construction, retaining wall at Lagoon;
- Parapet wall, Backwash tank and E&M room construction at Grand Aquarium; and
- Excavation, beam and slab construction at Grand Aquarium Transformer Room.

Environmental Audit and Monitoring Works

Environmental monitoring and audit works for the Project was performed as stipulated in the Contractor's EM&A Manual. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked. No non-compliance was observed during the site audits.

Monitoring of 1-hour & 24-hour Total Suspended Particulates (TSP) and noise were performed and the results were checked and reviewed. No exceedance was recorded. Summary of monitoring and audit activities conducted and the events and action taken in the reporting month are tabulated in the below tables.

A summary of monitoring and audit activities conducted in the reporting period

| Parameter | Frequency |
|--------------------------|---|
| 1-hour TSP monitoring | 15 sessions for all air quality monitoring stations |
| 24-hour TSP monitoring | 5 sessions for all air quality monitoring stations |
| Daytime noise monitoring | 4 sessions for all noise monitoring stations |

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

| Parameter | Frequency |
|---|--|
| Evening and night time noise monitoring | 0 sessions for all noise monitoring stations |
| Holiday time noise monitoring | 0 session for all noise monitoring stations |
| Joint environmental site inspection | 5 sessions (including IEC audit) |

Summary table for events recorded in the reporting period

| Parameter | No. of Events | | No. of Events Due to the Project | Action Taken |
|-----------|---------------|-------------|----------------------------------|--------------|
| | Action Level | Limit Level | | |
| 1-hr TSP | 0 | 0 | 0 | N.A. |
| 24-hr TSP | 0 | 0 | 0 | N.A. |
| Noise | 0 | 0 | 0 | N.A. |

Environmental Licenses and Permits

Construction Waste Disposal Billing Account was opened and total 22063 Chits were obtained for construction waste disposal.

Site Effluent Discharge Licence was issued for site effluent via sedimentation tank discharged into communal storm water drain.

A notification pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation was made to EPD prior the commencement of the Project.

Chemical Waste Producer Registration was issued for chemical waste disposal by the licenced collector.

Construction Noise Permits for water pumps, generator and wastewater treatment plant operation during restricted hours were issued.

Complaints and Prosecutions

No complaint or prosecution related to the project was received during the reporting month.

Future Key Issues

Key issues to be considered in November or coming months include:

- Footing and column, slab construction, staircase construction at Entry Plaza;
- Lift pit and shaft builder works, paving, gas ducting, U/G drainage, E&M works, blockworks, plastering, screeding and tiling at Entry Plaza;
- Roofing, lift pit and shaft builder works, blockworks, plastering and E&M works at Aqua City;

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

- Column and wall construction at Carousel Plaza;
- Slab, wall and spillway construction, and waterproofing works at Lagoon;
- Wall, beam and slab (Roof), lift shaft and E&M room construction at Grand Aquarium; and
- T20 acrylic panel installation, waterproofing work at Grand Aquarium; and
- Wall, beam and slab construction, plastering and painting at Grand Aquarium Transformer Room.

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

1. INTRODUCTION

1.1 Background

The “Repositioning and Long Term Operation Plan of Ocean Park” is being implemented by the Ocean Park Corporation at the existing site of Ocean Park and Nam Long Shan, Aberdeen. The purpose of this project is to upgrade and expand the existing Ocean Park to meet anticipated visitor demands and to position Ocean Park as a premium tourist attraction and a regional leader in themed recreational and educational park experience. The site layout plan is illustrated in Figure 1.1.

An environmental impact assessment (EIA) report for “Repositioning and Long Term Operation Plan of Ocean Park” (Report No. 121/2006 and Register No. AEIAR-101/2006) has been prepared in 2006 and the Environmental Monitoring and Audit Manual (EM&A Manual) was also included as part of the EIA report in the register. An Environmental Permit (EP) No. EP-249/2006 was issued on 28 July 2006 for the above project to Ocean Park Corporation as Permit Holder and a varied EP No. EP-249/2006/A was subsequently issued on 23 October 2006 for the above project to Ocean Park Corporation as Permit Holder.

Leighton Contractors (Asia) Limited (the Contractor) was commissioned by the Ocean Park Corporation to undertake the construction of the Ocean Park Redevelopment Project Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium (hereinafter call the Project).

The works to be executed under Contract CI07 include the following major items:

- **Entry Plaza Phase 1 and Aqua City**
 - demolition of existing structures, site formation and slope works for roadwork new building structures and car park;
 - construction of the Entry Plaza and Aqua City building structures and foundation, and installation of builders’ works and architectural finishes;
 - construction of one- to three-storey buildings on the Entry Plaza podium, including animal habitats and back of house, ticketing, turnstiles, guest relations, security, banking and other offices, back of house, food and beverage and retail functions;
 - construction of back-of-house facilities on the ground floor and mezzanine floor of the Entry Plaza;
 - construction of at-grade drop-off and pick-up for cars, taxis, coaches and buses, parking for coaches and private cars, including meter-gate system, shelters, street furniture and amenities;

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

- installation of building services, including mechanical ventilation and air-conditioning installation, electrical installation, extra low-voltage installation (such as closed-circuit television, security alarm and public address system), control and monitoring installation, plumbing and drainage installation, fire-services installation, irrigation system installation, gas-supply installation, lift and escalator installation and miscellaneous works;
- construction of a section of Ocean Park Road and associated footpaths; provision of road drainage, utilities, street furniture, street lightings, and soft and hard landscape works;
- light-emitting-diode screen and its support to be integrated with the tensile-membrane long-span metallic structure;
- construction of Aqua City Lagoon and associated site formation, hardscape, waterproofing and water circulation facilities, including pipe works, pump system, filtration and aeration system;
- construction of guest-route paving and railing, utilities and services works and associated civil-engineering works;
- soft and hard landscape works (including water features, fountains, external seating, on-grade as well as podium planter areas, artificial rockworks, street appurtenances, lighting, irrigation, themed elements, including statues, murals and other objects);
- balustrade, skylight, glass wall, window, louver, cladding and canopy, retail/food carts and kiosks, timber trellis and structures; facilitating works for the special features, including power supply, foundation works, civil and structural works, electrical and mechanical works, architectural finishes works and miscellaneous works;
- provision of new and diversion/decommissioning of existing drainage, sewerage, water mains and underground utilities necessary for the operation of Ocean Park;
- provision of temporary toilet facilities and relocation of the Guest Relations Office in Portion EP2, the temporary toilet and Guest Relation Office must be operational prior to removal of the existing facilities;
- construction of all ancillary works, including civil, geotechnical and utilities works;
- installation of the Carousel ride, and
- coordination of the works with the installation of 13 sculptures to be supplied and

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

installed by other contractors; provision of all attendance, labour, plant and equipment necessary in relation to the installation of the sculptures;

- maintenance of a fixed number of temporary car-park spaces for guests' use during different construction stages;
- construction of ramp structures connecting from Wong Chuk Hang Road to the Entry Plaza building structure and to the Cable Car Plaza, and
- soft and hard landscape works (including on-grade planter areas, street appurtenances, lighting, irrigation and themed elements).

- **Grand Aquarium:**

- construction of the Grand Aquarium, including life support systems, building structures and foundation, installation of builders' works and architectural finishes;
- fitting-out packages, including finishes, fixed furniture, decorations, lighting, audio/visual equipment, artworks and building services;
- coordination of the works with the installation and joint sealing of the acrylic viewing panels to be supplied and installed by other contractors; provision of all attendance, labour, plant and equipment necessary in relation to the installation of the acrylic viewing panels, and
- construction of the Transformer Room Building, including coordination works with Hong Kong Electric Company Limited for installation.

- **Entry Plaza Phase 2:**

- demolition of the temporary entrance, transformer building, existing staff canteen and associated structures and road works within Portion EP3;
- modification of the existing car park, access road and roundabout to the temporary entrance to form a new coach parking and car park within Portions EP3;

- **General**

- erection of hoardings with graphics;
- tree transplanting and felling and protection to remaining trees;
- management and maintenance of temporary holding nursery;

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

- installation of civil provisions for parkwide information-technology systems and all operational equipment, such as background music system, public-address system, closed-circuit television, management information system, building information system, security and turnstiles;
- construction of parkwide irrigation and drainage system for planting area;
- supply and installation of all escalators and elevators;
- design and built all temporary works with necessary statutory submissions, including:
 - temporary support to excavations greater than 2 metres in depth;
 - temporary cut or fill slopes greater than 2 metres high;
 - falsework and temporary platforms, structures and the like required;
 - temporary platforms, structures and the like required for supporting drilling equipment and construction plant; and
 - excavation and lateral supports for all Entry Plaza Phase 2 and Aqua City Phase 2 works; and
- design and built works as specified in Contract CI07, with necessary statutory submissions, including:
 - artificial rockwork, including concrete foundations, internal structural supporting systems and fixing details for the lagoon and Otter Exhibit;
 - glass-reinforced concrete/glass-reinforced gypsum/glass-reinforced plastic/shotcrete works and associated supporting structures;
 - tensile-membrane long-span metallic canopy structure, including the metal frame, marquee supporting light-emitting-diode screen and walkway at the Entry Plaza;
 - Ocean Park super logo and associated support structure over the tensile-membrane canopy and lift L-1 cone structure;
 - themed metalwork, entrance gates and balustrades;
 - exhibit glazing at the River Otter viewing;
 - glass canopy, metal canopy over escalators;
 - vertical green-wall system;
 - water features circulations, filtration, control and water dynamic;
 - lagoon and waterfall filtration and circulation systems;
 - metal modular shelving and associated stairway and platforms;
 - glass curtain wall for the Grand Aquarium shell;
 - Grand Aquarium fibre-glass tank and working platform;
 - Grand Aquarium movable gantry and hoisting system;
 - Grand Aquarium hydraulic platform;
 - queue display indicating system for the Ticketing Office; and
 - other items as specified in the Particular Specification and/or Drawings.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

1.2 Project Organizations

Different parties with different levels of involvement in the project organization include:

- The Project Manager and Project Environmental Team – AECOM Asia Co. Ltd.
- Contractor - Leighton Contractors (Asia) Ltd.
- Contractor's Environmental Team (CET)
- Independent Environmental Checker (IEC) - Mott MacDonald HK Ltd.

The responsibilities of respective parties are provided in the Contractor's EM&A Manual.

The key contacts of the Project are shown in Table 1.1.

Table 1.1 Key Project Contacts

| Party | Name | Role | Phone No. | Fax No. |
|-----------------|--------------------|--|------------------|----------------|
| Project ET | Mr. S K Lo | Project Manager Representative (PMR) | 2871 5888 | 2552 1256 |
| | Mr. K C Chan | RSS (Safety & Environment) | 2910 3155 | 2552 1256 |
| Contractor | Darren Beasley | Project Director | 3665 2688 | 2580 6600 |
| | Jerry Wong | Construction Manager | 3665 2638 | 2580 6600 |
| Contractor's ET | Thomas Lee | Project Environmental Coordinator | 3665 2609 | 2580 6600 |
| | Kelven Yip | Environmental Engineer | 3665 2620 | 2580 6600 |
| IEC | Miss Florence Yuen | Independent Environmental Checker (IEC) Representative | 2828 5757 | 2827 1823 |

1.3 Construction Programme

The site activities undertaken in the reporting month were:

- Footing and column construction, pipeworks, gas ducting, U/G drainage, E&M works, blockworks and plastering at Entry Plaza;
- Column, wall, beam, slab construction and E&M works for East & West Building at Aqua City;
- Plumbing and drainage work at Carousel Plaza;
- Slab and wall construction, retaining wall at Lagoon;
- Parapet wall, Backwash tank and E&M room construction at Grand Aquarium; and
- Excavation, beam and slab construction at Grand Aquarium Transformer Room.

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

1.4 Summary of EM&A Requirements

The EM&A programme requires construction phase environmental site audit. The duties and responsibilities comprise the following:

- monitor various environmental parameters, if necessary, as specified in the EM&A Manual;
- analyze the environmental monitoring and audit data;
- review the EM&A programme to confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify any adverse environmental impacts arising;
- carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems;
- audit and prepare EM&A reports on the site environmental conditions;
- report the environmental audit results to the Contractor;
- recommend appropriate mitigation measures to the Contractor in case of exceedance of Action and Limit Levels in accordance with the Event and Action Plans; and
- adhere to the procedures for carrying out complaint investigation in accordance with the EM&A Manual.

This report presents the environmental monitoring and audit works for the Project in October 2009.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

2. AIR QUALITY MONITORING

2.1 Monitoring Requirements

24-hour & 1-hour TSP monitoring was conducted to monitor the air quality. Appendix A shows the established Action/Limit Levels for the air quality monitoring works.

2.2 Monitoring Equipment

High volume samplers (HVS - Model GMWS-2310 Accu-Vol) complete with the appropriate sampling inlets were installed for 24-hour and 1-hour TSP sampling. The HVS composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50 Appendix B). Table 2.1 summarises the equipment that was used in the dust-monitoring programme.

Table 2.1 TSP Monitoring Equipment

| Equipment | Model |
|------------------|-------------------------------------|
| HVS | GMWS 2310 c/w of TSP sampling inlet |
| Calibration Kit | Tisch TE-5025 A |
| Dust Trak | TSI-8250 |

2.3 Monitoring Parameters, Frequency and Duration

The monitoring parameters and frequency are summarised in Table 2.2. The monitoring schedule for the coming month is shown in Appendix B.

Table 2.2 Air Quality Monitoring Parameters and Frequency

| Location | Parameter | Duration | Frequency |
|-----------------|------------------|-----------------|-----------------------|
| AM1 | 1-hour TSP | 1 hour | 3 times every 6 days* |
| | 24-hour TSP | 24 hours | Once every six days |
| AM2 | 1-hour TSP | 1 hour | 3 times every 6 days* |
| | 24-hour TSP | 24 hours | Once every six days |
| AM3A | 1-hour TSP | 1 hour | 3 times every 6 days* |
| | 24-hour TSP | 24 hours | Once every six days |

Notes: * denotes three 1-hr TSP monitoring in three days.

2.4 Monitoring Locations

In accordance with the EM&A Manual, three air quality monitoring stations, as shown in Figure 1.2, were selected for 1-hour and 24-hour TSP sampling. Table 2.3 describes the

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

location of the air quality monitoring stations.

Table 2.3 Location of Air Quality Monitoring Stations

| Air Quality Monitoring Stations | Identity / Description |
|--|--|
| AM1 | Whisker's Theatre, Ocean Park |
| AM2 | San Wai Village, Wong Chuk Hang |
| AM3A | Open areas of PMR & OPC temporary site offices |

2.5 Monitoring Methodology

24-hour / 1-hour TSP Monitoring

Installation

The HVSs were installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the samplers against gusty wind was provided.
- No two HVSs were placed less than 2 meters apart.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of 2 meters separation from walls, parapets and penthouses was required for rooftop samplers.
- No furnace or incinerator flues were nearby.
- Airflow around the sampler was unrestricted.
- Permission was obtained to set up the samplers and to obtain access to the monitoring stations.

Preparation of Filter Papers by ETS-Testconsult Limited.

- Glass fibre filters, G810 were labeled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 3 °C; the relative humidity (RH) was < 50% and not variable by more than $\pm 5\%$. A convenient working RH was 40%.

Field Monitoring

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.
- Then the shelter lid was closed and was secured with the aluminum strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.1 m³/min. The range specified in the EM&A Manual was between 0.6-1.7 m³/min.
- The programmable timer was set for a sampling period of 24 hrs \pm 1 hr or 1 hr + 0.25 hr, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to *ETS-Testconsult Ltd.* for analysis.

Maintenance & Calibration

- The HVSs and their accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs are calibrated at bi-monthly intervals using GMW-25 Calibration Kit throughout all stages of the air quality monitoring. Calibration details are provided in Appendix E.

2.6 Results and Observations

The air quality monitoring results of 1-hr TSP and 24-hr TSP of the reporting month are summarized in Tables 2.4 and 2.5. All monitoring data and graphical presentation of the monitoring results are provided in Appendix C.

All measured 1-hour & 24-hour TSP concentrations were below the Action and Limit (AL) Levels in the reporting month.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Table 2.4 Monitoring Results of 1-hr TSP

| Date of Monitoring | 1-hr TSP ($\mu\text{g}/\text{m}^3$) | | |
|--------------------|---------------------------------------|-----|------|
| | AM1 | AM2 | AM3A |
| 28-Sep-09 | 79 | 144 | 243 |
| 29-Sep-09 | 140 | 146 | 154 |
| 30-Sep-09 | 53 | 59 | 60 |
| 2-Oct-09 | 141 | 171 | 193 |
| 5-Oct-09 | 99 | 158 | 231 |
| 7-Oct-09 | 76 | 143 | 147 |
| 9-Oct-09 | 97 | 135 | 284 |
| 10-Oct-09 | 107 | 128 | 228 |
| 12-Oct-09 | 43 | 54 | 84 |
| 14-Oct-09 | 115 | 125 | 175 |
| 16-Oct-09 | 152 | 156 | 207 |
| 19-Oct-09 | 123 | 159 | 311 |
| 21-Oct-09 | 93 | 175 | 216 |
| 22-Oct-09 | 53 | 105 | 176 |
| 23-Oct-09 | 110 | 135 | 147 |

Notes: * Exceedance of Limit Level
Exceedance of Action Level
- No Monitoring Due to Power Shortage

Table 2.5 Monitoring Results of 24-hr TSP

| Date of Monitoring | 24-hr TSP ($\mu\text{g}/\text{m}^3$) | | |
|--------------------|--|-----|------|
| | AM1 | AM2 | AM3A |
| 29-Sep-09 | 47 | 53 | 85 |
| 5-Oct-09 | 30 | 23 | 106 |
| 10-Oct-09 | 61 | 70 | 105 |
| 16-Oct-09 | 37 | 74 | 90 |
| 22-Oct-09 | 89 | 130 | 151 |

Notes: * Exceedance of Limit Level
Exceedance of Action Level
- No Monitoring Due to Power Shortage

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

3. NOISE MONITORING

3.1 Monitoring Requirements

Noise monitoring was conducted at four monitoring stations as specified in the EM&A Manual. Appendix A shows the established Action and Limit Levels for noise.

3.2 Monitoring Equipment

Integrating Sound Level Meters were employed for noise monitoring. They were Type 1 sound level meters capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). Portable electronic wind speed indicator capable of measuring the wind speed in m/s was employed to check the wind speed. Table 3.1 details the noise monitoring equipment used.

Table 3.1 Noise Monitoring Equipment

| Equipment | Model |
|-------------------------------|-------------------------------------|
| Integrating Sound Level Meter | Rion NL 31 |
| Calibrator | Rion NC-73 |
| Portable Wind Speed Indicator | TSI Model 8340-M Air Velocity Meter |

3.3 Monitoring Parameters, Frequency and Duration

Noise monitoring was conducted per monitoring day during the daytime. Monitoring to be conducted in the evening and/or night-time only when construction works is in progress. The monitoring period, duration, parameters and frequency of noise measurement are presented in Table 3.2. The monitoring schedule for the coming month is provided in Appendix B.

Table 3.2 Noise Monitoring Parameters, Period and Frequency

| Time Period | Duration (min) | Parameters | Frequency |
|---|----------------|------------|-------------|
| Daytime (0700 to 1900) | 30 | L_{eq} | Once a week |
| *Evening (1900 to 2300) | 5 | | |
| *Night-time (2300 to 0700 of next day) | 5 | | |

Notes: * denotes Noise monitoring to be conducted only when construction work is in progress.

Starting from September 26 2009, no construction activities involving powered mechanical equipment (PME) or prescribed construction works will be expected during evening and/or night-time. The contractor has reached consent with RSS and IEC that no evening noise

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

monitoring will be required. Hence evening monitoring will be suspended beginning September 26, 2009.

3.4 Monitoring Locations

In accordance with the EM&A Manual, noise monitoring was conducted at four designated monitoring stations as shown in Figure 1.2. Table 3.3 describes the locations of these monitoring stations.

Table 3.3 Noise Monitoring Locations

| Noise Monitoring Stations | Identity / Description |
|---------------------------|--|
| CN1 | Open Area adjacent to Police Training School |
| CN2 | Project Development Office, Ocean Park |
| CN3 | Rinniped House, Ocean Park |
| CN4 | Manly Villa |

3.5 Monitoring Methodology

Field Monitoring

- The Sound Level Meter was set on a tripod at a height of 1.2 m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. For reference, a correction of +3dB(A) was made to the free field measurements.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - time measurement : 30 minutes / 5 minutes
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the L_{eq} was recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.
- Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meters and calibrators are sent to *Hong Kong Calibration Ltd* to check and calibrate at yearly intervals. Calibration details are provided in Appendix E.

3.6 Results and Observations

Noise monitoring was conducted at the 4 designated monitoring stations during daytime and evening in the reporting month. The monitoring was carried out as scheduled in the reporting month and the monitoring results are summarized in Table 3.4 and 3.5. All monitoring data and graphical presentation of the monitoring results are provided in Appendix D.

No exceedance of limit level during daytime and evening recorded in the reporting month.

Table 3.4 Monitoring Results of Daytime Noise

| Date of Monitoring | Noise Level, L_{eq} (30-min), dB(A) | | | |
|--------------------|---------------------------------------|------|------|------|
| | CN1 | CN2 | CN3 | CN4 |
| 28-Sep-09 | 62.9 | 58.5 | 58.9 | 57.9 |
| 5-Oct-09 | 64.7 | 60.3 | 58.9 | 61.2 |
| 12-Oct-09 | 64.9 | 60.2 | 61.2 | 61.2 |
| 19-Oct-09 | 65.9 | 63.0 | 62.4 | 61.4 |

Notes: * Exceedance of Limit Level
 # Exceedance of Action Level

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

4 ENVIRONMENTAL AUDIT

4.1 Environmental Site Audit

Environmental site audits were carried out on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.

Site audits for the Project in the reporting month were conducted on 2, 9, 16, 23 & 30 October 2009. No non-compliance was observed during the site audits. The summaries of site audits are attached in Appendix J.

During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations are summarized in Table 4.1.

Table 4.1 Observations and Recommendations of Site Audits

| Parameter | Date | Observations/Recommendations | Remediation / Follow up |
|--------------------|----------|--|---|
| Air | 09/10/09 | Dust generated during concrete surface grinding with no implementation of dust control | Wet the surface when grinding (completed) |
| Waste | 30/10/09 | General refuses were accumulated on the entry plaza deck. | Remove the refuses (completed) |
| Water | 02/10/09 | Stagnant water was present on the recess on concrete block. | Fill it up with sand (completed) |
| | 30/10/09 | Stagnant water was accumulated on the entry plaza deck. | Remove the stagnant water (completed) |
| Land Contamination | 02/10/09 | An oil drum was placed on the ground without provision of drip tray underneath. | Provide drip tray and cover (completed) |
| | 09/10/09 | Oil leakage was observed underneath concrete residue skip. | Clean up the leakage (completed) |

4.2 Status of Environmental Licensing and Permitting

All valid permits/licenses obtained for the Project are summarized in Table 4.2.

Table 4.2 Summary of Environmental Licensing and Permit Status

| Permit No, | Valid Period | | Details | Status |
|----------------------|--------------|------|---|--------|
| | From | To | | |
| Environmental Permit | | | | |
| EP-249/2006/A | 23/10/2006 | N.A. | Expansion of the existing Ocean Park and reconstruction / | Valid |

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

| Permit No, | Valid Period | | Details | Status |
|--------------------------------------|--------------|------------|---|---------|
| | From | To | | |
| | | | modification of its existing facilities. | |
| Site Effluent Discharge Licence | | | | |
| EP820/W2/XW246 | 05/09/2008 | 30/09/2013 | Discharge of site effluent arising from construction site (Contract CI07) at sedimentation tank into communal storm water drain | Valid |
| Chemical Waste Producer Registration | | | | |
| 5213-199-L2174-28 | 22/09/2008 | N.A. | Waste Disposal (Chemical Waste) (General) Regulation – Registration of Waste Producer | Valid |
| Construction Noise Permit | | | | |
| GW-RS0245-09 | 10/4/2009 | 09/10/2009 | For water pumps, generator and wastewater treatment plant operation from 19:00 to 23:00 (any day not being a general holiday) and 07:00 to 23:00 (general holiday including Sunday) | Expired |
| GW-RS0764-09 | 14/10/2009 | 13/04/2010 | For water pumps, generator and wastewater treatment plant operation from 19:00 to 23:00 (any day not being a general holiday) and 07:00 to 23:00 (general holiday including Sunday) | Valid |
| GW-RS0422-09 | 15/06/2009 | 14/12/2009 | For water pump and wastewater treatment plant operation for any day 23:00 to 07:00 on next day | Valid |
| Other | | | | |
| Ref. no. 001032366 | N.A. | N.A. | Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation | Valid |
| Account No. 7007576 | N.A. | N.A. | Construction Waste Disposal Billing Account with EPD | Valid |

4.3 Status of Waste Management

The amount of waste generated by the construction activities of the Project in the reporting month is attached in Appendix K.

The following materials are recycled/reused on site:

- Existing steel parapets at carpark area are modified and reused as safety fencing for excavation work;

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

- Broken concrete and bitumen are reused for hard paving for temporary access road;
- Reinforcement in the broken concrete are cut and recycled, and
- Treated waste water/underground/stream water is reused for watering dry area/wetting rockfill material to minimize discharge.

4.4 Implementation Status of Environmental Mitigation Measures

According to the Environmental Permit and the EM&A Manual, the mitigation measures detailed in the documents are required to be implemented. An updated summary of the EMIS is provided in Appendix F.

4.5 Summary of Exceedances

No Action/Limit Level exceedance was reported in the reporting month.

4.6 Implementation Status of Event Action Plans

The Event Action Plans for air quality and construction noise are presented in Appendix G.

4.7 Summary of Complaints and Prosecutions

No complaint or prosecution related to the project was received during the reporting month.

The environmental complaint flow diagram and complaint log of the project are presented in Appendix H.

5 FUTURE KEY ISSUES

5.1 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Footing and column, slab construction, staircase construction at Entry Plaza;
- Lift pit and shaft builder works, paving, gas ducting, U/G drainage, E&M works, blockworks, plastering, screeding and tiling at Entry Plaza;
- Roofing, lift pit and shaft builder works, blockworks, plastering and E&M works at Aqua City;
- Column and wall construction at Carousel Plaza;
- Slab, wall and spillway construction, and waterproofing works at Lagoon;
- Wall, beam and slab (Roof), lift shaft and E&M room construction at Grand Aquarium; and

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

- T20 acrylic panel installation, waterproofing work at Grand Aquarium; and
- Wall, beam and slab construction, plastering and painting at Grand Aquarium Transformer Room.

5.2 Construction Programme for the Next Month

The tentative construction programme for the Project is provided in Appendix I.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

Five environmental site audits were performed in October 2009. No non-compliance was observed during the site audits.

No exceedance of environmental monitoring was reported in the reporting month.

No complaint or no prosecution related to the project was received in the reporting month.

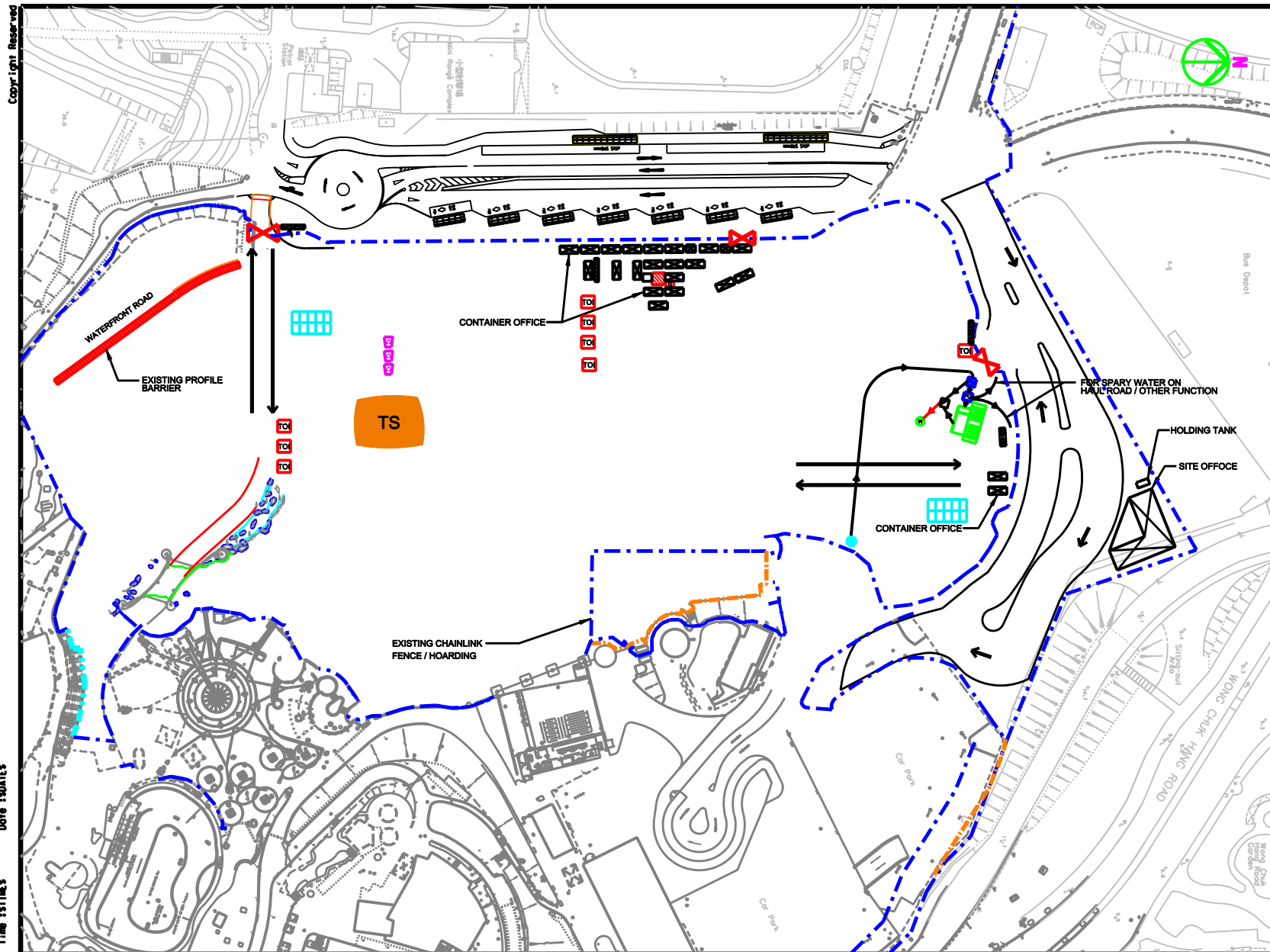
6.2 Recommendations

According to the environmental audits performed in the reporting month, the following recommendations are made:

- Ensure dust control will be implemented during mixing cement and sand and concrete surface grinding;
- Improve general housekeeping and maintain aesthetic quality;
- Remove stagnant water and spray larvacide regularly to avoid mosquito breeding; and
- Implement measures regarding oil drum storage and leakage problem. In addition to strictly adhere to providing drip tray underneath.

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Figure 1.1 – Site Layout Plan



- LEGENDS :**
- EXISTING CHAINLINK FENCE / HOARDING
 - WHEEL WASHING BASIN
 - SUMP PIT
 - SILT TRAP
 - SITE ENTRANCE
 - SPILL KIT
 - NOTICE BOARD (INCLUDING EMERGENCY TELEPHONE LIST)
 - WASTE WATER DISCHARGE POINT
 - WASTE WATER TREATMENT POINT (AQUASED)
 - TEMPORARY DRAIN FOR WASTE / GROUND WATER
 - TEMPORARY DRAIN WITH TREATMENT
 - TEMPORARY WATER SUPPLY
 - TEMPORARY ELECTRICITY SUPPLY
 - FLAGMAN LOCATION
 - CHEMICAL TOILET
 - ACCESS GIVEN
 - ACCESS DENIED
 - CHEMICAL WASTE STORE
 - TEMPORARY SORTING AREA
 - TEMPORARY STORAGE AREA
 - RECYCLE BINS
 - WASTE SKIP
 - SEDIMENTATION TANK
 - GROUND WATER SOURCE
 - D.G. STORE
 - PUMP TANK

UPDATED TO NOV 09

LEIGHTON 禮頓

DRAWING NO. H2458/E/0020

DATE 01/11/2008

REVISION F

| REVISION | DATE | DESCRIPTION | CHK. BY | APPR. BY |
|----------|----------|---------------|---------|----------|
| F | 02/11/09 | MINOR REVISED | | |
| E | 23/07/09 | MINOR REVISED | | |
| D | 03/04/09 | MINOR REVISED | | |
| C | 18/02/09 | MINOR REVISED | | |
| B | 20/01/09 | MINOR REVISED | | |

OCEAN PARK REDEVELOPMENT
CONTRACT No. C107
ENTRY PLAZA, AQUA CITY & GRAND AQUARIUM

PROJECT TITLE

DRAWING TITLE

ENVIRONMENTAL FACILITIES LAYOUT PLAN

DESIGNED BY KELVEN YIP

DRAWN BY CF. WOO

CHECKED BY KELVEN YIP

SCALE 1:100

N.T.S.

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Figure 1.2 – Locations of Air Quality and Noise Monitoring Stations



| | | |
|--|----------------------|------|
| REV. | DESCRIPTION | DATE |
| | | |
| | | |
| | | |
| | | |
|  OCEAN PARK HONG KONG | | |
| OCEAN PARK REDEVELOPMENT | | |
| CONTRACT NO.C107 ENTRY PLAZA, AQUA CITY & GRAND AQUARIUM | | |
| AIR QUALITY AND NOISE MONITORING STATIONS LOCATION PLAN | | |
| CONSULTANT MAUNSELL AECOM Maunsell Consultants Asia Ltd. 茂盛(亞洲)工程顧問有限公司 In association with: AEDAS EDRAW LEVETT & BAILEY | | |
|  LEIGHTON CONTRACTORS (ASIA) LTD. | | |
| SCALE N. T. S. | DATE 27/03/2009 | |
| DRAWN BY F. LO | CHECKED BY T. LEE | |
| DWG. NO. H2458/E/0172 | REV. 0 | |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix A – Action and Limit Levels

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Table B.1 Action and Limit Levels for 1-hour average TSP and 24-hour average TSP Monitoring

| Monitoring Location | 24-hr TSP ($\mu\text{g}/\text{m}^3$) | | 1-hr TSP ($\mu\text{g}/\text{m}^3$) | |
|---------------------|--|-------------|---------------------------------------|-------------|
| | Action Level | Limit Level | Action Level | Limit Level |
| AM1 | 183 | 260 | 440 | 500 |
| AM2 | 181 | 260 | 500 | 500 |
| AM3/AM3A | 194 | 260 | 500 | 500 |

Table B.2 Action and Limit Levels for Daytime, Evening & Night-time Noise Monitoring

| Time Period | Action | Limit |
|---|---|-------------------|
| 0700-1900 hrs on normal weekdays | When one documented complaint is received from any one of the sensitive receivers | 75 dB(A) * |
| 1900-2300 hrs on normal weekdays; and 0700-1900 hrs on holidays | | 60/65/70 dB(A) ** |
| 2300-0700 hrs of next day | | 45/50/55 dB(A) ** |

* reduce to 70dB(A) for school and 65dB(A) during school examination periods, if applicable

** to be selected based on the Area Sensitivity Rating of A/B/C, and the conditions of the CNP(s) must be followed

Appendix B – Environmental Monitoring Schedules



Contract No.: C107
Ocean Park Redevelopment Project – Entry Plaza, Aqua
City & Grand Aquarium – Environmental Monitoring

Time Schedule for Impact 1-hour TSP Monitoring (1-TSP), Impact 24-hour TSP Monitoring (24-TSP) and Impact Daytime Noise Monitoring (NM-Daytime)

October 2009

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|--------------------------------------|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | | | | 1 Holiday | 2 1-TSP | 3 Holiday |
| 4 | 5 1-TSP 24-TSP NM - Daytime | 6 | 7 1-TSP | 8 | 9 1-TSP | 10 1-TSP 24-TSP |
| 11 | 12 1-TSP NM - Daytime | 13 | 14 1-TSP | 15 | 16 1-TSP 24-TSP | 17 |
| 18 | 19 1-TSP NM - Daytime | 20 | 21 1-TSP | 22 1-TSP 24-TSP | 23 1-TSP | 24 |
| 25 | 26 Holiday | 27 1-TSP NM - Daytime | 28 1-TSP 24-TSP | 29 | 30 1-TSP | 31 |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix C – Air Quality Monitoring Results

Annex E1 Air Quality Monitoring Data (1-hr TSP)

1-hr TSP Monitoring Results at Station AM1

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 28-Sep-09 | 9:00 | 28-Sep-09 | 10:00 | 2.8214 | 2.8266 | 0.8 | 0.8 | 13542.29 | 13543.59 | 1 | 79 | rainy | 0.0052 | 0.8 | 66 |
| 29-Sep-09 | 9:00 | 29-Sep-09 | 10:00 | 2.8308 | 2.8379 | 0.8 | 0.8 | 13542.59 | 13543.59 | 1 | 140 | rainy | 0.0071 | 0.8 | 51 |
| 30-Sep-09 | 11:04 | 30-Sep-09 | 12:04 | 2.8359 | 2.8389 | 0.9 | 0.9 | 13567.59 | 13568.59 | 1 | 53 | cloudy | 0.0030 | 0.9 | 57 |
| 2-Oct-09 | 9:00 | 2-Oct-09 | 10:00 | 2.8235 | 2.8315 | 0.9 | 0.9 | 13568.59 | 13569.59 | 1 | 141 | sunny | 0.0080 | 0.9 | 57 |
| 5-Oct-09 | 9:00 | 5-Oct-09 | 10:00 | 2.8311 | 2.8367 | 0.9 | 0.9 | 13569.59 | 13570.59 | 1 | 99 | sunny | 0.0056 | 0.9 | 57 |
| 7-Oct-09 | 11:00 | 7-Oct-09 | 12:00 | 2.8062 | 2.8099 | 0.8 | 0.8 | 13594.59 | 13595.59 | 1 | 76 | cloudy | 0.0037 | 0.8 | 49 |
| 9-Oct-09 | 9:00 | 9-Oct-09 | 10:00 | 2.8523 | 2.8570 | 0.8 | 0.8 | 13595.59 | 13596.59 | 1 | 97 | sunny | 0.0047 | 0.8 | 49 |
| 10-Oct-09 | 9:00 | 10-Oct-09 | 10:00 | 2.8638 | 2.8690 | 0.8 | 0.8 | 13596.59 | 13597.59 | 1 | 107 | sunny | 0.0052 | 0.8 | 49 |
| 12-Oct-09 | 13:00 | 12-Oct-09 | 14:01 | 2.8185 | 2.8207 | 0.8 | 0.8 | 13621.59 | 13622.61 | 1 | 43 | cloudy | 0.0022 | 0.8 | 52 |
| 14-Oct-09 | 9:00 | 14-Oct-09 | 10:00 | 2.8293 | 2.8349 | 0.8 | 0.8 | 13622.61 | 13623.61 | 1 | 115 | cloudy | 0.0056 | 0.8 | 49 |
| 16-Oct-09 | 9:00 | 16-Oct-09 | 10:00 | 2.8291 | 2.8396 | 1.2 | 1.2 | 13623.61 | 13624.61 | 1 | 152 | sunny | 0.0105 | 1.2 | 69 |
| 19-Oct-09 | 9:05 | 19-Oct-09 | 10:05 | 2.8487 | 2.8552 | 0.9 | 0.9 | 13648.60 | 13649.60 | 1 | 123 | cloudy | 0.0065 | 0.9 | 53 |
| 21-Oct-09 | 11:00 | 21-Oct-09 | 12:00 | 2.8495 | 2.8544 | 0.9 | 0.9 | 13649.60 | 13650.60 | 1 | 93 | cloudy | 0.0049 | 0.9 | 53 |
| 22-Oct-09 | 9:00 | 22-Oct-09 | 10:00 | 2.8033 | 2.8059 | 0.8 | 0.8 | 13650.60 | 13651.60 | 1 | 53 | sunny | 0.0026 | 0.8 | 49 |
| 23-Oct-09 | 13:05 | 23-Oct-09 | 14:05 | 2.8371 | 2.8429 | 0.9 | 0.9 | 13675.60 | 13676.60 | 1 | 110 | sunny | 0.0058 | 0.9 | 53 |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |

1-hr TSP Monitoring Results at Station AM2

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 28-Sep-09 | 9:00 | 28-Sep-09 | 10:00 | 2.8373 | 2.8466 | 1.1 | 1.1 | 13351.06 | 13352.06 | 1 | 144 | rainy | 0.0093 | 1.1 | 64 |
| 29-Sep-09 | 9:00 | 29-Sep-09 | 10:00 | 2.8412 | 2.8506 | 1.1 | 1.1 | 13352.06 | 13353.06 | 1 | 146 | rainy | 0.0094 | 1.1 | 64 |
| 30-Sep-09 | 11:00 | 30-Sep-09 | 12:00 | 2.8401 | 2.8439 | 1.1 | 1.1 | 13377.05 | 13378.05 | 1 | 59 | cloudy | 0.0038 | 1.1 | 64 |
| 2-Oct-09 | 9:00 | 2-Oct-09 | 10:00 | 2.8315 | 2.8425 | 1.1 | 1.1 | 13378.05 | 13379.05 | 1 | 171 | sunny | 0.0110 | 1.1 | 64 |
| 5-Oct-09 | 9:00 | 5-Oct-09 | 10:00 | 2.8385 | 2.8487 | 1.1 | 1.1 | 13379.05 | 13380.05 | 1 | 158 | sunny | 0.0102 | 1.1 | 64 |
| 7-Oct-09 | 11:00 | 7-Oct-09 | 12:00 | 2.8606 | 2.8693 | 1.0 | 1.0 | 13404.05 | 13405.05 | 1 | 143 | cloudy | 0.0087 | 1.0 | 61 |
| 9-Oct-09 | 9:00 | 9-Oct-09 | 10:00 | 2.8283 | 2.8365 | 1.0 | 1.0 | 13405.05 | 13406.05 | 1 | 135 | sunny | 0.0082 | 1.0 | 61 |
| 10-Oct-09 | 9:00 | 10-Oct-09 | 10:00 | 2.8003 | 2.8081 | 1.0 | 1.0 | 13406.05 | 13407.05 | 1 | 128 | sunny | 0.0078 | 1.0 | 61 |
| 12-Oct-09 | 11:00 | 12-Oct-09 | 12:00 | 2.7696 | 2.7731 | 1.1 | 1.1 | 13431.05 | 13432.05 | 1 | 54 | cloudy | 0.0035 | 1.1 | 64 |
| 14-Oct-09 | 9:00 | 14-Oct-09 | 10:00 | 2.8424 | 2.85 | 1.0 | 1.0 | 13432.05 | 13433.05 | 1 | 125 | cloudy | 0.0076 | 1.0 | 61 |
| 16-Oct-09 | 9:00 | 16-Oct-09 | 10:00 | 2.8037 | 2.8132 | 1.0 | 1.0 | 13433.05 | 13434.05 | 1 | 156 | sunny | 0.0095 | 1.0 | 61 |
| 19-Oct-09 | 9:00 | 19-Oct-09 | 10:00 | 2.8728 | 2.8825 | 1.0 | 1.0 | 13458.05 | 13459.05 | 1 | 159 | cloudy | 0.0097 | 1.0 | 61 |

- Remarks:**
1. Bold value indicated an Action Level exceedance
 2. Bold & Italic value indicated an Limit Level exceedance
 3. x - denotes no measurement due to power supply failure
 4. * - denotes measurement by using Dust Trak

Annex E1 Air Quality Monitoring Data (1-hr TSP)

1-hr TSP Monitoring Results at Station AM2

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 21-Oct-09 | 11:00 | 21-Oct-09 | 12:00 | 2.7870 | 2.7983 | 1.1 | 1.1 | 13459.05 | 13460.05 | 1 | 175 | cloudy | 0.0113 | 1.1 | 64 |
| 22-Oct-09 | 8:30 | 22-Oct-09 | 9:30 | 2.7940 | 2.8008 | 1.1 | 1.1 | 13460.05 | 13461.05 | 1 | 105 | cloudy | 0.0068 | 1.1 | 64 |
| 23-Oct-09 | 13:00 | 23-Oct-09 | 14:00 | 2.8275 | 2.8362 | 1.1 | 1.1 | 13485.05 | 13486.05 | 1 | 135 | sunny | 0.0087 | 1.1 | 64 |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |

1-hr TSP Monitoring Results at Station AM3A

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 28-Sep-09 | 9:00 | 28-Sep-09 | 10:00 | 2.8099 | 2.8268 | 1.2 | 1.2 | 15677.26 | 15678.26 | 1 | 243 | rainy | 0.0169 | 1.2 | 70 |
| 29-Sep-09 | 9:00 | 29-Sep-09 | 10:00 | 2.8298 | 2.8405 | 1.2 | 1.2 | 15678.26 | 15679.26 | 1 | 154 | rainy | 0.0107 | 1.2 | 70 |
| 30-Sep-09 | 11:15 | 30-Sep-09 | 12:15 | 2.8356 | 2.8399 | 1.2 | 1.2 | 15703.26 | 15704.26 | 1 | 60 | cloudy | 0.0043 | 1.2 | 72 |
| 2-Oct-09 | 9:00 | 2-Oct-09 | 10:00 | 2.8349 | 2.8487 | 1.2 | 1.2 | 15704.26 | 15705.26 | 1 | 193 | sunny | 0.0138 | 1.2 | 72 |
| 5-Oct-09 | 9:00 | 5-Oct-09 | 10:00 | 2.8321 | 2.8486 | 1.2 | 1.2 | 15705.26 | 15706.26 | 1 | 231 | sunny | 0.0165 | 1.2 | 72 |
| 7-Oct-09 | 11:00 | 7-Oct-09 | 12:00 | 2.8492 | 2.8580 | 1.0 | 1.0 | 15730.26 | 15731.26 | 1 | 147 | cloudy | 0.0088 | 1.0 | 60 |
| 9-Oct-09 | 9:00 | 9-Oct-09 | 10:00 | 2.8055 | 2.8225 | 1.0 | 1.0 | 15731.26 | 15732.26 | 1 | 284 | sunny | 0.0170 | 1.0 | 60 |
| 10-Oct-09 | 9:00 | 10-Oct-09 | 10:00 | 2.8614 | 2.8764 | 1.1 | 1.1 | 15732.26 | 15733.26 | 1 | 228 | sunny | 0.0150 | 1.1 | 66 |
| 12-Oct-09 | 13:30 | 12-Oct-09 | 14:30 | 2.8571 | 2.8633 | 1.2 | 1.2 | 15757.26 | 15758.26 | 1 | 84 | cloudy | 0.0062 | 1.2 | 73 |
| 14-Oct-09 | 9:00 | 14-Oct-09 | 10:00 | 2.8470 | 2.8592 | 1.2 | 1.2 | 15758.26 | 15759.26 | 1 | 175 | cloudy | 0.0122 | 1.2 | 70 |
| 16-Oct-09 | 9:00 | 16-Oct-09 | 10:00 | 2.7957 | 2.8097 | 1.1 | 1.1 | 15759.26 | 15760.26 | 1 | 207 | sunny | 0.0140 | 1.1 | 68 |
| 19-Oct-09 | 9:10 | 19-Oct-09 | 10:10 | 2.8277 | 2.8493 | 1.2 | 1.2 | 15784.26 | 15785.26 | 1 | 311 | cloudy | 0.0216 | 1.2 | 70 |
| 21-Oct-09 | 11:00 | 21-Oct-09 | 12:00 | 2.8138 | 2.8297 | 1.2 | 1.2 | 15785.26 | 15786.26 | 1 | 216 | cloudy | 0.0159 | 1.2 | 73 |
| 22-Oct-09 | 9:00 | 22-Oct-09 | 10:00 | 2.8206 | 2.8342 | 1.3 | 1.3 | 15786.26 | 15787.26 | 1 | 176 | cloudy | 0.0136 | 1.3 | 77 |
| 23-Oct-09 | 13:10 | 23-Oct-09 | 14:10 | 2.8089 | 2.8197 | 1.2 | 1.2 | 15811.26 | 15812.26 | 1 | 147 | sunny | 0.0108 | 1.2 | 73 |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | 0-Jan-00 | 1:00 | | | | | | | 0 | | | 0.0000 | | |
| | | | | | | | | | | | | | | | |

- Remarks:**
1. Bold value indicated an Action Level exceedance
 2. Bold & Italic value indicated an Limit Level exceedance
 3. x - denotes no measurement due to power supply failure
 4. * - denotes measurement by using Dust Trak

Figure C.1 1-hr TSP monitoring results of Monitoring Station AM1

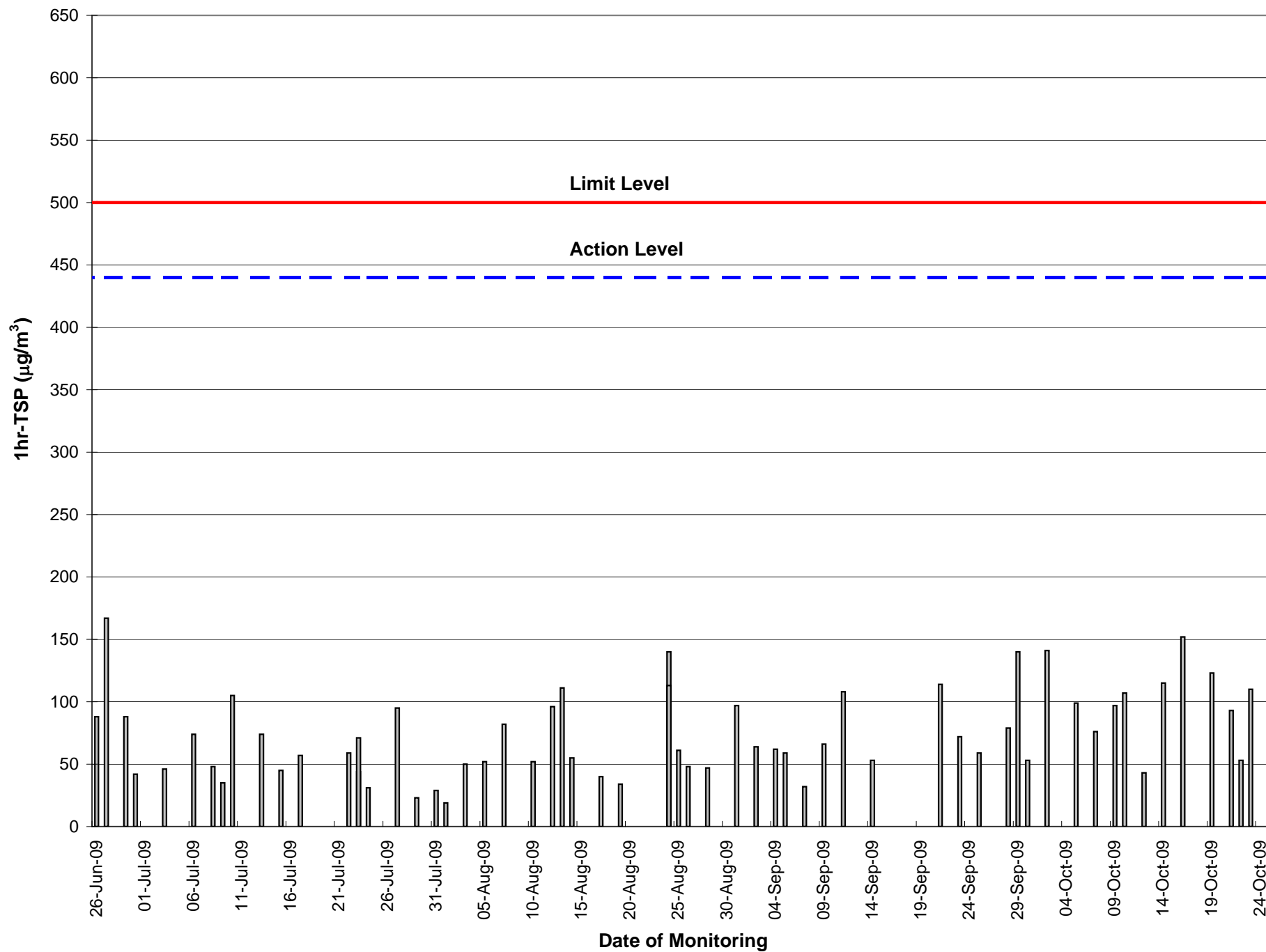


Figure C.2 1-hr TSP monitoring results of Monitoring Station AM2

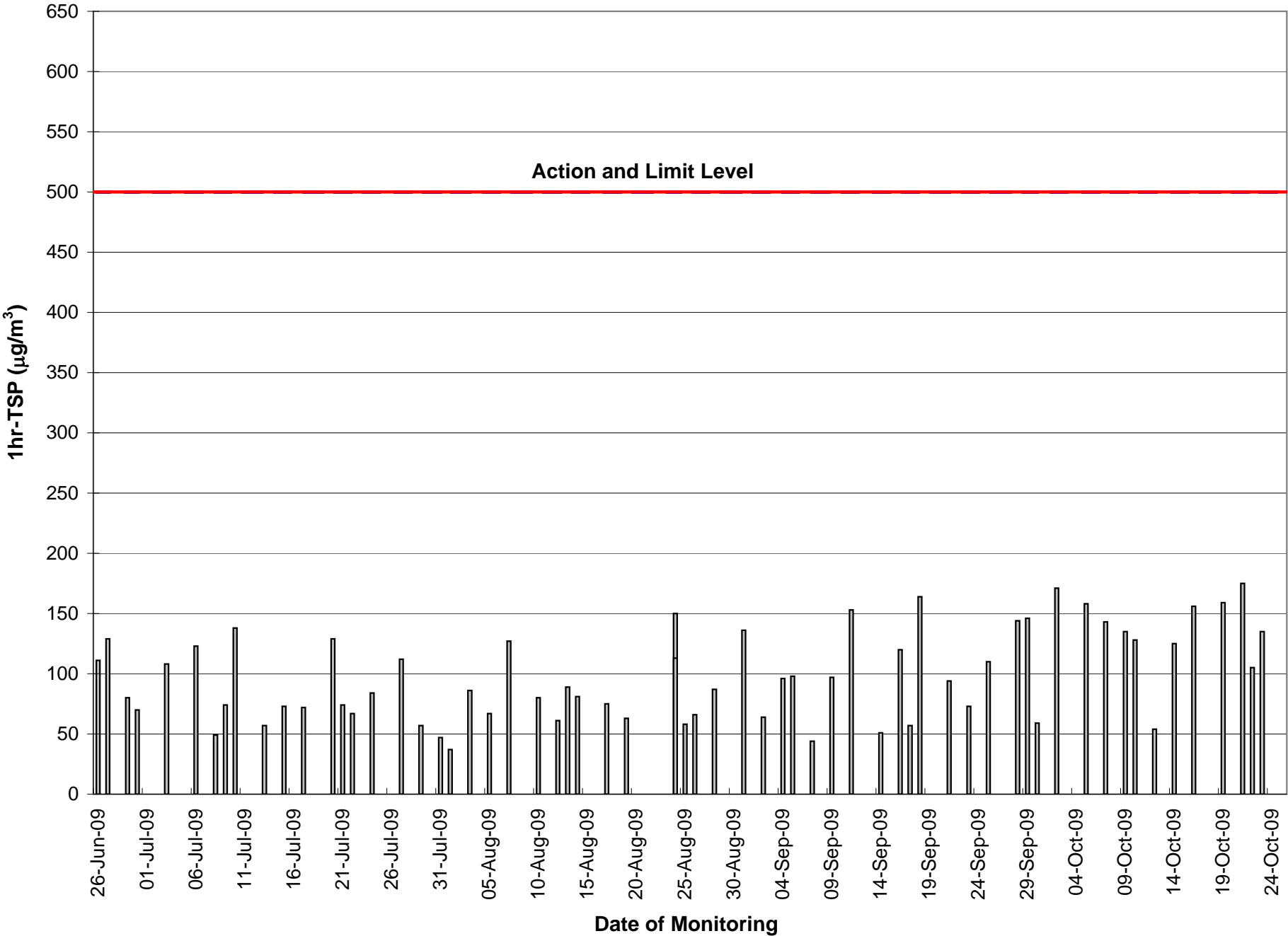
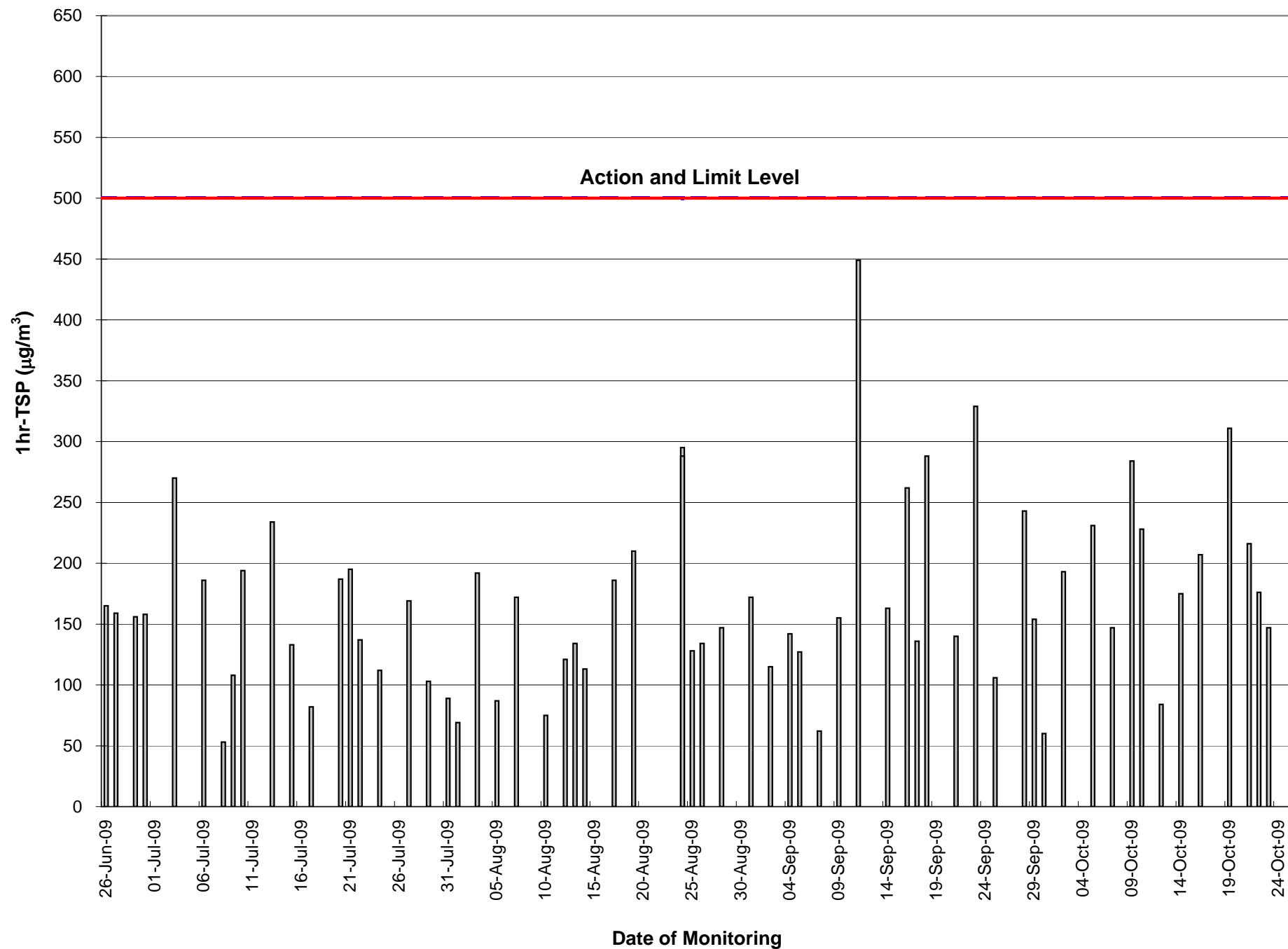


Figure C.3 1-hr TSP monitoring results of Monitoring Station AM3A



Annex D2 Air Quality Monitoring Data (24-hr TSP)

24-hr TSP Monitoring Results at Station AM1

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|----------------------|--------|-----------------------|-------|-----------------------|----------|-----------------------------|--------------------------|----------------------|------------------------------|-----------------------------|-------------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 29-Sep-09 | 10:40 | 30-Sep-09 | 10:40 | 2.8058 | 2.8694 | 0.9 | 0.9 | 13543.59 | 13567.59 | 24 | 47 | rainy | 0.0636 | 0.9 | 1363 |
| 5-Oct-09 | 12:25 | 6-Oct-09 | 12:25 | 2.8023 | 2.8369 | 0.8 | 0.8 | 13570.59 | 13594.59 | 24 | 30 | sunny | 0.0346 | 0.8 | 1168 |
| 10-Oct-09 | 11:35 | 11-Oct-09 | 11:35 | 2.8645 | 2.9354 | 0.8 | 0.8 | 13597.59 | 13621.59 | 24 | 61 | sunny | 0.0709 | 0.8 | 1168 |
| 16-Oct-09 | 12:30 | 17-Oct-09 | 12:29 | 2.8493 | 2.8925 | 0.8 | 0.8 | 13624.61 | 13648.60 | 24 | 37 | sunny | 0.0432 | 0.8 | 1167 |
| 22-Oct-09 | 12:00 | 23-Oct-09 | 12:00 | 2.8613 | 2.9740 | 0.9 | 0.9 | 13651.60 | 13675.60 | 24 | 89 | sunny | 0.1127 | 0.9 | 1265 |
| | | 1-Jan-00 | 0:00 | | | | | | | | | | 0.0000 | | |

24-hr TSP Monitoring Results at Station AM2

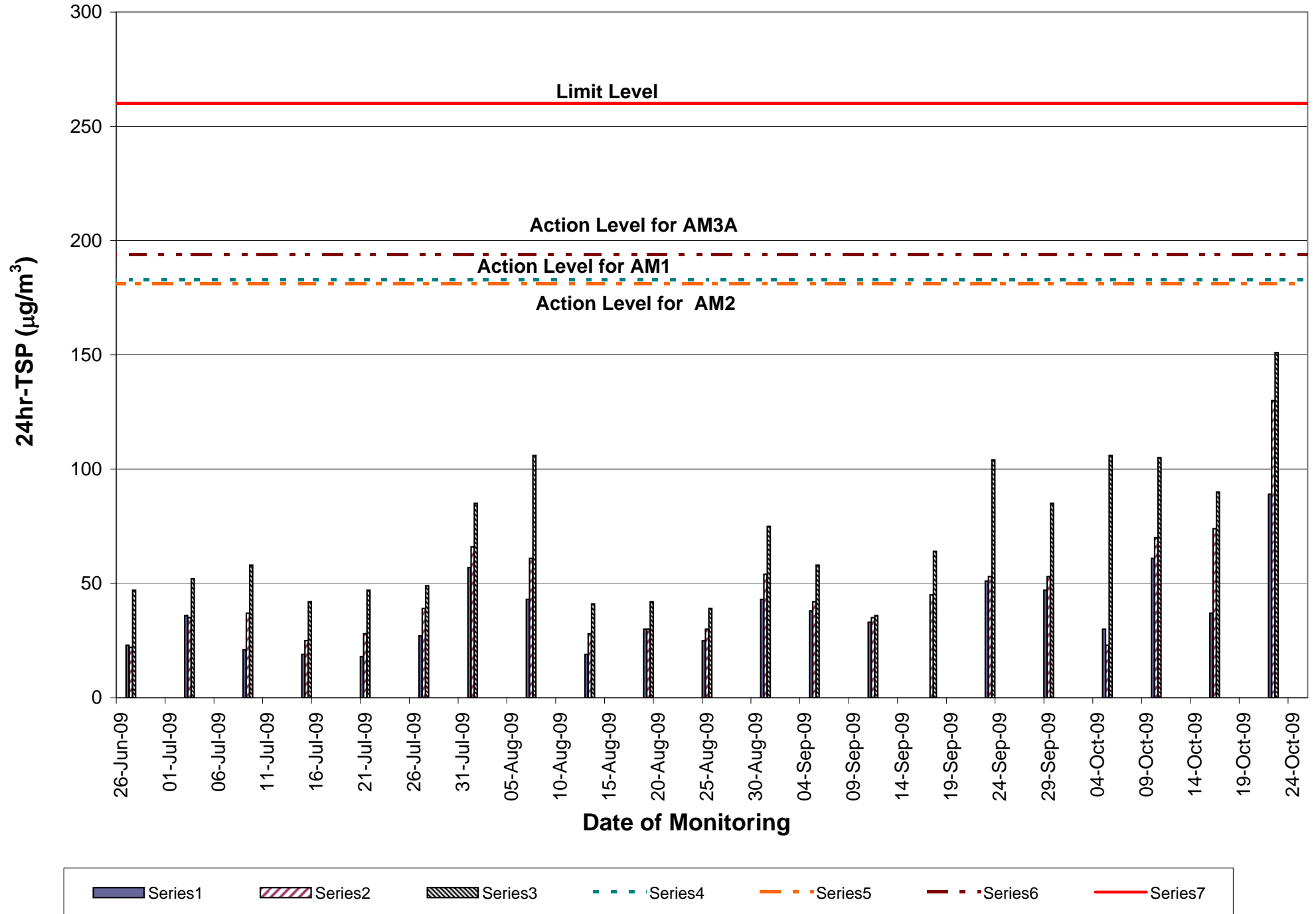
| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 29-Sep-09 | 10:30 | 30-Sep-09 | 10:29 | 2.8095 | 2.8897 | 1.0 | 1.0 | 13353.06 | 13377.05 | 24 | 53 | rainy | 0.0802 | 1.0 | 1504 |
| 5-Oct-09 | 12:05 | 6-Oct-09 | 12:05 | 2.7982 | 2.8318 | 1.1 | 1.0 | 13380.05 | 13404.05 | 24 | 23 | sunny | 0.0336 | 1.0 | 1462 |
| 10-Oct-09 | 11:46 | 11-Oct-09 | 11:46 | 2.8752 | 2.9776 | 1.0 | 1.0 | 13407.05 | 13431.05 | 24 | 70 | sunny | 0.1024 | 1.0 | 1462 |
| 16-Oct-09 | 12:00 | 17-Oct-09 | 12:00 | 2.8301 | 2.9452 | 1.1 | 1.1 | 13434.05 | 13458.05 | 24 | 74 | sunny | 0.1151 | 1.1 | 1547 |
| 22-Oct-09 | 11:45 | 23-Oct-09 | 11:45 | 2.8221 | 3.0120 | 1.0 | 1.0 | 13461.05 | 13485.05 | 24 | 130 | sunny | 0.1899 | 1.0 | 1462 |
| | | 1-Jan-00 | 0:00 | | | | | | | | | | 0.0000 | | |

24-hr TSP Monitoring Results at Station AM3A

| Monitoring Period | | | | Filter Weight (g) | | Flow Rate (m³/min) | | Elapse Time (hour) | | Sampling Time (hours) | Concentration (µg/m³) | Weather Condition | Particulate weight (g) | Average flow (m³/min) | Total volume (m³) |
|-------------------|-------|-----------|-------|-------------------|--------|--------------------|-------|--------------------|----------|-----------------------|-----------------------|-------------------|------------------------|-----------------------|-------------------|
| From | | To | | | | | | | | | | | | | |
| Date | Time | Date | Time | Initial | Final | Initial | Final | Initial | Final | | | | | | |
| 29-Sep-09 | 10:50 | 30-Sep-09 | 10:50 | 2.8481 | 2.9987 | 1.2 | 1.2 | 15679.26 | 15703.26 | 24 | 85 | rainy | 0.1506 | 1.2 | 1763 |
| 5-Oct-09 | 12:00 | 6-Oct-09 | 12:00 | 2.8339 | 3.0165 | 1.2 | 1.2 | 15706.26 | 15730.26 | 24 | 106 | sunny | 0.1826 | 1.2 | 1716 |
| 10-Oct-09 | 11:57 | 11-Oct-09 | 11:57 | 2.8461 | 3.0314 | 1.2 | 1.2 | 15733.26 | 15757.26 | 24 | 105 | sunny | 0.1853 | 1.2 | 1763 |
| 16-Oct-09 | 12:10 | 17-Oct-09 | 12:10 | 2.8474 | 3.0151 | 1.3 | 1.3 | 15760.26 | 15784.26 | 24 | 90 | sunny | 0.1677 | 1.3 | 1856 |
| 22-Oct-09 | 12:15 | 23-Oct-09 | 12:15 | 2.8577 | 3.1230 | 1.2 | 1.2 | 15787.26 | 15811.26 | 24 | 151 | sunny | 0.2653 | 1.2 | 1763 |
| | | 1-Jan-00 | 0:00 | | | | | | | | | | 0.0000 | | |

- Remarks:**
1. Bold value indicated an Action Level exceedance
 2. Bold & Italic value indicated an Limit Level exceedance
 3. x - denotes no measurement due to power supply failure
 4. * - not 24 hrs due to power supply failure

Figure C.4 24-hr TSP monitoring results of Monitoring Station AM1, AM2 & AM3A



**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix D – Noise Monitoring Results

Annex F1 Noise Monitoring Data (Daytime Noise)

Daytime Noise Monitoring Results at Station CN1

| Date | Weather Condition | Measured Noise Level for 30 mins., dB(A) | | | | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|-----------|-------------------|--|------|------|------|-----------------------------|--------------------|------------------|
| | | Time | Leq | L10 | L90 | | | |
| 28-Sep-09 | Cloudy | 13:10 | 62.9 | 68.2 | 60.2 | 60.2 | 70 | N |
| 5-Oct-09 | Sunny | 16:05 | 64.7 | 67.9 | 61.3 | 60.2 | 70 | N |
| 12-Oct-09 | Cloudy | 13:05 | 64.9 | 71.2 | 61.3 | 60.2 | 70 | N |
| 19-Oct-09 | Fine | 9:15 | 65.9 | 69.0 | 62.2 | 60.2 | 70 | N |

Daytime Noise Monitoring Results at Station CN2

| Date | Weather Condition | Measured Noise Level for 30 mins., dB(A) | | | | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|-----------|-------------------|--|------|------|------|-----------------------------|--------------------|------------------|
| | | Time | Leq | L10 | L90 | | | |
| 28-Sep-09 | Cloudy | 14:43 | 58.5 | 62.4 | 57.1 | 61.0 | 75 | N |
| 5-Oct-09 | Sunny | 14:00 | 60.3 | 63.9 | 58.8 | 61.0 | 75 | N |
| 12-Oct-09 | Cloudy | 14:33 | 60.2 | 65.4 | 58.5 | 61.0 | 75 | N |
| 19-Oct-09 | Fine | 10:35 | 63.0 | 66.2 | 59.8 | 61.0 | 75 | N |

Daytime Noise Monitoring Results at Station CN3

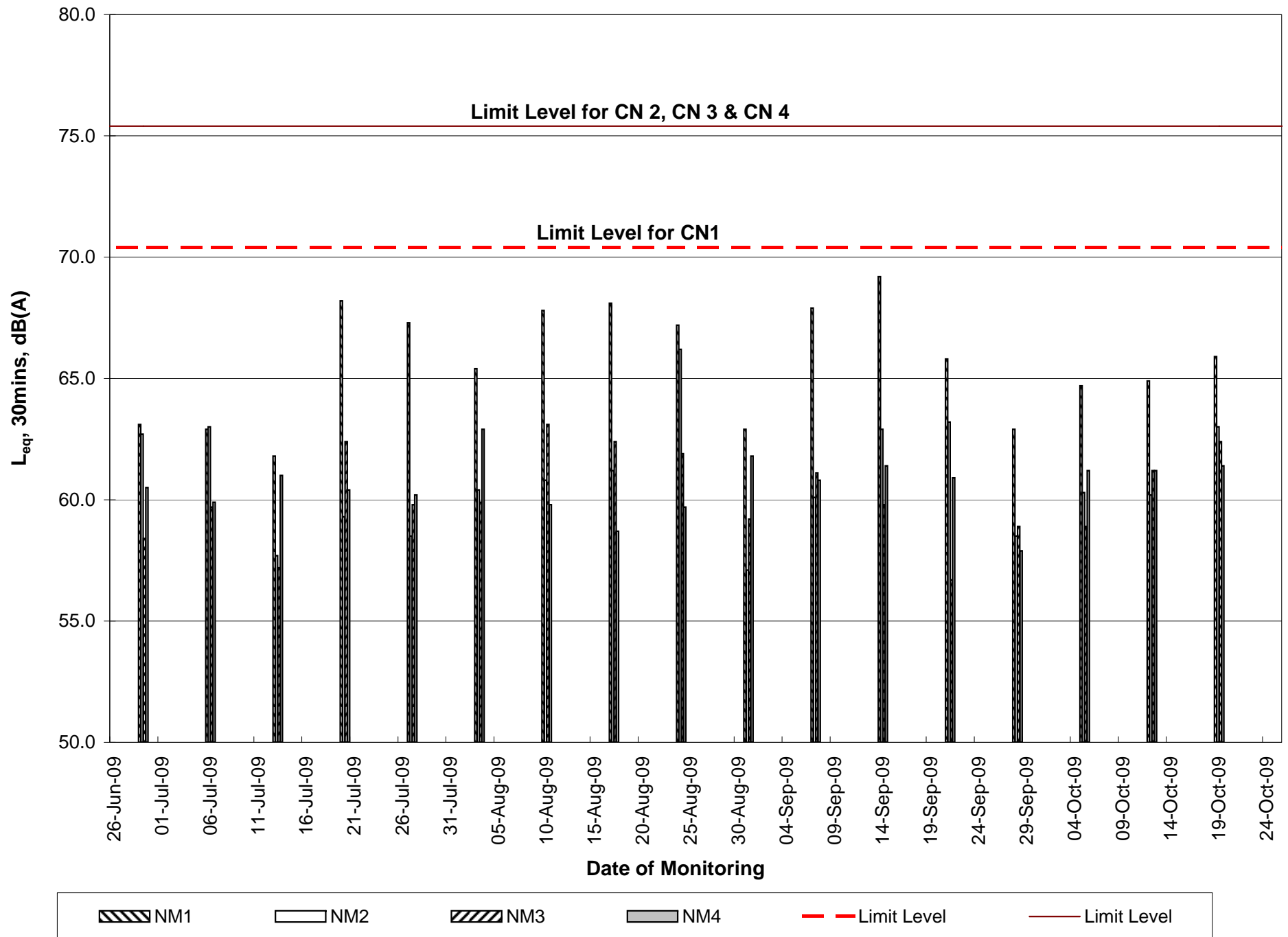
| Date | Weather Condition | Measured Noise Level for 30 mins., dB(A) | | | | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|-----------|-------------------|--|------|------|------|-----------------------------|--------------------|------------------|
| | | Time | Leq | L10 | L90 | | | |
| 28-Sep-09 | Cloudy | 15:29 | 58.9 | 63.8 | 57.8 | 56.3 | 75 | N |
| 5-Oct-09 | Sunny | 14:40 | 58.9 | 62.7 | 56.4 | 56.3 | 75 | N |
| 12-Oct-09 | Cloudy | 15:18 | 61.2 | 65.9 | 59.2 | 56.3 | 75 | N |
| 19-Oct-09 | Fine | 11:15 | 62.4 | 65.6 | 59.3 | 56.3 | 75 | N |

Daytime Noise Monitoring Results at Station CN4

| Date | Weather Condition | Measured Noise Level for 30 mins., dB(A) | | | | Baseline Noise Level, dB(A) | Limit Level, dB(A) | Exceedance (Y/N) |
|-----------|-------------------|--|------|------|------|-----------------------------|--------------------|------------------|
| | | Time | Leq | L10 | L90 | | | |
| 28-Sep-09 | Cloudy | 13:38 | 57.9 | 62.8 | 56.1 | 56.9 | 75 | N |
| 5-Oct-09 | Sunny | 15:25 | 61.2 | 64.4 | 58.3 | 56.9 | 75 | N |
| 12-Oct-09 | Cloudy | 13:48 | 61.2 | 65.3 | 58.2 | 56.9 | 75 | N |
| 19-Oct-09 | Fine | 9:55 | 61.4 | 64.3 | 58.8 | 56.9 | 75 | N |

Remarks: Bold & Italic value indicated an Limit Level exceedance

Fig D.1 - Daytime Noise Monitoring Results of Monitoring Stations CN1, CN2, CN3 & CN4



**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix E – Calibration Details

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

CALIBRATION DETAILS**Air Quality Monitoring Equipments**

| Monitoring Location | AM1 | AM2 | AM3A |
|--|--------------------|--------------------|--------------------|
| High Volume Sample/Dust Trak Serial No. | 1174 | 1177 | 9998 |
| Sampler Identification | ET / EA / 003 / 08 | ET / EA / 003 / 07 | ET / EA / 003 / 12 |
| Date of Calibration | 05 Sept 2009 | 05 Sept 2009 | 05 Sept 2009 |
| Calibration Due Date | 04 Nov 2009 | 04 Nov 2009 | 04 Nov 2009 |
| Result | Good | Good | Good |

Noise Monitoring Equipments

| | |
|---|---------------------|
| Monitoring Location | CN1, CN2, CN3 & CN4 |
| Sound Level Meter Brand Name and Model | Rion NL-31 |
| Serial No. | 00773032 |
| Date of Calibration | 26 November 2007 |
| Calibration Due Date | 25 November 2009 |
| Result | Good |



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F, Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

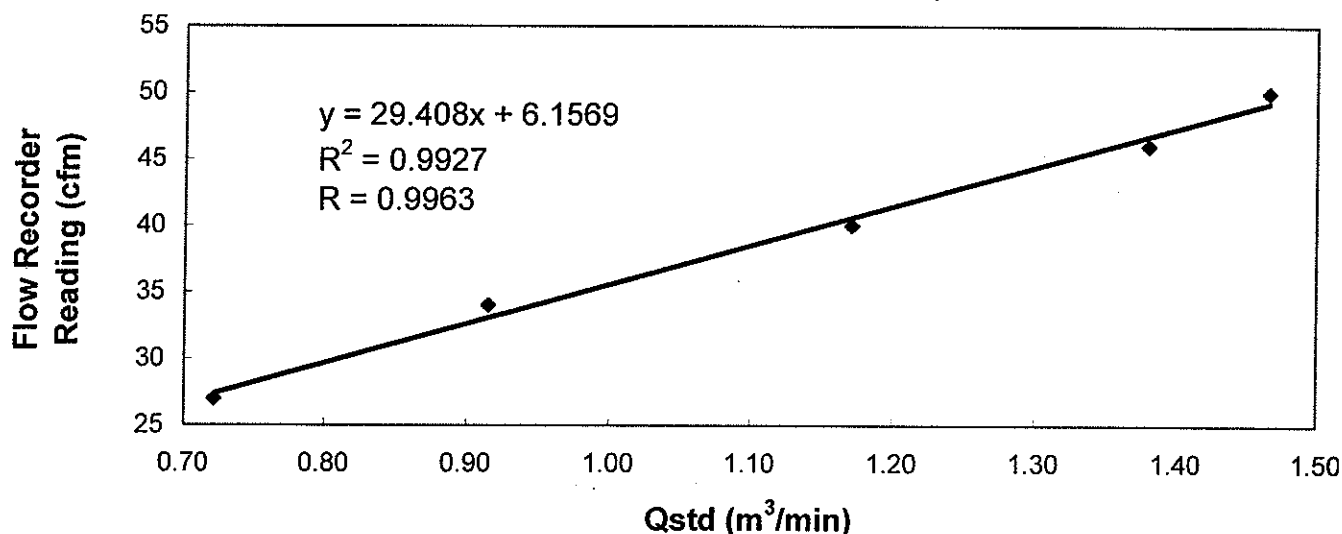
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 05 September 2009
Serial No. : 1174 (ET / EA / 003 / 08) **Calibration Due Date** : 04 November 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

| | | | | | | |
|----------------|--|---------------|------|------|------|------|
| Results | Flow recorder reading (cfm) | 50 | 46 | 40 | 34 | 27 |
| | Qstd (Actual flow rate, m ³ /min) | 1.46 | 1.38 | 1.17 | 0.91 | 0.72 |
| | Pressure : 754 mm Hg | Temp. : 305 K | | | | |

Sampler 1174 Calibration Curve
Site: Ocean Park (AM-1)

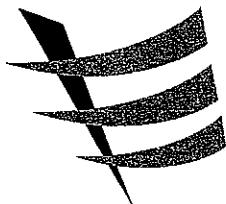


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by : LI, Wan Lung
(Technician)

Approved by : CHOW, Hoi Tat
(Asst. Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong
Tel : 2695 8318 E-mail : etl@ets-testconsult.com
Fax : 2695 3944 Web site : www.ets-testconsult.com

TEST REPORT

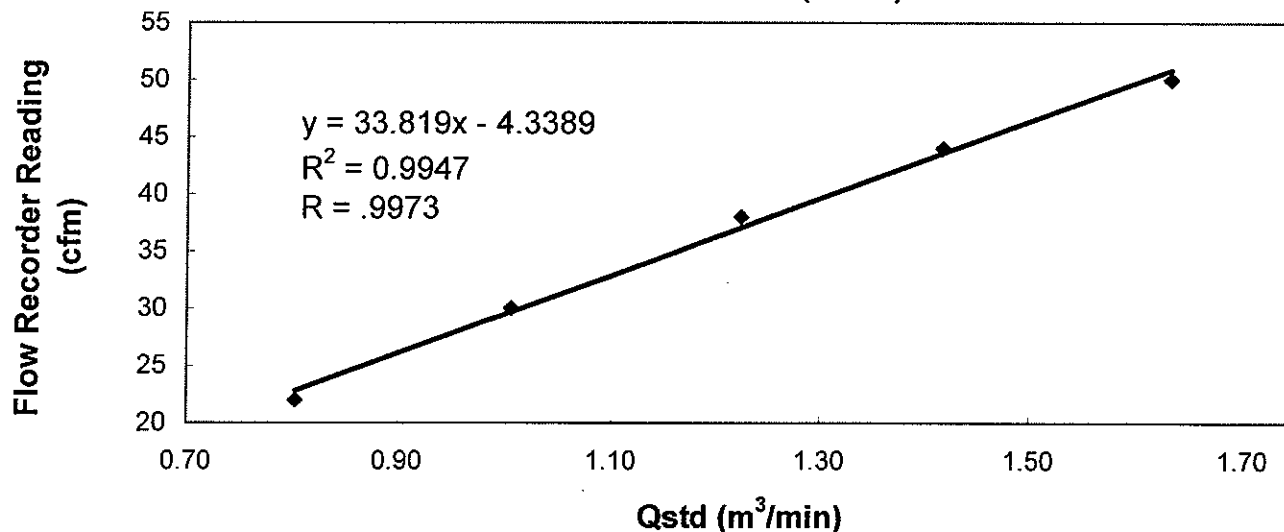
Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 05 September 2009
Serial No. : 1177 (ET / EA / 003 / 07) **Calibration Due Date** : 04 November 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results

| | | | | | |
|--|---------------|------|------|------|------|
| Flow recorder reading (cfm) | 50 | 44 | 38 | 30 | 22 |
| Qstd (Actual flow rate, m ³ /min) | 1.63 | 1.42 | 1.22 | 1.01 | 0.80 |
| Pressure : 757 mm Hg | Temp. : 305 K | | | | |

Sampler 1177 Calibration Curve
Site: Ocean Park (AM-2)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / ~~does not comply*~~ with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by :

LI, Wan Lung
(Technician)

Approved by :

CHOW, Hoi Tat
(Asst. Environmental Officer)



東業德勤測試顧問有限公司
ETS-TESTCONSULT LIMITED

8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fotan, Hong Kong

Tel : 2695 8318

E-mail : etl@ets-testconsult.com

Fax : 2695 3944

Web site : www.ets-testconsult.com

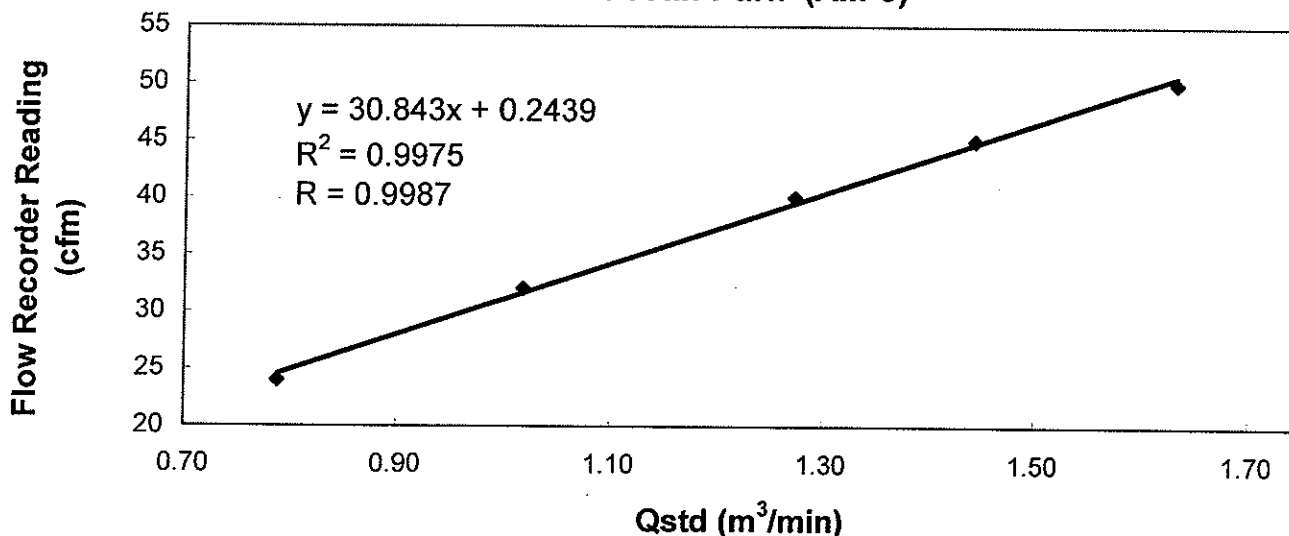
TEST REPORT

Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 05 September 2009
Serial No. : 9998 (ET / EA / 003 / 12) **Calibration Due Date** : 04 November 2009
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

| | | | | | | |
|----------------|--|---------------|------|------|------|------|
| Results | Flow recorder reading (cfm) | 50 | 45 | 40 | 32 | 24 |
| | Qstd (Actual flow rate, m ³ /min) | 1.63 | 1.44 | 1.27 | 1.02 | 0.79 |
| | Pressure : 757 mm Hg | Temp. : 305 K | | | | |

Sampler 9998 Calibration Curve
Site: Ocean Park (AM-3)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by :

LI, Wan Lung
(Technician)

Approved by :

CHOW, Hoi Tat
(Asst. Environmental Officer)



Calibration Certificate

Certificate No. **85826**

Page 1 of 4 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q82237

Date of receipt : 21-Nov-08

Item Tested

Description : Precision Integrating Sound Level Meter (ET/EN/003/12)

Manufacturer : Rion

Model : NL-31

Serial No. : 00773032

Test Conditions

Date of Test : 26-Nov-08

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Calibration procedure : Z01.

Test Results

All results were within the IEC 651 Type 1 & IEC 804 Type 1 specification.

The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Due Date</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|-----------------|---------------------|
| S017A | Multi-Function Generator | 75932 | 6-Dec-08 | SCL-HKSAR |
| S024 | Sound Level Calibrator | 82926 | 16-Jul-09 | NIM-PRC & SCL-HKSAR |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

Calibrated by :

P.F. Wong

Approved by :

Dorothy Cheuk

Date: 28-Nov-08

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

The copyright of this certificate is owned by Hong Kong Calibration Ltd.. It may not be reproduced except in full.



Calibration Certificate

Certificate No. 85826

Page 2 of 4 Pages

Results :

1. SPL Accuracy

| UUT Setting | | | Applied Value (dB) | UUT Reading (dB) |
|------------------|----------------------------------|----------|--------------------|------------------|
| Level Range (dB) | Weight | Response | | |
| 20 – 100 | L _A | Fast | 94.03 | 94.0 |
| | | Slow | | 94.0 |
| | L _C L _p | Fast | | 94.0 |
| | | Fast | | 94.0 |
| 30 – 120 | L _A | Fast | 94.03 | 93.9 |
| | | Slow | | 93.9 |
| | L _C L _p | Fast | | 93.9 |
| | | Fast | | 93.9 |
| 30 – 120 | L _A | Fast | 113.97 | 113.7 |
| | | Slow | | 113.7 |
| | L _C L _p | Fast | | 113.7 |
| | | Fast | | 113.7 |

IEC Type 1 Spec. : ± 0.7 dB

Uncertainty : ± 0.1 dB

2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. : ± 0.3 dB

Uncertainty : ± 0.01 dB



Calibration Certificate

Certificate No. 85826

Page 3 of 4 Pages

3. Linearity

3.1 Level Linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. (Primary Indicator Range) |
|----------------|--------------------|------------------|----------------|--|
| 130 | 114.0 | 114.0 | - 0.1 | ± 0.7 dB |
| 130 | 104.0 | 103.9 | 0.0 | |
| 120 | 94.0 | 93.9 (Ref.) | - - | |
| 110 | 84.0 | 84.0 | - 0.1 | |
| 100 | 74.0 | 74.1 | - 0.2 | |
| 90 | 64.0 | 64.1 | - 0.2 | |
| 80 | 54.0 | 54.2 | - 0.3 | |

Uncertainty : ± 0.1 dB

3.2 Differential level linearity

| UUT Range (dB) | Applied Value (dB) | UUT Reading (dB) | Variation (dB) | IEC 651 Type 1 Spec. |
|----------------|--------------------|------------------|----------------|----------------------|
| 120 | 84.0 | 83.9 | 0.0 | ± 0.4 dB |
| | 94.0 | 93.9 (Ref.) | - - | |
| | 95.0 | 94.9 | 0.0 | ± 0.2 dB |
| | 104.0 | 103.8 | + 0.1 | ± 0.3 dB |
| | 105.0 | 104.8 | + 0.1 | ± 1.0 dB |

Uncertainty : ± 0.1 dB

4. Frequency Weighting

A weighting

| Frequency | Attenuation (dB) | IEC 651 Type 1 Spec. |
|-----------|------------------|-----------------------------|
| 31.5 Hz | - 40.2 | - 39.4 dB, ± 1.5 dB |
| 63 Hz | - 26.8 | - 26.2 dB, ± 1.5 dB |
| 125 Hz | - 16.7 | - 16.1 dB, ± 1 dB |
| 250 Hz | - 9.2 | - 8.6 dB, ± 1 dB |
| 500 Hz | - 3.5 | - 3.2 dB, ± 1 dB |
| 1 kHz | 0.0 (Ref.) | 0 dB, ± 1 dB |
| 2 kHz | + 1.5 | + 1.2 dB, ± 1 dB |
| 4 kHz | + 1.4 | + 1.0 dB, ± 1 dB |
| 8 kHz | - 0.7 | - 1.1 dB, + 1.5 dB ~ - 3 dB |
| 16 kHz | - 6.3 | - 6.6 dB, + 3 dB ~ - ∞ |

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 85826

Page 4 of 4 Pages

4. Time Averaging

| Applied Burst duty Factor | Applied Leq Value (dB) | UUT Reading (dB) | IEC 804 Type 1 Spec. |
|---------------------------|------------------------|------------------|----------------------|
| continuous | 40.0 | 40.0 | -- |
| 1/10 | 40.0 | 40.1 | ± 0.5 dB |
| 1/10 ² | 40.0 | 40.2 | |
| 1/10 ³ | 40.0 | 40.4 | ± 1.0 dB |
| 1/10 ⁴ | 40.0 | 40.5 | |

Uncertainty : ± 0.1 dB

Remark : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 010 hPa.

----- END -----

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix F – Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule - Air Emission

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|--|--|------------------|--------|
| 1 | | yes | Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. | Superintendent/ Supervisor/Foremen | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 2 | | yes | Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. | Superintendent/ Supervisor/Foremen | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 3 | | yes | Use of frequent watering for particularly dusty construction areas, temporary stockpiles and areas close to ASRs. | Superintendent/ Supervisor/Foremen | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 4 | | yes | Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 5 | | yes | Restricting heights from which materials are dropped, as far as practicable to minimise the fugitive dust arising from unloading/loading. | Superintendent/ Supervisor/Foremen Subcontractor | | 08/08 - 11/10 | OK |
| 6 | | yes | Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 7 | | yes | Use of vehicle wheel and body washing facilities at the exit points of the site. | Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator Subcontractor | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |
| 8 | | yes | Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit. | Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator | | 08/08 - 11/10 | OK |

Environmental Mitigation Implementation Schedule - Air Emission

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|---|--|------------------|--------|
| 9 | | yes | Dusty activities should be re-scheduled if high-wind conditions are encountered. | Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator | | 08/08 - 11/10 | OK |
| 10 | | yes | Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. | Superintendent/ Supervisor/Foremen Project Environmental Co-ordinator | | 08/08 - 11/10 | OK |
| 11 | | yes | Implementation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. | Project Environmental Co-ordinator | | 08/08 - 11/10 | N.A. |
| 12 | | yes | The works areas shall be fenced off with hoarding. The height of hoarding should not be less than 2.4 m from ground level | Superintendent/ Supervisor/Foremen | Weekly Environmental Inspection Checklist | 08/08 - 11/10 | OK |

Environmental Mitigation Implementation Schedule - Noise

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|---|--|------------------|--------|
| 1 | | yes | Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program | Superintendent/ Supervisor/Foremen Project Environmental Coordinator Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 2 | | yes | Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | N.A. |
| 3 | | yes | Mobile plant, if any, should be sited as far from NSRs as possible | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 4 | | yes | Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 5 | | yes | Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 6 | | yes | Quiet Plant considered for at Entry Plaza construction for Site Clearance, Demolition, Realignment of Ocean Park Road, Drainage Diversion, Sewerage Diversion, Site Formation & Excavation, Piling Works and Superstructure Construction where calculated noise levels exceed limits | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 7 | | yes | Quiet Plant considered for Aqua City construction during - Site Clearance, Demolition, Slopeworks, Site Formation & Excavation, Piling Works and Superstructure Construction where calculated noise levels exceed limits | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 8 | | yes | Moveable noise barriers considered for at Entry Plaza construction for Site Clearance, Demolition, Realignment of Ocean Park Road, Drainage Diversion, Sewerage Diversion, Site Formation & Excavation, Piling Works and Superstructure Construction where calculated noise levels exceed limits | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | N.A. |
| 9 | | yes | Moveable barriers considered for Aqua City construction during - Site Clearance, Demolition, Slopeworks, Site Formation & Excavation, Piling Works and Superstructure Construction where calculated noise levels exceed limits | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | N.A. |

Environmental Mitigation Implementation Schedule - Water

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|---|---|--|------------------|--------|
| 1 | | Yes | Before commencing any site formation work, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 09/08 | OK |
| 2 | | Yes | Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via appropriately sized/ designed silt retention pond or similar structure. No site run-off should enter artificial ponds. Cut-off ditches should be provided for all major site clearance/ excavation works where soils would be exposed so that instances of uncontrolled run-off from exposed areas would be minimized. As well as channels, earth/ concrete bunds and/ or sand bags, as appropriate, should be deployed to direct surface run-off towards channels. Catchpits and perimeter channels should be constructed in advance of relevant site formation works. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 3 | | Yes | Boundaries of earthworks should be marked and surrounded by dykes or embankments for flood protection, as necessary. | Superintendent/ Supervisor/Foremen land surveyor | | 08/08 to 11/10 | OK |
| 4 | | Yes | Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. | Superintendent/ Supervisor/Foremen project environmental co-ordinator | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 5 | | Yes | Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 6 | | Yes | Exposed soil surfaces should be covered, | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 7 | | Yes | Water pumped out from foundation excavations should be discharged into silt removal facilities. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |

Environmental Mitigation Implementation Schedule - Water

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|--|--|------------------|--------|
| 8 | | Yes | If excavation cannot be avoided during rainy seasons, temporarily exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest/ edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. | Superintendent/ Supervisor/Foremen project environmental co-ordinator Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | N.A. |
| 9 | | Yes | Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 10 | | Yes | Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. Appropriate intercepting channels should be provided where necessary. Rainwater pumped out from trenches or excavations should be directed to silt removal facilities before discharge. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 11 | | Yes | Open stockpiles of construction materials or construction wastes on-site of more than 50m ³ should be covered with tarpaulin or similar fabric during rainstorms | Superintendent/ Supervisor/Foremen Subcontractor | | 08/08 to 11/10 | OK |
| 12 | | Yes | Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby water bodies and public drainage system. Stockpiles of cement and other construction materials should be kept covered when not being used. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |
| 13 | | Yes | Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities. | Superintendent/ Supervisor/Foremen project environmental co-ordinator Subcontractor | Weekly Environmental Inspection Checklist | 08/08 to 11/10 | OK |

Environmental Mitigation Implementation Schedule - Ecological Resources

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|---|---|--|------------------|--------|
| 1 | | Yes | All excavation works carried out close to water bodies shall be carefully controlled to avoid runoff entering watercourses, especially during periods of heavy rain. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | N.A. |
| 2 | | Yes | Site runoff shall be directed towards regularly cleaned and maintained silt traps and where appropriate, oil/grease separators to minimise risk of sedimentation and pollution. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 3 | | Yes | Suitable size / capacity silt traps and oil/grease interceptors shall be used. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | N.A. |
| 4 | | Yes | Coral monitoring shall be implemented (by others) | Project Environmental Coordinator | | 08/08-11/10 | N.A. |
| 5 | | Yes | Noise mitigation measures including the use of quiet excavation methods, quiet construction plant and temporary noise barriers shall be implemented to minimise disturbance to habitats adjacent to the works areas | Superintendent/ Supervisor/Foremen Project Environmental Coordinator/ Engineer Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 6 | | Yes | Vegetation survey and subsequent transplantation of locally uncommon or restricted species (i.e. Long Tentacle Orchid, Sword-leaved Orchid, Green-flowered Rattlesnake-Plantain, Cycad-fern Balloon Flower and Chinese Lily) shall be carried out to determine the feasibility and suitability of individual plants for transplantation to protect plant species of conservation interest | Project Environmental Coordinator/ Engineer | | 08/08-11/10 | OK |
| 7 | | Yes | Receptor sites shall be identified. | Superintendent/ Supervisor/Foremen Project Environmental Coordinator | | 08/08-11/10 | OK |
| 8 | | Yes | Transplantation shall be supervised by a suitably qualified botanist/ horticulturist to protect plant species of conservation interest | Project Environmental Coordinator | | 08/08-11/10 | OK |
| 9 | | Yes | A detailed transplantation methodology shall be formulated during the detailed design stage based on the information collected during the detailed vegetation survey to protect plant species of conservation interest | | | | N.A. |

Environmental Mitigation Implementation Schedule - Ecological Resources

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|---|--|------------------|--------|
| 10 | | Yes | Equipment or stockpile shall only be in designated works areas wherever practicable. | Superintendent/ Supervisor/Foremen | | 08/08-11/10 | OK |
| 11 | | Yes | Access routes shall be selected as far as practicable on existing disturbed land. | Superintendent/ Supervisor/Foremen Project Environmental Coordinator Subcontractor | | 08/08-11/10 | N.A. |
| 12 | | Yes | Construction activities shall be restricted to designated works areas. | Superintendent/ Supervisor/Foremen | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 13 | | Yes | The works areas shall be reinstated immediately after completion of works. | Superintendent/ Supervisor/Foremen Subcontractor | | 08/08-11/10 | OK |
| 14 | | Yes | Waste skips shall be provided to collect general refuse and construction wastes. | Superintendent/ Supervisor/Foremen Project Environmental Coordinator | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 15 | | Yes | The wastes shall be disposed of timely and properly off-site. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 16 | | Yes | Drainage arrangements shall include sediment traps to collect and control construction run-off | Superintendent/ Supervisor/Foremen Engineer | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 17 | | Yes | Open burning on works sites is illegal, and shall be strictly enforced. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |

Environmental Mitigation Implementation Schedule - Archaeological and Historical Resources

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|---------------------------------------|--|------------------|--------|
| 1 | | Yes | If any works are planned within one metre of the grave, a one metre buffer zone will be provided around the grave, demarcated by a temporary fence. | Superintendent/ Supervisor/Foremen | | 08/08-11/10 | N.A. |

Environmental Mitigation Implementation Schedule - Waste Management

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|---|---|--|------------------|--------|
| 1 | | Yes | Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site (Good site practices) | Superintendent/ project environmental coordinator | | 08/08-11/10 | OK |
| 2 | | Yes | Training of site personnel in proper waste management and chemical handling procedures | project environmental coordinator | | 08/08-11/10 | OK |
| 3 | | Yes | Provision of sufficient waste disposal points and regular collection of waste | Site supervisor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 4 | | Yes | Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 5 | | Yes | Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. | project environmental coordinator | EMP | 08/08-11/10 | OK |
| 6 | | Yes | Waste reduction measures: Sort C&D waste from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals | Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 7 | | Yes | Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 8 | | Yes | Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the work force | Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor | | 08/08-11/10 | OK |
| 9 | | Yes | Proper storage and site practices to minimise the potential for damage or contamination of construction materials | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 10 | | Yes | Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. | Superintendent/ Supervisor/Foremen Subcontractor | | 08/08-11/10 | OK |

Environmental Mitigation Implementation Schedule - Waste Management

| ID No | Environmental Aspect (not required for actions specifically recommended in Environmental Impact Assessment) | Specifically Recommended in Environmental Impact Assessment? | Actions Required These actions can be amended if necessary to suit particular needs unless they are in response to a specified legal requirements | Action party(s) | Additional Control/monitoring and measurement procedures/ methods (if necessary) | Scheduled months | Status |
|-------|--|--|--|---|--|------------------|--------|
| 11 | | Yes | General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material | Superintendent/ Supervisor/Foremen project environmental coordinator Subcontractor | | 08/08-11/10 | OK |
| 12 | | Yes | In order to minimise impacts resulting from collection and transportation of C&D material for off-site disposal, the excavated materials arising from site formation should be reused on-site as backfilling material and for landscaping works as far as practicable. In addition, volcanic rock generated from the tunnelling works should be subject to beneficial re-use. Other mitigation requirements are listed below: - A Waste Management Plan should be prepared - A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used - In order to monitor the disposal of C&D and solid wastes at public filling facilities and landfills, and to control fly-tipping, trip ticket systems will be adopted. | Engineer project environmental coordinator | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 13 | | Yes | Chemical waste: Contractor would be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the <i>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</i> . | project environmental coordinator | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 14 | | Yes | Chemical waste: Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. | Superintendent/ Supervisor/Foremen Subcontractor | Weekly Environmental Inspection Checklist | 08/08-11/10 | OK |
| 15 | | Yes | Chemical waste: The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, either to the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation | Superintendent/ Supervisor/Foremen | | 08/08-11/10 | OK |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix G – Event and Action Plans

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Event/Action Plan for Air Quality Monitoring

| Event Action Level | Action | | | |
|--|---|--|---|---|
| | CET | Contractor | PMR | IEC |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Identify source. 2. Notify IEC, PMR and Contractor. 3. Conduct additional monitoring to investigate the causes. 4. Report the investigation results and if exceedance is due to contractor's construction works to the IEC, PMR and Contractor. 5. Increase monitoring frequency to once per 2 days for 24-hour TSP and daily for 1-hour TSP until exceedance stops if exceedances are considered related to contractor's construction works and report the results to IEC, PMR and Contractor. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice. 2. Submit air mitigation proposal to IEC and PMR for agreement if CET indicated that exceedance is related to the construction works. 3. Implement agreed proposal within a time scale agreed with PMR and IEC. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to submit air mitigation proposal. 4. Ensure remedial measures are properly implemented. | <ol style="list-style-type: none"> 1. Review monitoring data and investigation report submitted by CET. 2. Review Contractor's air mitigation proposal and advise the PMR accordingly. 3. Supervise and confirm in writing the implementation of remedial measures. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Identify source. 2. Notify EPD, IEC, PMR and Contractor. 3. Conduct additional monitoring to investigate the causes. 4. Report the investigation results and if exceedances are due to contractor's construction works to EPD, IEC, PMR and Contractor within 3 working days after additional monitoring. 5. Increase monitoring frequency to daily for 24-hour TSP and 1-hour TSP if exceedances are considered related to contractor's construction works until exceedance stops, and report the results to EPD, IEC, PMR and Contractor. 6. If exceedances continue after 1-week monitoring events, request PMR to arrange meeting with PMR, IEC and contractor to discuss remedial actions. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice. 2. In consultation with the IEC, submit air mitigation proposal to IEC and PMR for agreement within 3 working days of notification if ET indicated that exceedances are related to construction works. 3. Implement agreed proposal within a time scale agreed with PMR and IEC. 4. Amend working methods if appropriate. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to submit air mitigation proposal. 4. Ensure remedial measures are properly implemented. | <ol style="list-style-type: none"> 1. Review monitoring data and investigation report submitted by CET. 2. Discuss amongst PMR, CET and Contractor in order to formulate air mitigation proposal. 3. Review Contractor's air mitigation proposal and advise the PMR accordingly. 4. Supervise and confirm in writing the implementation of remedial measures. |

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Event/Action Plan for Air Quality Monitoring

| Event Limit Level | Action | | | |
|--|--|---|--|---|
| | CET | Contractor | PMR | IEC |
| Exceedance for one sample | <ol style="list-style-type: none"> 1. Identify source. 2. Notify EPD, IEC, PMR and Contractor. 3. Conduct additional monitoring to investigate the causes. 4. Report the investigation results and if exceedances are due to contractor's construction works to EPD, IEC, PMR and Contractor within 3 working days after additional monitoring. 5. Increase monitoring frequency to daily if exceedances are considered related to contractor's construction works until exceedance stops, and report the results to EPD, IEC, PMR and Contractor. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice 2. In consultation with the IEC, submit air mitigation proposal to IEC and PMR for agreement within 3 working days of notification if CET indicated that exceedances are related to construction works 3. Implement agreed proposal within a time scale agreed with PMR and IEC. 4. Amend working methods if appropriate. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to submit air mitigation proposal. 4. Ensure remedial measures are properly implemented. | <ol style="list-style-type: none"> 1. Review monitoring data and investigation report submitted by CET. 2. Discuss amongst PMR, CET and Contractor in order to formulate air mitigation proposal. 3. Review Contractor's air mitigation proposal and advise the PMR accordingly. 4. Supervise and confirm in writing the implementation of remedial measures. |
| Exceedance for two or more consecutive samples | <ol style="list-style-type: none"> 1. Identify source. 2. Notify EPD, IEC, PMR and Contractor. 3. Conduct additional monitoring to investigate the causes. 4. Report the investigation results and if exceedances are due to contractor's construction works to EPD, IEC, PMR and Contractor within 3 working days after additional monitoring. 5. Increase monitoring frequency to daily if exceedances are considered related to contractor's construction works until exceedance stops, and report the results to EPD, IEC, PMR and Contractor. 6. If exceedances continue after 2 consecutive monitoring events, request PMR to arrange meeting with IEC and contractor to discuss remedial actions. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice. 2. In consultation with the IEC, submit air mitigation proposal to IEC and PMR for agreement within 3 working days of notification if CET indicated that exceedances are related to construction works. 3. Implement agreed proposal within a time scale agreed with PMR and IEC. 4. Amend working methods and proposal if appropriate. 5. Stop relevant portion(s) of works as required by PMR, CET and IEC. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to submit air mitigation proposal. 4. Ensure remedial measures are properly implemented. 5. If exceedances continue arrange meeting with Contractor, IEC and CET and to consider what portion(s) of works should be further mitigated or have to stop. | <ol style="list-style-type: none"> 1. Review monitoring data and investigation report submitted by CET. 2. Discuss amongst PMR, CET and Contractor in order to formulate air mitigation proposal. 3. Review Contractor's air mitigation proposal and advise the PMR accordingly. 4. Supervise and confirm in writing the implementation of remedial measures. |

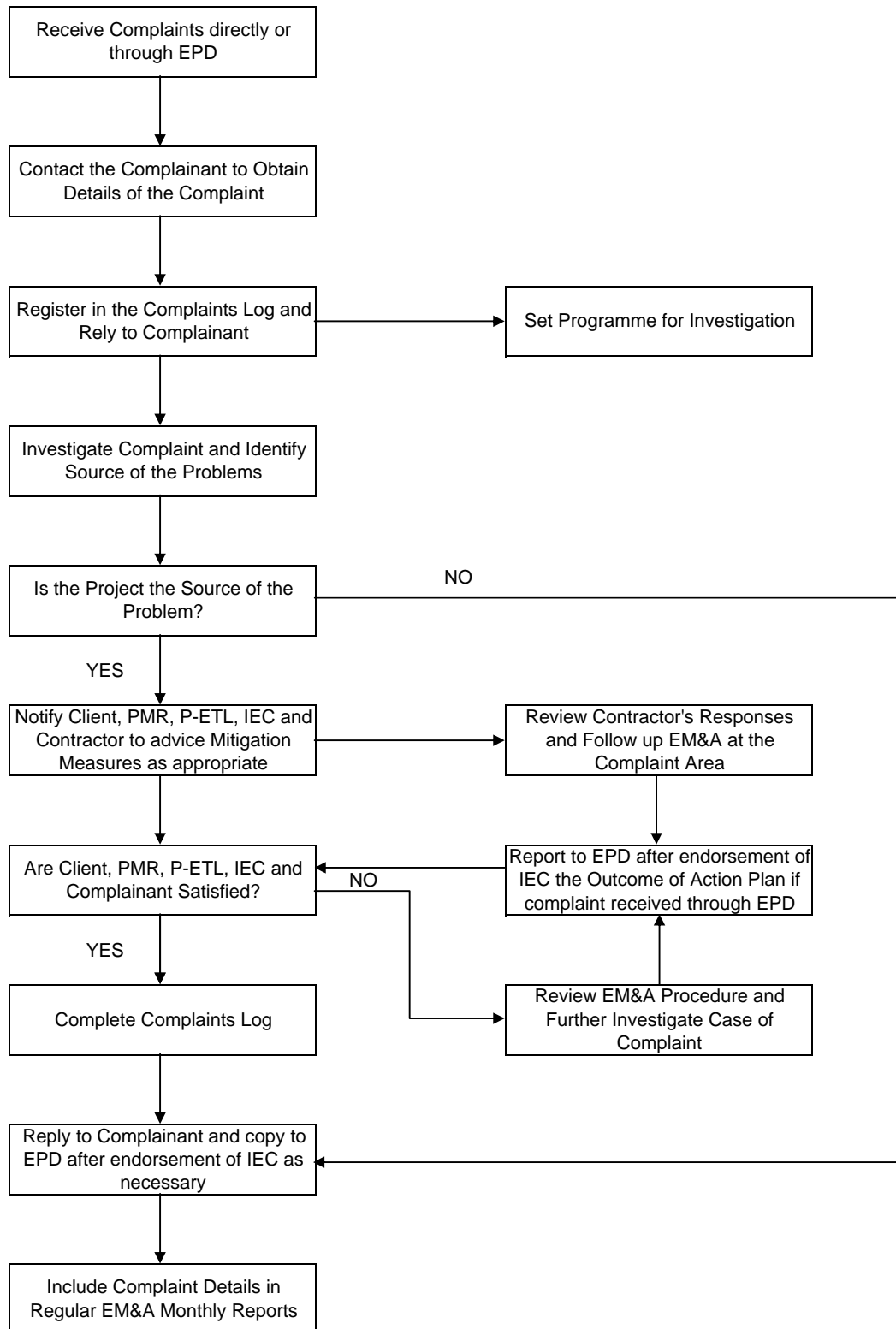
Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Event/Action Plan for Regular Construction Noise Monitoring

| Event | Action | | | |
|-------------------------|---|---|--|---|
| | CET | Contractor | PMR | IEC |
| Action Level Exceedance | <ol style="list-style-type: none"> 1. Identify source. 2. Notify IEC, PMR and Contractor. 3. Conduct additional noise monitoring to investigate the causes. 4. Report the investigation results to the IEC, PMR and Contractor. 5. Discuss with Contractor for their formulation of remedial measures if the exceedance is related to construction works. 6. Conduct additional monitoring to check mitigation effectiveness. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit noise mitigation proposals to ET, PMR and IEC. 3. Implement noise mitigation proposals. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. | <ol style="list-style-type: none"> 1. Review the analysed results submitted by the CET. 2. Review the proposed remedial measures by the Contractor and advise the PMR accordingly. 3. Supervise and confirm in writing the implementation of remedial measures |
| Limit Level Exceedance | <ol style="list-style-type: none"> 1. Identify source. 2. Notify EPD, IEC, PMR and Contractor. 3. Conduct additional noise monitoring and analyse Contractor's working procedures to determine possible cause of exceedance. 4. Provide interim report to EPD, IEC and PMR on the causes and proposed actions to be taken for the exceedances if exceedance is related to construction works. 5. Assess effectiveness by additional monitoring and report to EPD, IEC, PMR and Contractor the results. 6. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to CET, PMR and IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant portion of works as determined by the PMR until the exceedance is abated. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing. 2. Notify Contractor. 3. Require Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. 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 abated. | <ol style="list-style-type: none"> 1. Discuss amongst PMR, CET and Contractor on the potential remedial actions. 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the PMR accordingly. 3. Supervise and confirm in writing the implementation of remedial measures. |

Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009

Appendix H – Compliant Flow Diagram and Complaint Log



**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Complaint Record Register

| Record ID | Data Received | Type (PMR / EPD / Public / Others) | Description | Project | Justified compliant? | Status (Open / Closed) |
|------------------|----------------------|---|--|----------------|---------------------------------|--|
| EC/CI07/001 | 17-Jun-09 | Public thru EPD | Police Training School claimed that noise nuisance from CI07 | CI07 | N/A | The inspector of EPD came to the site and no significant observation was made, hence the complaint was closed. |

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix I – Tentative Work Programme

CONTRACT C107 - Entry Plaza, Aqua City & Grand Aquarium
Outline Programme
Updated to: 01-Sep-2008

[illegible]

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix J – Site Audit Summary

Location – EP

1. Stagnant water was present on the recess. The contractor was reminded to fill it up with sand.
2. An oil drum was observed without the provision of drip tray underneath. The contractor was reminded to provide drip tray and cover for oil drum.

Inspected by :

RSS's Representative

Contractor's Representative

IEC Representative

Signatures:

Signatures:

Signatures:

Name:

LEUNG KA YIN

Name: Kelven Yip

Name:

Date:

2/10/09

Date: 02 October 2009

Date:

Inspection / Follow up Report No 050.

Date of Inspection: 2 Oct 09

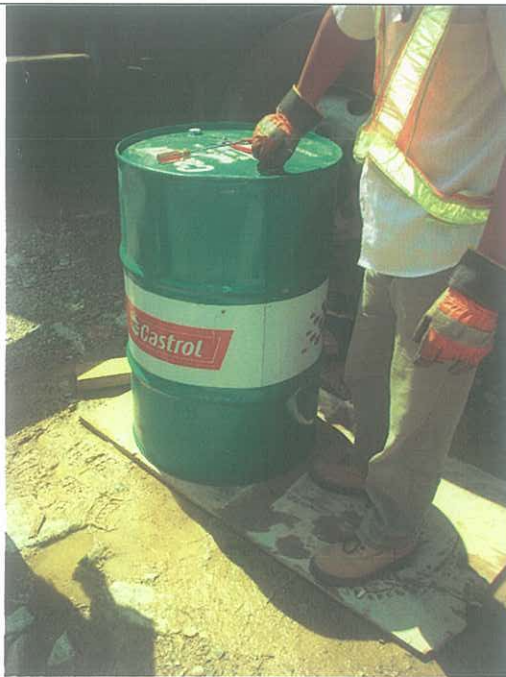
Time of Inspection: 10:00



1. Stagnant water was present on the recess.



1. The contractor was reminded to fill it up with sand.



2. An oil drum was observed without the provision of drip tray underneath.



2. The contractor was reminded to provide drip tray and cover for oil drum.

Inspected By: Yip K. F., Kelven

Position: Env. Engineer

Date: 02 Oct 2009

Signature: Kelven

Approved By: ANDY KENWICK

Position: A10W (SEM)

Date: 2/10/09

Signature: [Signature]

Remarks

Location – EP

1. No dust control was implemented during concrete surface grinding. The contractor was reminded to wet the surface when grinding.
2. Oil leakage was observed. The contractor was reminded to clean up the leakage.

Inspected by :

RSS's Representative

Contractor's Representative

IEC Representative

Signatures:

Signatures:

Signatures:

Name:

And Leaky

Name: Kelven Yip

Name:

Date:

9/10/09

Date: 09 October 2009

Date:

Inspection / Follow up Report No 051.

Date of Inspection: 09 Oct 09

Time of Inspection: 10:00



1. No dust control was implemented during concrete surface grinding.

1. The contractor was reminded to wet the surface when grinding.



2. Oil leakage was observed

2. The contractor was reminded to clean up the leakage.

Inspected By: Yip K. F., Kelven

Position: Env. Engineer

Date: 09 Oct 2009

Signature:

Approved By:

Position: ALOW (SEF)

Date: 01/10/09

Signature:

Remarks

Location – EP

No major observation was found.


Inspected by :

RSS's Representative

Contractor's Representative

Signatures:

Signatures:

Name:  [Signature]

Name: Kelven Yip

Date: 16/10/09

Date: 16 October 2009

Remarks

Location – EP

No major observation was found.

Inspected by :

RSS's Representative

Contractor's Representative

IEC Representative

Signatures:

Signatures:

Signatures:

Name:


ANDY LEUNG

Name: Kelven Yip

Name:

Date:

23/10/09

Date: 23 October 2009

Date:

Observation for this month

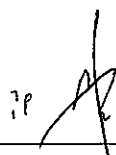
- ① Stagnant water and general refuse were accumulated on the deck.
The Contractor shall remove them as soon as possible.

IEC Representative



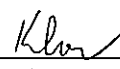
(Florence Yuen)

Environmental Manager



(AVAL Kwan)

Contractor's
Representative
CI07



(Kelvin Yip)

**Ocean Park Redevelopment Project
Contract No. CI07 – Entry Plaza, Aqua City and Grand Aquarium
Monthly EM&A Report – October 2009**

Appendix K – Summary of Amount of Waste Generated

Monthly Waste Flow Table

Contract: **Entry Plaza, Aqua City and Grand Aquarium**

Contract No: **CI07 (H2458)**

Year: **2009**

| Month | Actual Quantities of Inert Construction Waste Reused/Recycled | | | Actual Quantities of Construction Waste Recycled ¹ | | | | | | Actual Quantities of Disposed Material | | | |
|-------------|---|--------------------|--|---|----------------|------------------------------|-------------------------------|--------|-----------------|--|------------|--|--------------------------------|
| | Broken Concrete ² Recycled | Re-used in Project | Re-used in Other Projects ³ | Metals Recycled | Paper Recycled | Cardboard Packaging Recycled | Plastic ⁴ Recycled | Timber | Toner Cartridge | Chemical Waste ⁶ to Licensed Facilities | | Inert Construction Waste ⁷ to Public Fill | Construction Waste to Landfill |
| | (tonnes) | (tonnes) | (tonnes) | (tonnes) | (kg) | (kg) | (kg) | (Kg) | (Box) | Liquid (litres) | Solid (kg) | (tonnes) | (tonnes) |
| Jan | 0 | 0 | 0 | 27.94 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 30680 | 23.88 |
| Feb | 0 | 0 | 0 | 21.72 | 180 | 0 | 0 | 0 | 0 | 0 | 0 | 7885 | 27.29 |
| Mar | 0 | 0 | 0 | 13.82 | 240 | 0 | 0 | 0 | 0 | 0 | 0 | 26778 | 76.22 |
| Q1 total | 0 | 0 | 0 | 63.48 | 420 | 0 | 0 | 0 | 0 | 0 | 0 | 65343 | 127.39 |
| Apr | 0 | 0 | 0 | 74.84 | 126 | 0 | 0 | 0 | 0 | 0 | 0 | 48628 | 44.17 |
| May | 0 | 0 | 0 | 23.81 | 80 | 0 | 0 | 0 | 42 | 0 | 0 | 13195 | 51.5 |
| Jun | 0 | 0 | 0 | 18.31 | 158 | 0 | 0 | 0 | 0 | 0 | 0 | 14178 | 84.25 |
| Q2 total | 0 | 0 | 0 | 116.96 | 364 | 0 | 0 | 0 | 42 | 0 | 0 | 76001 | 179.92 |
| Jul | 0 | 0 | 0 | 39.75 | 163 | 0 | 0 | 0 | 0 | 962 | 100 | 5887 | 171.9 |
| Aug | 0 | 0 | 0 | 21.06 | 210 | 0 | 0 | 0 | 0 | 0 | 0 | 4025 | 208.31 |
| Sep | 0 | 0 | 0 | 49.86 | 151.5 | 0 | 0 | 0 | 0 | 0 | 0 | 7000 | 312.49 |
| Q3 total | 0 | 0 | 0 | 110.67 | 524.5 | 0 | 0 | 0 | 0 | 962 | 100 | 16912 | 692.7 |
| Oct | 0 | 0 | 0 | 15.82 | 62.5 | 0 | 0 | 0 | 0 | 0 | 0 | 6125 | 247.4 |
| Nov | | | | | | | | | | | | | |
| Dec | | | | | | | | | | | | | |
| Q4 total | 0 | 0 | 0 | 15.82 | 62.5 | 0 | 0 | 0 | 0 | 0 | 0 | 6125 | 247.4 |
| Grand total | 0 | 0 | 0 | 306.93 | 1371 | 0 | 0 | 0 | 42 | 962 | 100 | 164381 | 1247.41 |

Note / Definition:

1. Provide further breakdown in Part D2 of Monthly Environmental Report.
2. Broken concrete for recycling into aggregates (eg Tuen Mun Area 38).
3. Other projects include third-parties (eg quarries).
4. Plastic refers to plastic bottles/containers, plastic sheets/foam from packaging material.
5. Examples of other waste recycled may include tyres and computer equipment

6. Chemical waste is split into 2 components: liquid waste (eg spent lubricating oil) and solid waste (eg spent batteries). Provide further breakdown in Part D1 of Monthly Environmental Report.

7. Inert construction waste is also known as public fill. It includes, for example, concrete, rubble, earth, boulder, sand, tile, masonry and used bentonite.

Part 3 CW-02 EM&A REPORT (October 2009)

W. Hing Construction Co., Ltd

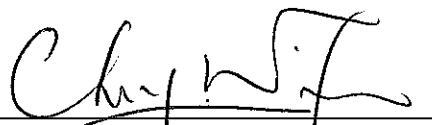
Contract No. CW02

**Ocean Park Redevelopment Project
- Astounding Asia**

**Monthly EM&A Report
(Version 1.0)**

October 2009

Certified By


(Environmental Team Leader)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

CINOTECH CONSULTANTS LTD

Room 1710, Technology Park,

18 On Lai Street,

Shatin, NT, Hong Kong

Tel: (852) 2151 2083 Fax: (852) 3107 1388

Email: info@cinotech.com.hk

TABLE OF CONTENTS

| | Page |
|---|----------|
| EXECUTIVE SUMMARY | 1 |
| 1. INTRODUCTION | 2 |
| Background | 2 |
| Project Organizations | 3 |
| Construction Programme..... | 4 |
| Summary of EM&A Requirements | 4 |
| 2. ENVIRONMENTAL AUDIT..... | 5 |
| Environmental Site Audits | 5 |
| Status of Environmental Licensing and Permitting..... | 5 |
| Status of Waste Management | 5 |
| Implementation Status of Environmental Mitigation Measures..... | 6 |
| Summary of Exceedances..... | 6 |
| Implementation Status of Event Action Plans..... | 6 |
| Summary of Complaints and Prosecutions | 6 |
| 3. CONCLUSIONS AND RECOMMENDATIONS | 7 |
| Conclusions | 7 |
| Recommendations | 7 |

LIST OF FIGURE

Figure 1.1 Site Layout Plan

LIST OF APPENDICES

| | |
|---|---|
| A | Summary of Waste Generated |
| B | Environmental Mitigation Implementation Schedule (EMIS) |
| C | Event Action Plans |
| D | Tentative Works Programme |

LIST OF TABLES

| | |
|-----------|--|
| Table I | Summary Table for Events Recorded in the Reporting Month |
| Table 1.1 | Key Project Contacts |
| Table 2.1 | Summary of Environmental Licensing and Permit Status |

EXECUTIVE SUMMARY

Introduction

This is the 27th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited (Cinotech) for the Contract No. CW02 “Ocean Park Redevelopment Project – Astounding Asia” (hereinafter called “the Project”). This document reports the findings of the environmental auditing works conducted in October 2009.

The major site activities undertaken in the reporting month included:

- Excavation Works at Main (Emerald) Aviary;
- RC works for footings & superstructure at Main (Emerald) Aviary; and
- Underground & surface drainage works at Main (Emerald) Aviary

Environmental Monitoring and Audit Works

Environmental monitoring and audit works for the Project was performed as stipulated in the updated EM&A Manual. No environmental site audits were conducted in reporting month.

The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

No notification of exceedance was received from the Project Environmental Team Leader (ETL) in the reporting month. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I Summary Table for Events Recorded in the Reporting Month

| Parameter | No. of Events | | No. of Events Due to the Project | Action Taken |
|-----------|---------------|-------------|-------------------------------------|--------------|
| | Action Level | Limit Level | | |
| 1-hr TSP | 0 | 0 | 0 | N/A |
| 24-hr TSP | 0 | 0 | 0 | N/A |
| Noise | 0 | 0 | 0 | N/A |

Environmental Licenses and Permits

Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Redevelopment Project, Registration of Waste Producer, Water Discharge License and one Construction Noise Permit (CNP).

A notification pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation was received prior the commencement of the Project.

Complaints and Prosecutions

No environmental complaint and prosecution was received in the reporting month.

1. INTRODUCTION

Background

- 1.1 The “Repositioning and Long Term Operation Plan of Ocean Park” has been implementing by the Ocean Park Corporation at its existing site of Ocean Park and Nam Long Shan, Aberdeen. The purpose of this project is to upgrade and expand the existing Ocean Park to meet anticipated visitor demands and to position Ocean Park as a premium tourist attraction and a regional leader in themed recreational and educational park experience. The site layout plan is illustrated in Figure 1.1.
- 1.2 An environmental impact assessment (EIA) report for “Repositioning and Long Term Operation Plan of Ocean Park” (Report No. 121/2006 and Register No. AEIAR-101/2006) has been prepared in 2006 and the Environmental Monitoring and Audit Manual (Project’s EM&A Manual) was also included as part of the EIA report in the register. An Environmental Permit (EP) No. EP-249/2006 was issued on 28 July 2006 for the above project to Ocean Park Corporation as Permit Holder and a varied EP No. EP-249/2006/A was subsequently issued on 23 October 2006 for the above project to Ocean Park Corporation as Permit Holder.
- 1.3 W. Hing Construction Co., Ltd. (the Contractor) was commissioned by the Employer to undertake the design and construction of the Contract No. CW02 “Ocean Park Redevelopment Project – Astounding Asia” (hereinafter call “the Project”).
- 1.4 The Project includes design and construction of:
 - (a) ETFE roof membrane system including the membrane, mullion, supporting frame, fixing to main structure, openings and all associated elements
 - (b) Aviary netting including mesh and supporting wire and fixing to main structures
 - (c) Artificial Rockwork including concrete foundations, internal structural supporting systems and fixing details
 - (d) All GRC works
 - (e) Skylight at back of house of Panda Habitat
 - (f) Nest box of Red Panda
 - (g) E&M supporting structures
 - (h) Balustrade
 - (i) Mural
 - (j) Exhibit glazing at the alligator, panda mountain viewing shelter, otter viewing, and goldfish exhibit
 - (k) Bamboo Rail including foundation
 - (l) Bamboo and Reed Barriers including foundation
 - (m) Planter Wall
 - (n) Fog system within Panda Habitat
 - (o) Glass Guard Rails
 - (p) Snow Production System
 - (q) Chilled rock system
 - (r) Fire Services
 - (s) “Rock Delta” Stone Wool Intensive Medium for the rice paddy wall
 - (t) Woven willow cladding for fence wall/gate

- (u) Foundation for shelter support pole for panda mountain viewing shelter
- (v) Kid's climbing tree & giant panda climbing structure

1.5 Cinotech Consultants Ltd. (Cinotech) was commissioned by the Contractor to undertake the Environmental Team (ET) services for the Project. This is the 27th monthly EM&A Report summarizing the EM&A works for the Project in October 2009.

Project Organizations

1.6 Different parties with different levels of involvement in the project organization include:

- The Engineer and Project Environmental Team Leader (ETL) – Maunsell Consultants Asia Ltd.
- Contractor – W. Hing Construction Co. Ltd.
- Contractor Environmental Team (CET) – Cinotech Consultants Ltd.
- Independent Environmental Checker (IEC) – Mott MacDonald HK Ltd.

1.7 The responsibilities of respective parties are provided in Section the Contractor's EM&A Manual of the Project.

1.8 The key contacts of the Project are shown in **Table 1.1**.

Table 1.1 Key Project Contacts

| Party | Name | Role | Phone No. | Fax No. |
|-----------------|--------------------|--|------------------|----------------|
| Project ET | Mr. Benny Chan | Safety Manager | 2910 3155 | 2552 1256 |
| | Mr. Andy Leung | Assistant Inspector of Works | 2910 3156 | |
| Contractor | Mr. Billy Lee | Project Manager | 6193 4096 | 8343 9188 |
| | Mr. Eddie Chiu | Environmental & Safety Manager | 6105 4075 | |
| Contractor's ET | Dr. Priscilla Choy | Contractor's Environmental Team Leader (CETL) | 2151 2089 | 3107 1388 |
| | Ms. Cherry Mak | ET Coordinator & Audit Team Leader | 2151 2097 | |
| | Mr. Henry Leung | Monitoring Team Leader | 9779 7340 | |
| IEC | Miss Florence Yuen | Independent Environmental Checker (IEC) Representative | 2828 5757 | 28271823 |

Construction Programme

1.9 Tentative Works Programme is shown in **Appendix D**. The site activities undertaken in the reporting month were:

- Excavation Works at Main (Emerald) Aviary;
- RC works for footings & superstructure at Main (Emerald) Aviary; and
- Underground & surface drainage works at Main (Emerald) Aviary

Summary of EM&A Requirements

1.10 The EM&A programme requires construction phase environmental site audit. The duties and responsibilities comprise the following:

- monitor various environmental parameters, if necessary, as specified in the Contractor's EM&A Manual;
- analyze the environmental monitoring and audit data;
- review the EM&A programme to confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify and adverse environmental impacts arising;
- carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems;
- audit and prepare EM&A reports on the site environmental conditions;
- report the environmental audit results to the Contractor;
- recommend appropriate mitigation measures to the Contractor in case of exceedance of Action and Limit Levels in accordance with the Event and Action Plans; and
- adhere to the procedures for carrying out complaint investigation in accordance with Sections 7.11 to 7.14 of the Contractor's EM&A Manual.

1.11 This report presents the environmental monitoring and audit works for the Project in October 2009.

2. ENVIRONMENTAL AUDIT**Environmental Site Audits**

- 2.1 Environmental site audits were carried out on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 2.2 No site audits for the Project were conducted in the reporting month.

Status of Environmental Licensing and Permitting

- 2.3 All valid permits/licenses obtained for the Project are summarized in **Table 2.1**.

Table 2.1 Summary of Environmental Licensing and Permit Status

| Permit No. | Valid Period | | Details | Status |
|---|--------------|------------|---|---------|
| | From | To | | |
| Environmental Permit | | | | |
| EP-249/2006/A | 23/10/2006 | N/A | Expansion of the existing Ocean Park and reconstruction / modification of its existing facilities. | Valid |
| Registration of Chemical Waste Producer | | | | |
| WPN5213-199-W2894-18 | 20/08/2007 | N/A | Waste Disposal (Chemical Waste) (General) Regulation -- Registration of Waste Producer | Valid |
| Construction Noise Permit | | | | |
| GW-RS0163-09 | 01/03/2009 | 31/08/2009 | Construction Noise Permit for Ocean Park, Wong Chuk Hang, Hong Kong | Expired |
| Water Discharge License | | | | |
| EP820/W9/XW240 | 12/10/2007 | 31/10/2012 | Discharge of industrial trade effluent arising from the Sedimentation tank at the construction site (CW02 Astounding Asia, Ocean Park Redevelopment Project) to communal storm water drain. | Valid |
| Others | | | | |
| 001022180 | N/A | N/A | Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation | Valid |
| 7005864 | N/A | N/A | Construction Waste Disposal Billing Account with EPD | Valid |

Status of Waste Management

- 2.4 The amount of waste generated by the construction activities of the Project in the reporting month is attached in **Appendix A**.

Implementation Status of Environmental Mitigation Measures

- 2.5 According to the Environmental Permit and the Contractor's EM&A Manual, the mitigation measures detailed in the documents are required to be implemented. An updated summary of the EMIS is provided in **Appendix B**.

Summary of Exceedances

- 2.6 No Action/Limit Level exceedance was reported in the reporting month.

Implementation Status of Event Action Plans

- 2.7 The Event Action Plans for air quality and construction noise are presented in **Appendix C**.

Summary of Complaints and Prosecutions

- 2.8 No environmental complaint and prosecution related to the Project works was received during the reporting month.

3. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 3.1 No environmental site audits were performed in October 2009.
- 3.2 No exceedance of environmental monitoring was reported in the reporting month.
- 3.3 No environmental complaint and prosecution related to the project was received in the reporting month.

Recommendations

- 3.4 According to the environmental audits performed in the reporting month, the following recommendations are suggested:

Dust Impact

- To cover cement bags (more than 20 bags) by impervious sheeting or placed in an area sheltered on the top and the three sided.
- Frequency spraying water on the dusty haul road.

Water Quality Impact

- To avoid water from accumulation on site and carry out larviciding against mosquito breeding for stagnant water when mosquito larvae are observed.

Waste/Chemical Management

- To check for any accumulation of waste materials or refuse on site.
- To dispose the waste regularly and properly.

Noise Impact

- To post an updated label on the compressor

FIGURE



APPENDIX A
SUMMARY OF WASTE GENERATED

Appendix A

Name of Department: W. Hing Construction Co., Ltd

Contract No.: CW-02

Monthly Summary Waste Flow Table For October 2009

| Month | Actual Quantities of Inert C&D Materials Generated | | Non-inert C&D Waste disposed to Tseung Kwan O Sorting Facility | Non-inert C&D Waste disposed to SENT Landfill | Chemical Waste disposed to Chemical Waste Treatment Facility at Tsing Yi | Recycle Metals | Packaging (e.g. Plastic, paper wrapping etc.) and other general refuse |
|------------------|--|--|--|---|--|----------------|--|
| | Disposed to Public filling area at Tseung Kwan O | Disposed to Public Barging area at Quarry Bay / Chai Wan * | | | | | |
| | (in tonnes) | (in tonnes) | (in tonnes) | (in tonnes) | (in litres) | (in tonnes) | (in tonnes) |
| Sep-07 | 100.49 | 28.75 | 8.61 | 1.94 | N/A | N/A | N/A |
| Oct-07 | 16.42 | 19.61 | 8.47 | 16.06 | N/A | N/A | N/A |
| Nov-07 | N/A | 95.29 | N/A | 4.95 | N/A | N/A | N/A |
| Dec-07 | N/A | 15.63 | 10.68 | 3.83 | N/A | N/A | N/A |
| Jan-08 | N/A | 158.91 | 13.18 | 16.37 | N/A | N/A | N/A |
| Feb-08 | N/A | 708.19 | 4.58 | 15.01 | N/A | N/A | N/A |
| Sub-total | 116.91 | 1026.38 | 45.52 | 58.16 | 0.00 | 0.00 | 0.00 |
| Mar-08 | N/A | 857.78 | 25.17 | 36.22 | N/A | N/A | N/A |
| Apr-08 | N/A | 1,309.35 | N/A | 52.10 | N/A | N/A | N/A |
| May-08 | N/A | 334.03 | 11.44 | 40.86 | N/A | N/A | N/A |
| Jun-08 | N/A | 528.74 | 18.19 | 9.15 | N/A | N/A | N/A |
| Jul-08 | 9.87 | 832.48 | 24.00 | 26.89 | N/A | N/A | N/A |
| Aug-08 | 37.88 | 1682.03 | 60.62 | 76.08 | N/A | N/A | N/A |
| Sep-08 | N/A | 101.29 | 40.47 | 58.92 | N/A | N/A | N/A |
| Oct-08 | N/A | 2230.36 | 18.22 | 98.98 | N/A | N/A | N/A |
| Nov-08 | N/A | 732.82 | 20.61 | 91.11 | N/A | N/A | N/A |
| Dec-08 | 54.24 | 7.62 | 11.78 | 92.82 | N/A | N/A | N/A |
| Jan-09 | N/A | 2019.85 | 29.99 | 142.90 | N/A | N/A | N/A |
| Feb-09 | N/A | 1898.85 | 21.41 | 62.12 | N/A | N/A | N/A |
| Mar-09 | 33.54 | 535.70 | 249.55 | 98.87 | N/A | N/A | N/A |
| Apr-09 | 92.38 | 232.51 | 328.14 | 110.54 | N/A | N/A | N/A |
| May-09 | 53.10 | 304.10 | 71.57 | 23.98 | N/A | N/A | N/A |
| Jun-09 | 554.47 | 341.72 | 93.42 | 36.72 | N/A | N/A | N/A |
| Jul-09 | 395.55 | 870.41 | 49.52 | 23.71 | N/A | N/A | N/A |
| Aug-09 | N/A | 34.37 | 18.75 | 9.29 | N/A | N/A | N/A |
| Sep-09 | N/A | 37.61 | N/A | 16.40 | N/A | N/A | N/A |
| Oct-09 | 12.10 | 469.31 | 11.55 | 8.11 | N/A | N/A | N/A |
| Total | 1360.04 | 16387.31 | 1149.92 | 1173.93 | 0.00 | 0.00 | 0.00 |

**APPENDIX B
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

Appendix B - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|--------------------------|---|-------------------|
| Construction Dust | <ul style="list-style-type: none"> Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. | ^ |
| | <ul style="list-style-type: none"> Use of frequent watering for particularly dusty construction areas, temporary stockpiles and areas close to ASRs. | ^ |
| | <ul style="list-style-type: none"> Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. | N/A |
| | <ul style="list-style-type: none"> Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. | * |
| | <ul style="list-style-type: none"> Restricting heights from which materials are dropped, as far as practicable to minimise the fugitive dust arising from unloading/ loading. | ^ |
| | <ul style="list-style-type: none"> Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. | ^ |
| | <ul style="list-style-type: none"> Use of vehicle wheel and body washing facilities at the exit points of the site. | ^ |
| | <ul style="list-style-type: none"> Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. | N/A |
| | <ul style="list-style-type: none"> Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit. | ^ |
| | <ul style="list-style-type: none"> Dusty activities should be re-scheduled if high-wind conditions are encountered. | N/A |
| | <ul style="list-style-type: none"> Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. | N/A |
| | <ul style="list-style-type: none"> Suitable buffer zone should be provided and the works areas should be fenced off with hoarding. The height of hoarding should not be less than 2.4m from ground level. | N/A |
| | <i>Crushing Plant</i> <ul style="list-style-type: none"> Water sprays on the crusher. Fabric filters installed for the crushing plant. When transferring materials from crusher to the conveyors, chutes or dust curtains would be used for controlling dust. | N/A N/A N/A |

| Types of Impacts | Mitigation Measures | Status |
|--------------------|--|---|
| | <p><i>Barging Point & Conveyor Belt System</i></p> <ul style="list-style-type: none"> • The conveyors would be placed within a totally enclosed structure • Profiled steel cladding would be provided at two sides of loading point. • Dust suppression sprays would be installed and operated in strategic locations at the feeding inlet and outlet. • The barging point would be placed within a totally enclosed structure incorporating an enclosed chute for material transfer to the barge. Flexible curtain would be hanged on the enclosed chute prevent dust emission when excavated materials/rocks transported into the barge. • Some areas of the Park would remain open for visitors during the construction period. Therefore, suitable buffer zones from major construction activities should be provided where practical and the works areas should be fenced off with hoarding during the construction phase. It is recommended to erect hoarding of a height not less than 2.4m from ground level. | <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>^</p> |
| Construction Noise | <p><i>Construction Phase</i></p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction programme • Mobile plant, if any, should be sited as far from NSRs as possible. • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs • Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities | <p>^</p> <p>N/A</p> <p>N/A</p> <p>^</p> <p>^</p> <p>N/A</p> |
| | <p><i>Adoption of Quieter Plant</i></p> <ul style="list-style-type: none"> • In order to reduce the excessive noise impacts at the affected NSRs at the Waterfront during normal daytime working hours, quieter plants are recommended. The Contractors do not have to use specific items of quiet plant adopted in this assessment. The Contractors may use other type of quiet plant, which have the same total SWL, to meet their needs | <p>^</p> |

| Types of Impacts | Mitigation Measures | Status |
|------------------|--|--|
| | <p><i>Use of Movable Noise Barrier</i></p> <ul style="list-style-type: none"> The use of movable barrier for certain PME could further alleviate the construction noise impacts. In general, 5dB (A) reduction for movable PME and 10dB (A) for stationary PME can be achieved depending on the actual design of movable noise barrier. The Contractor should be responsible for designing of the movable noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and PME. Barrier material of surface mass in excess of 7kg/m² is recommended to achieve the predicted screening effect. Exceedance of up to 5dB (A) would be predicted at the Police Training School (NSR PTS) during the examination periods. Early liaison with the principal of this impacted school is recommended to plan for the construction programme. Noisy construction activities should be avoided during the examination period as far as practicable so as to reduce the potential noise impact at the school to comply with the noise criterion of 65dB(A). | <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| Ecology | <p><i>Construction Phase</i></p> <ul style="list-style-type: none"> All excavation works carried out close to water bodies shall be carefully controlled to avoid runoff entering watercourses, especially during periods of heavy rain. Site runoff shall be directed towards regularly cleaned and maintained silt traps and where appropriate, oil/grease separators to minimize risk of sedimentation and pollution. Suitable size / capacity silt traps and oil/grease interceptors shall be used. Noise mitigation measures including the use of quiet construction plant and movable noise barriers shall be implemented to minimize disturbance to habitats adjacent to the work areas. Trees located within the works areas shall be preserved as far as practicable. Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats Construction activities shall be restricted to the work areas that would be clearly demarcated The work areas shall be reinstated immediately after completion of the works Waste skips shall be provided to collect general refuse and construction wastes. The wastes would be disposed of timely and properly off-site. Drainage arrangements shall include sediment traps to collect and control construction run-off Open burning on works sites is illegal, and shall be strictly enforced Landscaping works on newly formed land shall as far as possible make use of native plant species | <p>^</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>N/A</p> <p>^</p> <p>^</p> <p>^</p> |

| Types of Impacts | Mitigation Measures | Status |
|----------------------|---|---|
| Water Quality | <p data-bbox="387 189 797 221"><i>Construction Runoff and Drainage</i></p> <ul style="list-style-type: none"> <li data-bbox="465 229 1980 293">• Before commencing any site formation work, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains. <li data-bbox="465 301 1980 517">• Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via appropriately sized/ designed silt retention pond or similar structure. No site run-off should enter artificial ponds. Cut-off ditches should be provided for all major site clearance/ excavation works where soils would be exposed so that instances of uncontrolled run-off from exposed areas would be minimized. As well as channels, earth/ concrete bunds and/ or sand bags, as appropriate, should be deployed to direct surface run-off towards channels. Catchpits and perimeter channels should be constructed in advance of relevant site formation works. <li data-bbox="465 525 1980 588">• Boundaries of earthworks should be marked and surrounded by dykes or embankments for flood protection, as necessary. <li data-bbox="465 596 1980 780">• Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. <li data-bbox="465 788 1980 892">• Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. <li data-bbox="465 900 1028 932">• Exposed soil surfaces should be covered. <li data-bbox="465 940 1733 971">• Water pumped out from foundation excavations should be discharged into silt removal facilities. <li data-bbox="465 979 1980 1227">• If excavation cannot be avoided during rainy seasons, temporarily exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels should be provided (e.g. along the crest/ edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. <li data-bbox="465 1235 1924 1267">• Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff. <li data-bbox="465 1275 1980 1375">• Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. Appropriate intercepting channels should be provided where necessary. Rainwater pumped out from trenches or excavations should be directed to silt removal facilities before discharge. | <p data-bbox="2004 189 2092 221"></p> <p data-bbox="2004 229 2092 261">^</p> <p data-bbox="2004 269 2092 301"></p> <p data-bbox="2004 309 2092 341">^</p> <p data-bbox="2004 349 2092 381"></p> <p data-bbox="2004 389 2092 421">^</p> <p data-bbox="2004 429 2092 461"></p> <p data-bbox="2004 469 2092 501">^</p> <p data-bbox="2004 509 2092 541"></p> <p data-bbox="2004 549 2092 580">^</p> <p data-bbox="2004 588 2092 620"></p> <p data-bbox="2004 628 2092 660">^</p> <p data-bbox="2004 668 2092 700"></p> <p data-bbox="2004 708 2092 740">^</p> <p data-bbox="2004 748 2092 780"></p> <p data-bbox="2004 788 2092 820">^</p> <p data-bbox="2004 828 2092 860"></p> <p data-bbox="2004 868 2092 900">^</p> <p data-bbox="2004 908 2092 940"></p> <p data-bbox="2004 948 2092 979">^</p> <p data-bbox="2004 987 2092 1019"></p> <p data-bbox="2004 1027 2092 1059">^</p> <p data-bbox="2004 1067 2092 1099"></p> <p data-bbox="2004 1107 2092 1139">^</p> <p data-bbox="2004 1147 2092 1179"></p> <p data-bbox="2004 1187 2092 1219">^</p> <p data-bbox="2004 1227 2092 1259"></p> <p data-bbox="2004 1267 2092 1299">^</p> <p data-bbox="2004 1307 2092 1339"></p> <p data-bbox="2004 1347 2092 1375">^</p> |

| Types of Impacts | Mitigation Measures | Status |
|-------------------------|---|---|
| | <ul style="list-style-type: none"> Open stockpiles of construction materials or construction wastes on-site of more than 50m³ should be covered with tarpaulin or similar fabric during rainstorms | ^ |
| | <i>General Construction Activities</i> <ul style="list-style-type: none"> Debris and refuse generated on-site should be collected Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to nearby water bodies and public drains | * ^ |
| | <i>Sewage from Construction Workforce</i> <ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities | ^ |
| Waste / Chemical | <i>Good Site Practice</i> <ul style="list-style-type: none"> nomination of an approved personnel, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors training of site personnel in proper waste management and chemical handling procedures provision of sufficient waste disposal points and regular collection for disposal appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers | ^ N/A ^ * ^ |
| | <i>Waste Reduction Measures</i> <ul style="list-style-type: none"> sort C&D waste from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. proper storage and site practices to minimise the potential for damage or contamination of construction materials to encourage collection of aluminium cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force. plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. | ^ ^ ^ ^ ^ |

| Types of Impacts | Mitigation Measures | | Status |
|------------------|--|---|---------------------|
| | <i>General Refuse</i> <ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. | | * |
| | <i>Construction and Demolition Material</i> <ul style="list-style-type: none"> A Waste Management Plan should be prepared. In order to monitor the disposal of C&D and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No.31/2004 for details. A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. | | ^ ^ ^ |
| | <i>Chemical Waste</i> <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation | | ^ |
| Remarks: | ^ Compliance of mitigation measure; | X Non-compliance of mitigation measure; | |
| | N/A Not Applicable; | • Non-compliance but rectified by the contractor; | |
| | * Recommendation was made during site audit but improved/rectified by the contractor. | | |

APPENDIX C
EVENT ACTION PLANS

Appendix C: Event and Action Plan for Construction Noise





| Event | Action | | |
|--------------|--|--|---|
| | Contractor's ET | Contractor | PM |
| Action Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional noise monitoring to investigate the causes, if necessary 4. Report the investigation results to Contractor and PM 5. Discuss with Contractor for their formulation of remedial measures if the exceedance is related to construction works 6. Conduct additional monitoring to check mitigation effectiveness, if necessary | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit noise mitigation proposals to Contractor's ET and PM 3. Implement noise mitigation proposals | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented |
| Limit Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional noise monitoring and analyse Contractor's working procedures to determine possible cause of exceedance, if necessary 4. Provide interim report to Contractor and PM on the causes and proposed action to be taken for the exceedances if exceedance is related to construction works 5. Assess effectiveness by additional monitoring and report Contractor and PM, if necessary 6. If exceedance stops, cease additional monitoring, if any | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to Contractor's ET, and PM within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control 5. Stop the relevant portion of works as determined by the PM until the exceedance is abated | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 5. 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 abated |

Appendix C: Event and Action Plan for Air Quality

| Event | Action | | |
|--------------|---|---|---|
| | Contractor's ET | Contractor | PM |
| Action Level | 1. Identify source 2. Notify Contractor and PM 3. Conduct additional monitoring to investigate the causes, if necessary 4. Report the investigation results and if exceedance to Contractor and PM | 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice. 2. Submit air mitigation proposal and PM for agreement if Contractor's ET indicated that exceedance is related to the construction works 3. Implement agreed proposal within a time scale agreed with PM | 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to submit air mitigation proposal 4. Ensure remedial measures are properly implemented |
| Limit Level | 1. Identify source 2. Notify Contractor and PM 3. Conduct additional monitoring and investigate the causes, if necessary | 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice 2. In consultation with the PM, submit air mitigation proposal to PM for agreement within 3 working days of notification if Contractor's ET indicated that exceedances are related to construction works 3. Implement agreed proposal within a time scale agreed with PM 4. Amend working methods if appropriate. | 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to submit air mitigation proposal 4. Ensure remedial measures are properly implemented |

APPENDIX D
TENTATIVE WORKS PROGRAMME

CONTRACT CW02 - ASTOUNDING ASIA
OUTLINE PROGRAMME

| | Aug-09 | Sep-09 | Oct-09 | Nov-09 | Dec-09 | Jan-10 |
|-------------------------------------|--------|---|--------|---|---|---|
| | | | | | | |
| EMERALD AVIARY (Mini Aviary) | | | | | | |
| Substructure / Structure | |  | | | | |
| Builders Works | | | |  | | |
| Building Services | | | | |  | |
| External Finishing Works | | | | | |  |
| | | | | | | |

Part 4 CS-02 EM&A REPORT (October 2009)

W. Hing Construction Co., Ltd

**Ocean Park Redevelopment Project
Contract No. CS02 - Rainforest**

Monthly EM&A Report
(Version 1.0)

October 2009

Approved By: _____

Tony Lai
Construction Manager

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

TABLE OF CONTENTS

| | Page |
|--|-------------|
| EXECUTIVE SUMMARY..... | 1-2 |
| 1. INTRODUCTION..... | 3 |
| 1.1 Background | 3 |
| 1.2 Project Organizations | 5 |
| 1.3 Construction Programme..... | 5 |
| 1.4 Summary of EM&A Requirements | 6 |
| 2. ENVIRONMENTAL AUDIT..... | 7 |
| 2.1 Environmental Site Audits | 7 |
| 2.2 Status of Environmental Licensing and Permitting | 8 |
| 2.3 Status of Waste Management | 8 |
| 2.4 Implementation Status of Environmental Mitigation Measures | 8 |
| 2.5 Summary of Exceedances | 9 |
| 2.6 Implementation Status of Event Action Plan | 9 |
| 2.7 Summary of Complaints and Prosecutions | 9 |
| 3. FUTURE KEY ISSUES | 9 |
| 3.1 Key Issues for the Coming Month | 9 |
| 3.2 Construction Program for the Next Month | 9 |
| 4. CONCLUSIONS AND RECOMMENDATIONS | 10 |
| 4.1 Conclusions | 10 |
| 4.2 Recommendations | 10 |

LIST OF TABLES

| | |
|-----------|--|
| Table I | Summary Table for Events Recorded in the Reporting Month |
| Table 1.1 | Key Project Contacts |
| Table 2.1 | Observations and Recommendations of Site Audits |
| Table 2.2 | Summary of Environmental Licensing and Permit Status |

LIST OF APPENDICES

- A. [Site Layout Plan](#)
- B. [Site Audit Summary](#)
- C. [Summary of Waste Generated](#)
- D. [Environmental Mitigation Implementation Schedule \(EMIS\)](#)
- E. [Event Action Plans](#)
- F. [Tentative Works Program](#)

EXECUTIVE SUMMARY

Introduction

This is the 5th monthly Environmental Monitoring and Audit (EM&A) Report prepared by W. Hing Construction Co., Ltd. for the Contract No. CS02 “Ocean Park Redevelopment Project – Rainforest” (hereinafter called “the Project”). The Project was commenced on 11th May 2009. This document reports the findings of the environmental auditing works conducted in October 2009.

- Defects Rectification works at Funicular Plaza
- R.C. Structure, U/G Utilities Installation at Exhibition House
- Drainage Works, Retaining Wall Construction, Drawpit Construction, Duct Laying and Preparation of Demolition of Footbridge at the External Area

Environmental Monitoring and Audit Works

Environmental monitoring and audit works for the Project was performed as stipulated in the updated EM&A Manual. Weekly Environmental site audits were conducted on 6th, 13th, 20th, 27th October 2009. No non-compliance was observed during the site audits. Monthly Environmental Audit was conducted on 23rd October 2009 by Independent Environmental Checker (IEC). No non-compliance was observed during the site audits.

The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.

No notification of exceedance was received from the Project Environmental Team Leader (ETL) in the reporting month. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I Summary Table for Events Recorded in the Reporting Month

| Parameter | No. of Events | | No. of Events Due to the Project | Action Taken |
|-----------|---------------|-------------|-------------------------------------|--------------|
| | Action Level | Limit Level | | |
| 1-hr TSP | 0 | 0 | 0 | N/A |
| 24-hr TSP | 0 | 0 | 0 | N/A |
| Noise | 0 | 0 | 0 | N/A |

Environmental Licenses and Permits

Licenses/Permits granted to the Project include the Environmental Permit (EP) for the Redevelopment Project, Registration of Waste Producer, Registration of Chemical Waste Producer and Water Discharge License.

A notification pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation was received prior the commencement of the Project.

Complaints and Prosecutions

No environmental complaint and prosecution was received in the reporting month.

Future Key Issues

Key issues to be considered in the coming month include:

- Defects Rectification works at Funicular Plaza
- R.C. Structure at Exhibition House
- Drainage Works, Retaining Wall Construction, Drawpit Construction, Duct Laying Tower Crane Jib Extension, Guest Diversion, Footbridge Demolition and Rapid Ride Trough Construction at the External Area

1. INTRODUCTION

1.1 Background

- 1.11 The “Repositioning and Long Term Operation Plan of Ocean Park” has been implementing by the Ocean Park Corporation at its existing site of Ocean Park and Nam Long Shan, Aberdeen. The purpose of this project is to upgrade and expand the existing Ocean Park to meet anticipated visitor demands and to position Ocean Park as a premium tourist attraction and a regional leader in themed recreational and educational park experience. The site layout plan is illustrated in APPENDIX A.
- 1.12 An environmental impact assessment (EIA) report for “Repositioning and Long Term Operation Plan of Ocean Park” (Report No. 121/2006 and Register No. AEIAR-101/2006) has been prepared in 2006 and the Environmental Monitoring and Audit Manual (Project’s EM&A Manual) was also included as part of the EIA report in the register. An Environmental Permit (EP) No. EP-249/2006 was issued on 28 July 2006 for the above project to Ocean Park Corporation as Permit Holder and a varied EP No. EP-249/2006/A was subsequently issued on 23 October 2006 for the above project to Ocean Park Corporation as Permit Holder.
- 1.13 W. Hing Construction Co., Ltd. (the Contractor) was commissioned by the Employer to undertake the design and construction of the Contract No. CS02 “Ocean Park Redevelopment Project –Rainforest” (hereinafter call “the Project”).
- 1.14 The Project includes design and construction of:
Rainforest Land (may also be referred to as Expedition River).
1. New roadwork and infrastructure support;
 2. Open seating;
 3. Construction of elevated walkway;
 4. Construction of one to three storey buildings (exhibit building);
 5. Construction of back of house facilities;
 6. Installation of building services;
 7. Construction of associated footpaths;
 8. Construction of ride lagoon;
 9. Construction of guest route paving and railing, utilities & services works and associated civil engineering works;
 10. Soft and hard landscape works;
 11. Balustrade, skylight, window, louvre, cladding and canopy, retail/food carts and kiosks, vertical green walls and structure;
 12. Provision of new and diversion/decommissioning of existing drainage, sewerage, water mains and underground utilities as necessary for the operation of the Ocean Park;
 13. Construction of all ancillary works;
 14. Installation of the water rapids ride (also known as raft ride) and associated services;
 15. Co-ordination of the works with the Works for the installation of props to be supplied and installed by OTHER Contractors;

16. Construction of underground utilities and services;
17. Construction of earth retaining structures;
18. Take over the completed filtration plant room structure by previous contractor and complete all outstanding works, finishes, waterproofing, E&M installations, etc.
19. Take over and verify completed foundation by previous contractor for the Rainforest Exhibition Building and Rapids Ride elevated structure;

General

20. Take over of existing hoardings with graphics;
21. Tree transplanting and protection to remaining trees if any;
22. Installation of civil provisions for IT system and all operational equipment ;
23. Construction of irrigation and drainage system for planting area;
24. Supply and installation of all elevator(s);
25. Design and build all temporary works with necessary statutory submissions including, but not limited to:
 - (a) Temporary support to excavations greater than 2m in depth;
 - (b) Temporary cut or fill slopes greater than 2m high;
 - (c) Falsework and temporary platforms, structures and the like required;
 - (d) Temporary platforms, structures and the like required for supporting construction plant; and
 - (e) Excavation and lateral supports for all Rainforest works; and
26. Design and build works as specified in the Contract, but not necessary limited to, with necessary statutory submissions, including the following:
 - (a) Artificial Rockwork.
 - (b) GRC/GRG/GRP/shotcrete works and associated supporting structures.
 - (c) Artificial trees and plants.
 - (d) Mesh long span cover structure for Rainforest Exhibit building (also known as exhibition building or Rainforest box) including the metal structural frame.
 - (e) Animal exhibits:

Building Services as further specified in Sections 30 to 37 and Sections 45 to 49

- (g) Water features
- (h) Interpretives, interactive interpretives, and building marquee signs.
- (i) Life support systems.
- (j) Maintenance and delivery machinery including hoist(s).
- (k) Special Effects including lighting and sound effects.
- (l) Rope suspension cross bridge at exhibit exit (cargo crawl bridge).

- 1.15 This is the 5th monthly EM&A Report summarizing the EM&A works for the Project in **October 2009**.

1.2 Project Organizations

1.2.1 Different parties with different levels of involvement in the project organization include:

- The Engineer and Project Environmental Team Leader (ETL) – Aecom Asia Consultant Ltd. (AACL)
- Contractor Environmental Team – W. Hing Construction Co. Ltd.
- Independent Environmental Checker (IEC) – Mott MacDonald HK Ltd.

1.2.2 The responsibilities of respective parties are provided in Section the Contractor's EM&A Manual of the Project.

1.2.3 The key contacts of the Project are shown in Table 1.1.

Table 1.1 Key Project Contacts

| Party | Name | Role | Phone No. | Fax No. |
|---------------|--------------------|--|-----------|-----------|
| Project ET | Mr. Benny Chan | Safety Manager | 2910 3155 | 2552 1256 |
| | Mr. Andy Leung | Assistant Inspector of Works | 2910 3156 | |
| Contractor ET | Mr. Tony Lai | Project Manager | 6105 4080 | 2518 4883 |
| | Mr. Eddie Chiu | Environmental & Safety Manager | 6105 4075 | |
| | Mr. Ken Chong | Environmental Officer | 6276 1192 | |
| | Mr. Kan Kwok | ET member (Safety Officer) | 6277 1747 | |
| IEC | Miss Florence Yuen | Independent Environmental Checker (IEC) Representative | 2828 5757 | 28271823 |

1.3 Construction Programme

1.3.1 The site activities undertaken in the reporting month were:

- Defects Rectification works at Funicular Plaza
- R.C. Structure, U/G Utilities Installation at Exhibition House
- Drainage Works, Retaining Wall Construction, Drawpit Construction, Duct Laying and Preparation of Demolition of Footbridge at the External Area

1.4 Summary of EM&A Requirements

- 1.4.1 The EM&A program requires construction phase environmental site audit. The duties and responsibilities comprise the following:
- monitor various environmental parameters, if necessary, as specified in the Contractor's EM&A Manual;
 - analyze the environmental monitoring and audit data;
 - review the EM&A programme to confirm the adequacy of mitigation measures implemented and the validity of the EIA predictions and to identify and adverse environmental impacts arising;
 - carry out site inspection to investigate and audit the Contractor's site practice, equipment and work methodologies with respect to pollution control and environmental mitigation, and effect proactive action to pre-empt problems;
 - audit and prepare EM&A reports on the site environmental conditions;
 - report the environmental audit results to the Contractor;
 - recommend appropriate mitigation measures to the Contractor in case of exceedance of Action and Limit Levels in accordance with the Event and Action Plans; and
 - adhere to the procedures for carrying out complaint investigation
- 1.4.2 This report presents the environmental monitoring and audit works for the Project in **October** 2009.

2. ENVIRONMENTAL AUDIT

2.1 Environmental Site Audits

- 2.1.1 Environmental site audits were carried out on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 2.1.2 Site audits for the Project in the reporting month were conducted on 6th, 13th, 20th, 27th October 2009. No non-compliance was observed during the site audits. The monthly site audits conducted by the IEC conducted on 23rd Oct. 2009 are attached in APPENDIX B.
- 2.1.3 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations are summarized in Table 2.1.

Table 2.1 Observations and Recommendations of Site Audits

| Parameters | Date | Observations / Recommendations | Remediation/ Follow up |
|---|----------|--|--------------------------------------|
| Water Quality | 20/10/09 | Pond water observed at the structure footing area. The Contractor was reminded to remove it. | This item was rectified on 21/10/09. |
| Waste/ Chemical Management | 23/10/09 | Stockpile of dusty construction material was observed not covered. | This item was rectified on 23/10/09. |
| | 06/10/09 | Chemical drums were placed on bare ground. Contractor was reminded to provide drip tray to avoid oil spillage. | This item was rectified on 07/10/09. |
| | 13/10/09 | Stockpile of dusty construction material was observed not covered. Construction material should be compacted, water sprayed or covered with tarpaulin. | This item was rectified on 14/10/09. |
| Air | 27/10/09 | Site haul road should be water sprayed regularly to avoid dust dispersion. | This item was rectified on 27/10/09. |

2.2 Status of Environmental Licensing and Permitting

2.2.1 All valid permits/licenses obtained for the Project are summarized in Table 2.2.

Table 2.2 Summary of Environmental Licensing and Permit Status

| Permit No. | Valid Period | | Details | Status |
|---|--------------|------------|--|--------|
| | From | To | | |
| Environmental Permit | | | | |
| EP-249/2006/A | 23/10/2006 | N/A | Expansion of the existing Ocean Park and reconstruction / modification of its existing facilities. | Valid |
| Registration of Chemical Waste Producer | | | | |
| WPN5214-176-W1150-03 | 13/05/2009 | N/A | Waste Disposal (Chemical Waste) (General) Regulation -- Registration of Waste Producer | Valid |
| Construction Noise Permit | | | | |
| GW-RS0756-09 | 10/10/2009 | 13/03/2010 | Notice of Issue of Construction Noise Permit Pursuant to Section 8(6) of the Noise Control Ordinance | Valid |
| Water Discharge License | | | | |
| WT00004136-2009 | 19/06/2009 | 30/06/2014 | Discharge of industrial trade effluent arising from the Sedimentation tank at the construction site (CS02 Rainforest, Ocean Park Redevelopment Project) to communal storm water drain. | Valid |
| Others | | | | |
| 305349 | N/A | N/A | Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Regulation | Valid |
| WFG07578 | N/A | N/A | Construction Waste Disposal Billing Account with EPD | Valid |

2.3 Status of Waste Management

2.3.1 The amount of waste generated by the construction activities of the Project in the reporting month is attached in APPENDIX C.

2.4 Implementation Status of Environmental Mitigation Measures

2.4.1 According to the Environmental Permit and the Contractor's EM&A Manual, the mitigation measures detailed in the documents are required to be implemented. An updated summary of the EMIS is provided in APPENDIX D.

2.5 Summary of Exceedances

2.5.1 No Action/Limit Level exceedance was reported in the reporting month.

2.6 Implementation Status of Event Action Plan

2.6.1 The Event Action Plans for air quality and construction noise are presented in APPENDIX E.

2.7 Summary of Complaints and Prosecutions

2.7.1 No environmental complaint and prosecution related to the Project works was received during the reporting month.

3. FUTURE KEY ISSUES

3.1 Key Issues for the Coming Month

3.1.1 Key issues to be considered in the coming month include:

- Defects Rectification works at Funicular Plaza
- R.C. Structure at Exhibition House
- Drainage Works, Retaining Wall Construction, Drawpit Construction, Duct Laying Tower Crane Jib Extension, Guest Diversion, Footbridge Demolition and Rapid Ride Trough Construction at the External Area

3.2 Construction Program for the Next Month

3.2.1 The tentative construction program for the Project is provided in APPENDIX F.

4. CONCLUSIONS AND RECOMMENDATIONS

4.1 Conclusions

- 4.1.1 **Four** environmental site audits were performed in **Oct.** 2009. No non-compliance was observed during the site audits.
- 4.1.2 No exceedance of environmental monitoring was reported in the reporting month.
- 4.1.3 No environmental complaint and prosecution related to the project was received in the reporting month.

4.2 Recommendations

- 4.2.1 According to the environmental audits performed in the reporting month, the following recommendations are suggested:

Dust Impact

- Stockpile of dusty construction material was observed not covered. Construction material should be compacted, water sprayed or covered with tarpaulin.

Water Quality Impact

- Ponding water observed at the excavation trench and footing. Waste water shall only be discharged in accordance with requirement of the permit.

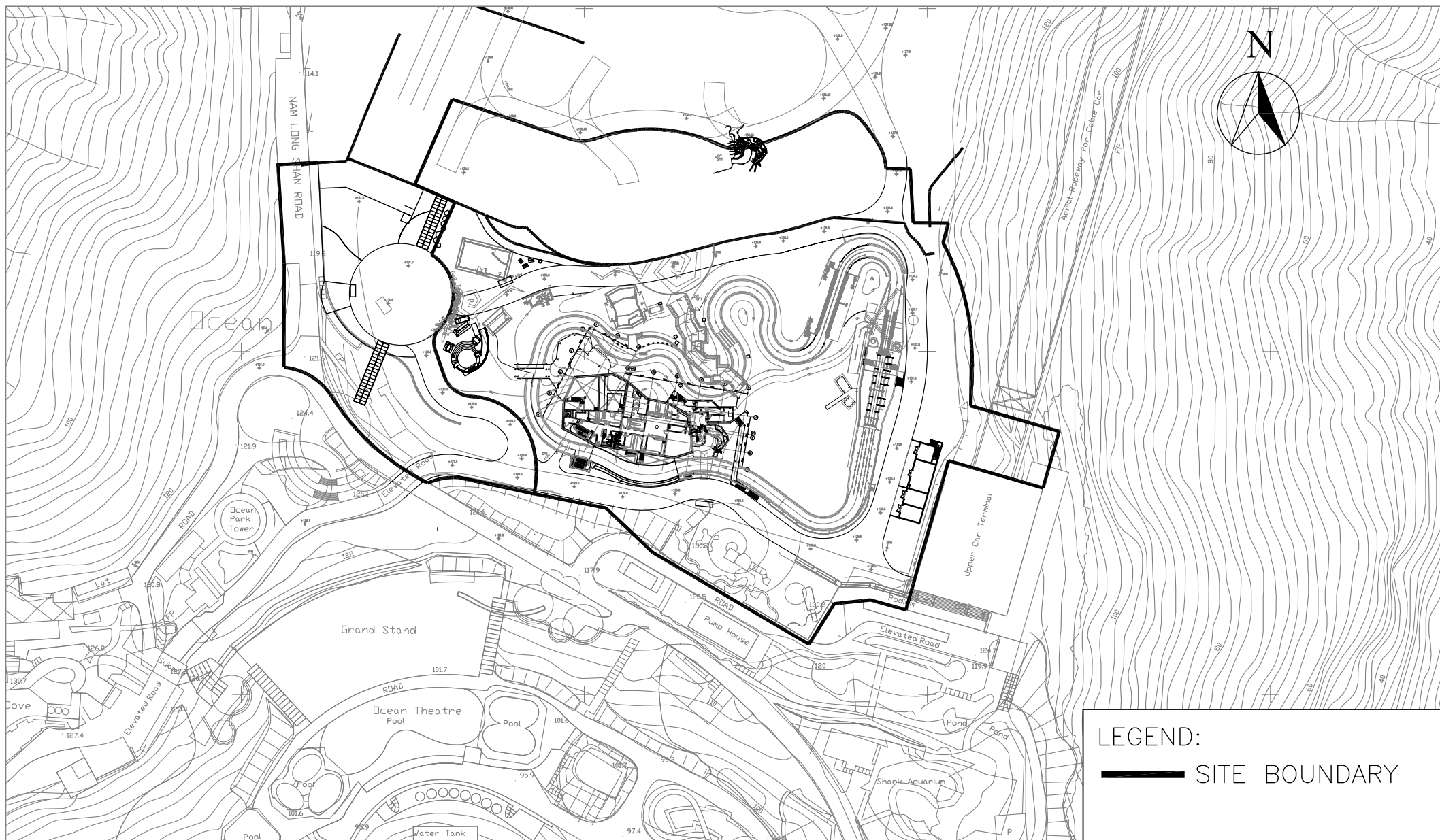
Air Impact

- Site haul road should be water sprayed regularly to avoid dust dispersion.

Chemical Management

- Chemical drums and chemical waste shall be stored in the drip tray to avoid oil spillage.

APPENDIX A
SITE LAYOUT PLAN



LEGEND:
— SITE BOUNDARY

永興聯合建築有限公司
W. HING CONSTRUCTION CO. LTD.

CONTRACT NO. CS02
 OCEAN PARK REDEVELOPMENT PROJECT – RAINFOREST
 SITE LAYOUT PLAN

| | | | |
|---------|-----------|-------------|------------|
| SCALE | A4 1:1500 | DATE | JULY 2009 |
| CHECK | Kan Kwok | DRAWN | HC LAU |
| JOB NO. | CS02 | DRAWING No. | CS02/SL/01 |
| | | REV | — |

APPENDIX B
SITE AUDIT SUMMARY

Ocean Park Master Redevelopment Project
Contract P007
Independent Environmental Checker
MONTHLY SITE INSPECTION CHECKLIST

| | | | | | |
|-----------------|----------------------|------|-------|--------------|--|
| Inspection Date | 30/10/2009 | Time | 09:30 | Inspected By | EM: A Leung IEC: Florence Yuen Contractor: CW02: K Kwok CI07: K Yip CS02: K Cheng |
| Site Location | CW02 CI07 CS02 | | | | |

Weather

| | | | | | | | |
|-------------|--|--|-----------------------------------|--|--|--------------------------------|-------------------------------|
| Condition | <input type="checkbox"/> Sunny | <input checked="" type="checkbox"/> Fine | <input type="checkbox"/> Overcast | <input type="checkbox"/> Drizzle | <input type="checkbox"/> Rain | <input type="checkbox"/> Storm | <input type="checkbox"/> Hazy |
| Temperature | 28°C | | Humidity | <input checked="" type="checkbox"/> High | <input type="checkbox"/> Moderate | <input type="checkbox"/> Low | |
| Wind | <input checked="" type="checkbox"/> Calm | <input type="checkbox"/> Light | <input type="checkbox"/> Breeze | <input type="checkbox"/> Strong | Direction <input style="width: 100px;" type="text"/> | | |

| | | Close-out on last comments Y/N | N/A or not obs | Yes | No | Photo/Remarks |
|---------------------------|---|---|-------------------------------------|-------------------------------------|--------------------------|---------------|
| Construction Noise | | | | | | |
| S2.18 | Is a valid Construction Noise Permit (CNP) obtained for works during restricted hours? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| S2.26 | Good Site Practices: | | | | | |
| | • Are the operating plants well-maintained and serviced regularly? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are silencers or mufflers utilized on construction equipment? Are they properly maintained? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the mobile plant sited far enough from NSRs? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are intermittently used machines and plants shut down between work periods? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the plant known to emit noise strongly in one direction, if any, oriented to direct noise away from the NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the stockpile or other structures utilized effectively, wherever practicable, in screening noise from the works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.27 | Are suitable quiet plants adopted? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| S2.28 | Are movable barriers used for both movable PME and stationary PME? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.29 | Do the screening materials used achieve the predicted noise reduction? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S2.30 | Are the noisy works avoided during examination period of the nearby school? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| Blasting Noise | | | | | | |
| S2.32 | • Are the NSRs informed of the blasting work in advance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

- Is sufficient time allowed for alerting all the potential NSRs prior to every blasting work?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are proper procedures put in place to alert and minimise any startling effect on the staff working in Ocean Park?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the optimal amount of charge used evaluated for noise reduction?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Landscape and Visual

S3.10 Consideration on existing surrounding vegetation:

- Are temporary tree nurseries set up?
- Is "no-intrusion zones" implemented?
- Is the existing vegetation protected from damage?
- Are hill fire prevention measures taken?
- Is dust and erosion controlled for exposed soil?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

- Are the irrigation networks set up throughout the Establishment Period?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is Quarterly Report on existing trees to be retained or transplanted prepared by the Contractor?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

S3.11 Consideration on appearance and view:

- Is the appearance of hoardings suitable?
- Is the appearance of construction workers, plants/machines suitable?
- Are the screening and alignment of the temporary barging point and conveyor system suitable?
- Are the selected security floodlights suitable?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Ecology

S4.5 Transplantation:

- Is the transplantation work supervised by a qualified botanist/horticulturalist in the ET?
- Are the transplanted plant species of conservation interest monitored during the first 12 months after transplantation?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

S4.7 Construction:

- Is the runoff entering watercourses avoided by control measure, especially during heavy rain?
- Is the site runoff directed to regularly cleaned and maintained silt traps (or oil separators)?
- Are sediment traps included in drainage to collect and control construction run-off?
- Is suitable size silt traps or oil interceptor used?
- Is vegetation survey carried out to determine the feasibility and suitability of individual plants for transplantation?
- Are the trees located within the works area preserved suitably?
- Are individual plants of conservation interest transplanted prior to the construction phase?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

- Are the equipments and stockpiles placed in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are construction activities restricted to the work areas demarcated?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are waste skips provided to collect general refuse and construction wastes?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are the wastes disposed of timely and properly off-site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is open burning on works sites prohibited?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are native plant species made use of as far as possible on newly formed land?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

Construction Waste

- S5.4 Good Site Practices
- Are arrangements made for collection and effective disposal of all wastes generated?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the waste management and chemical handling procedures followed?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 CS02(C) P1080/29
 - Are sufficient waste disposal points provided?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the wastes disposed of regularly?

| | | | |
|---|--|--|--|
| ✓ | | | |
|---|--|--|--|
 - Are appropriate measures taken to minimise windblown litter and dust during transportation of waste by either covering trucks or transporting wastes in enclosed containers?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the drainage systems, sumps and oil interceptors regularly cleaned and maintained?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.5 Waste Reduction Measures:
- Is the C&D waste from demolition and decommissioning of existing facilities sorted to recover recyclable materials?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are different types of wastes segregated and stored in different containers, skips or stockpiles to enhance reuse or recycling and the proper disposal?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are aluminium cans segregated in labelled bins and collected by individual collectors for recycling?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are proper storage and site practices maintained to minimise the potential for damage or contamination of construction material?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Are the construction materials planned and stocked carefully to avoid unnecessary generation of waste?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.7 General Refuse
- Is the general refuse stored in enclosed bins or compaction units separate from C&D material?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 CS07 @ P1080/24
 - Is the general refuse removed regularly by a waste collector?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- S5.8 C&D Material
- Are the excavated materials from site formation of the expansion areas and tunnel construction for the funicular system reused on-site as backfilling material and for landscape works?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
 - Are the surplus rock and other inert C&D material disposed of at the public fill sites?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
 - Is a waste management plan prepared?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

| | | | | | |
|-------|--|--------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| | <ul style="list-style-type: none"> Is a recording system present for the record of amount of wastes generated, recycled and disposed? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the trip-ticket system required in ETWB TCW No.31/2004 followed on site? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| S5.9 | Chemical Wastes Is chemical wastes generated from the works? And if yes, | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the Contractor registered as a Chemical Waste Producer? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are good quality containers used for separating and storing chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| | <ul style="list-style-type: none"> Are appropriate labels securely attached on each chemical waste container to indicate their corresponding chemical characteristics? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the Contractor licensed to transport and dispose of the chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Land Contamination | | | | |
| S6.11 | <ul style="list-style-type: none"> Is the contact of construction workers with contaminated materials minimised by using bulk earth-moving excavator equipment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are appropriate cloth, personal protective equipment, hygiene and washing facilities provided to minimise exposure to any contaminated material? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is stockpiling of contaminated excavated materials avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the use of contaminated soil for landscaping without proper treatment prohibited? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are vehicles containing excavated materials covered properly to limit potential dust emissions or contaminated wastewater runoff? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is the speed of the trucks carrying contaminated materials controlled? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the necessary waste disposal permits obtained from appropriate authorities in according with Waste Disposal (Chemical Waste) (General) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are silt removal facilities provided with retention time for silt/sand traps of 5 minutes under maximum flow conditions? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the records maintained for quantity of wastes generated and disposal of? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| S6.12 | Remediation Process <ul style="list-style-type: none"> Is biopile covered by tarpaulin or low permeable sheet to avoid dust emission? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Is vented air from biopile treated by blower and carbon adsorption system before released to the atmosphere? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are the materials which may generate airborne dust emissions adequately wetted prior to and during the loading, unloading and handling operations? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are silencers installed at biopile blower to minimise noise impact? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | <ul style="list-style-type: none"> Are quiet plants such as generator and blower used for biopile? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- Are the mixing process and other associated material handling activities properly scheduled to minimise potential noise impact?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are impermeable liners placed at the bottom of biopile?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is leachate collection sump construction along the perimeter of biopile?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is the leachate recycled back to the biopile or truck away to Chemical Waste Treatment Centre for disposal?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is the mixing of contaminated soils and cement/water/other additive(s) undertaken at a solidification plant to minimise the potential for leaching?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is a concrete bund construction along the perimeter of the solidification/stabilisation area to prevent runoff?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the loading, unloading, handling, transfer and storage of cement carried out in an enclosed system?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the contaminated soils transported by roll-off trucks (contrainerisation)?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Is temporary hoarding provided around the treatment area to minimise the visual impact?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Air Quality

S7.23

Good Site Practices

- Is watering carried out regularly with complete coverage to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is watering frequently carried out for particularly dusty construction areas, temporary stockpiles and areas close to ASRs?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are the aggregate or dusty material storage piles covered with their side enclosed to reduce emissions? Or if this is not practicable, is watering applied to aggregate fines?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 } CW02 @ P1080116
- Is open stockpiles avoided or covered and placed far enough from the ASRs?

| | | | |
|--|--|--|---|
| | | | ✓ |
|--|--|--|---|

 } CS02 @ P1080130
- Is the dropping height of material restricted to minimise the fugitive dust from unloading/loading?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is tarpaulin used to cover all dusty vehicle loads transported to, from and within the site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are vehicle wheel and body washing facilities available at the exit points of the site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are wind shield and dust extraction units or similar dust mitigation measures provided at the loading points? If dust generation is likely during the process, particularly in dry seasons, is water sprinklers provided at the loading site?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Do the vehicles comply with the recommended speed limit of 10 km/h on unpaved roads?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Are dusty activities rescheduled during high-wind conditions?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|
- Are the routing of vehicles and positioning of construction plants at maximum possible distance from the ASRs?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|
- Is suitable buffer zone provided and work areas fenced off with hoarding (not less than 2.4m from ground level)?

| | | | |
|--|--|---|--|
| | | ✓ | |
|--|--|---|--|

S7.24

Drilling & Blasting

| | | | | | | |
|-------|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|--|
| | • Is watering carried out on the exposed area after blasting? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is vacuum extraction drilling method used? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the blasting process carefully sequenced? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the firing of explosive carried out in the morning prior to opening of the Park? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S7.25 | Crushing Plant | | | | | |
| | • Is water sprayed on the crusher? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are fabric filters installed for the crushing plant? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is chute or dust curtain used for controlling dust when transferring materials from crusher to the conveyors? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| S7.26 | Barging Point & Conveyor Belt System | | | | | |
| | • Are the conveyors placed within enclosed structures? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is profiled steel cladding provided at two sides of loading point? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are dust suppression sprays installed and operated at the feeding inlet and outlet? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the barging point placed within an enclosed structure incorporating an enclosed chute for material transfer to the barge? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Is a flexible curtain hanged on the enclosed chute to prevent dust emission when excavated materials/rocks transported into the barge? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | Water Quality | | | | | |
| S8.3 | Site Run-off and Drainage | | | | | |
| | • Are all sewer and drainage connections sealed to prevent debris, soil, sand etc. from entering public sewer before commencing any site formation work? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are temporary ditches provided to facilitate runoff discharge into appropriate watercourses, via appropriate sized silt retention pond? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are cut-off ditches provided for all major site clearance/excavation works where soils would be exposed to control runoff from the areas? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are channels, earth/concrete bunds and sand bags deployed to direct surface runoff? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| | • Are catchpits and perimeter channels constructed in advance of relevant site formation works? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are the boundaries of earthworks marked and surrounded by dykes or embankments for flood protection? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are sand/silt traps and sediment basins provided to remove sand/silt particles from runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are silt removal facilities, channels and manholes maintained and deposited silt/grit removed regularly to ensure that these facilities are functioning properly at all times? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are exposed soil surfaces covered? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Is the water pumped out from foundation excavations discharged into silt removal facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | • Are exposed soil areas minimised to reduce potential for increased siltation and contamination of runoff? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| | | | | | |
|-------|--|-------------------------------------|-------------------------------------|-------------------------------------|--------------------------|
| | • Are earthwork final surfaces well compacted and is subsequent permanent work or surface protection performed immediately? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is the rainwater pumped out from trenches or excavation directed to silt removal facilities before discharge? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are open stockpiles of construction materials or construction wastes of more than 50m ³ covered with tarpaulin during rainstorm? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | In case of an excavation in rainy seasons: | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Is temporary exposed slope/soil surfaces covered by tarpaulin as far as practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are intercepting channels provided to prevent storm runoff from washing across exposed soil surfaces? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| | • Are surface protection measures and arrangements implemented to prepare for arrival of a rainstorm? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| S8.4 | Coral Sites | | | | |
| | • Are enhanced (with the use of flocculants added) sand/silt removal facilities employed for treatment of runoff from the major excavation at the Summit? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is a silt curtain system used to enclose the construction phase discharge point at Tai Shue Wan? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are debris and refuse collected, handled and disposed of properly to avoid entering any nearby water bodies and public drainage system? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are stockpiles of cement and other construction materials kept covered when not being used? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are oils and fuels used and stored in designated areas which have pollution prevention facilities (Fuel tanks and storage areas provided with locks and sited on sealed areas, within bunds of a capacity equality to 110% of the storage capacity of the largest tank)? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are temporary sanitary facilities, such as portable chemical toilets, employed on-site where necessary to hand sewage from the workforce? Is a licensed contractor employed for disposal of waste matter and maintenance of these facilities? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Is a reputable waste collector should be employed by the Contractor to remove general refuse from the site, separately from construction and chemical wastes, on a daily basis to minimize odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are aluminium cans recovered from the waste stream and collected separate labelled bins? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are office wastes reduced through the recycling of paper? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | • Are training provided to workers on site cleanliness & waste management procedure? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| | Cultural Heritage | | | | |
| S10.6 | If there is any work planned within one metre of the grave, is a one metre buffer zone provided around the grave and is the grave demarcated by temporary fence? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| S11.3 | Hazard to Life Good Site Practices: | | | | |
| | • Is the area around the magazine free of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

- Is the control of (small) fires planned and provided through the following?

- Weekly checking of fire fighting equipment and the on-site fire water tank level.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Daily checking of all critical safety equipment on vehicle, including the fire extinguishers.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Maintaining back-up means of fighting fire on the explosive vehicles.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Providing safety training for drivers and other personnel present during explosive delivery with regard to operating fire hydrants and fighting of explosive fires.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the magazine secured against unauthorised entry and theft of explosive through the following?

- Maintaining a list of persons authorised to enter the magazine and ensuring the list is available to the magazine security guard.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Activating an alarm system that limits times at which explosive can be removed from the magazine and connecting the system to central security station.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Incorporating "Duress code" function in the alarm system.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Maintaining alarm system in good condition.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the magazine security guard located separately from the magazine complex?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the communication maintained in emergency with the following measures?

- Providing non-hazardous electronic equipment for persons working within 60 m of detonators.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Ensuring availability of phone numbers for all key personnel.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- If there is a typhoon signal no. 3 or above, or black rainstorm signal, are all operations at magazine and transport ceased?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the risk of detonators explosion on vehicle reduced during transit through the following?

- Ensuring that magazine within vehicle is lined.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Limiting off-site transport to 5 to 6 a.m. each day.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Escorting vehicles with separate security vehicle when using the public road.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Ensuring that UN 1.4B packaging of detonators remains intact until handed over at blasting site.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the fuel isolation switch available on vehicle to prevent fire spreading in case a fire breaks out?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is an experienced driver with accident-free record employed for explosive vehicle and security escort?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are the drivers checked for health before employing?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Are the vehicles regularly checked to maintain in good condition to reduce chance of accident due to breaking down?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- Is the truck fuel fire escalating to cause explosion avoided through the following means?

- Ensuring that the Contractor is aware of the potential hazards to site.

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

| | | | | |
|--|-------------------------------------|--------------------------|--------------------------|--------------------------|
| - Maintaining appropriate fire fighting equipment. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Requiring the Contractor to plan and make emergency arrangements. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is spare/redundant fire fighting equipment provided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Can communications be maintained between two vehicles (drivers and security) during the trip to prevent collision of two explosive vehicles in case of an accident? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the processes of checking of condition of drivers to suspend any driver of concern carried out? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Project specific measures: | | | | |
| • Is the speed of vehicle limited along the Ocean Park portion of Nam Long Shan Road within 100 m of the explosives magazine to 25 km/hr? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is other contractors' use of the Ocean Park Internal service road restricted during delivery of explosives, i.e. 6 to 7 a.m? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the Ocean Park guard required to call to the magazine guard on an hourly basis when explosives are stored in magazines? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the evacuation of part or all of Ocean Park Headland Area arranged in case of the explosive magazine being engulfed in fire? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the risk to the public from accidental initiation during charging and blasting limited by the following means? | | | | |
| - Closing the Ocean Park from commencement of charging holes until completion of blasting each day. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Arranging for relevant authorities to post notices to mariners – warning them of blasting operations and advising them to stay away from a strip 100m wide immediately to the east of Headland from commencement of charge holes until completion of blasting each day (i.e. 9 a.m). | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Not operating amusement rides in the event of accidental explosion until confirmed free of critical damage. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • If unexploded explosives are found in blasthole(s), is the opening of Ocean Park delayed or is part of the Ocean Park delayed when there are unspent explosives? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the opportunity for arson/deliberate initiation of explosive reduced with the following means? | | | | |
| - Paying attention to the security alert status from the Government. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| - Developing a security plan to address high alert level. | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is an emergency plan developed to address uncontrolled fire in magazine area? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the transfer of explosives between 5 to 6 a.m agreed by Mines Division? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is the road surface along the explosive transportation route maintained? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Are the contractor's driver and security escort tested in respect of safety plan? Is the route driven before the driver undertakes the first delivery of explosives? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| • Is adequate space provided for the explosive vehicle to manoeuvre without reversing close to the magazine to limit | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

the likelihood of vehicle accident?

| | | | |
|--|--|--|--|
| | | | |
|--|--|--|--|

- Is lighting for explosive vehicles provided on temporary road(s)?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

- S11.4
- Is ammonium nitrate emulsion (ANE) delivered outside of Park opening times?

| | | | |
|--|---|--|--|
| | ✓ | | |
|--|---|--|--|

Observation for this month

- ① Stockpile of idle excavated material were not covered.

IEC Representative

Florence Yuen

(Florence Yuen)

Environmental Manager

PP Andy

(Andy Leung)

Contractor's
Representative
CW02

Jan

(KAN POK)

Observation for this month

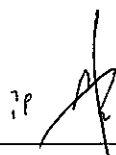
- ① Stagnant water and general refuse were accumulated on the deck.
The Contractor shall remove them as soon as possible.

IEC Representative



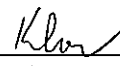
(Florence Yuen)

Environmental Manager



(AVAL Kwan)

Contractor's
Representative
CI07

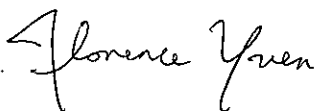


(Kelvin Yip)

Observations for this month

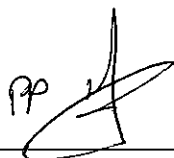
- ① A few oil drums were placed on bareground. Drip tray should be provided to avoid oil spillage.
- ② A stockpile of excavated material was not covered. Tarpaulin sheets should be provided to suppress dust.

IEC Representative



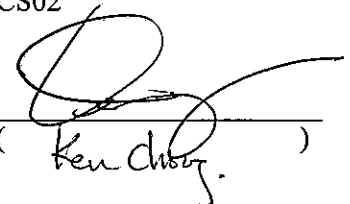
(Florence Yuen)

Environmental Manager



(ANDY Leung)

Contractor's
Representative
CS02



(Ken Cheung)

APPENDIX C

SUMMARY OF WASTE GENERATED

W. Hing Construction Co., Ltd.

Ocean Park Redevelopment Project Contract No. CS02 - Rainforest

Monthly Summary Waste Flow Table

| Month | Actual Quantities of Inert C&D Materials Generated | | Non-inert C&D Waste disposed to Sorting Facilities at Tseung Kwan O | Non-inert C&D Waste disposed to SENT Landfill | Chemical Waste disposed to Chemical Waste Treatment Facility at Tsing Yi | Recycle Metals | Packaging and other general refuse (e.g. Plastic, paper wrapping etc.) |
|------------|--|---|--|---|--|----------------|---|
| | Disposed to Fill Bank at Tseung Kwan O | Disposed to Public Fill Barging Point at Quarry Bay / Chai Wan * | | | | | |
| | (in tonnes) | (in tonnes) | | | | | |
| May-09 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Jun-09 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Jul-09 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Aug-09 | N/A | 10.1 | N/A | 23.74 | N/A | N/A | N/A |
| Sep-09 | N/A | 152.3 | N/A | 9.27 | N/A | N/A | N/A |
| Oct-09 | N/A | 256.09 | N/A | 20.55 | N/A | N/A | N/A |
| Nov-09 | | | | | | | |
| Dec-09 | | | | | | | |
| Sub-total: | 0 | 418.49 | 0 | 53.56 | 0 | 0 | 0 |

APPENDIX D

ENVIRONMENTAL MITIGATION IMPLEMENTATION SCHEDULE (EMIS)

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

90

| Types of Impacts | Mitigation Measures | Status |
|-------------------|--|---|
| Construction Dust | <ul style="list-style-type: none"> ◆ Use of regular watering, with complete coverage, to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. ◆ Use of frequent watering for particularly dusty construction areas, temporary stockpiles and areas close to ASRs. ◆ Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. ◆ Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. ◆ Restricting heights from which materials are dropped, as far as practicable to minimize the fugitive dust arising from unloading/loading. ◆ Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. ◆ Use of vehicle wheel and body washing facilities at the exit points of the site. ◆ Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading points, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. ◆ Imposition of speed controls for vehicles on unpaved site roads. Ten kilometers per hour is the recommended limit. ◆ Dusty activities should be re-scheduled if high-wind conditions are encountered. ◆ Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs. ◆ Suitable buffer zone should be provided and the works areas should be fenced off with hoarding. The height of hoarding should not be less than 2.4m from ground level. | <p>C</p> <p>C</p> <p>N/A</p> <p>R</p> <p>C</p> <p>C</p> <p>C</p> <p>R</p> <p>C</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> |
| | <p><i>Crushing Plant</i></p> <ul style="list-style-type: none"> ◆ Water sprays on the crusher. • ◆ Fabric filters installed for the crushing plant. • ◆ When transferring materials from crusher to the conveyors, chutes or dust curtains would be used for controlling dust. | <p>N/A</p> <p>N/A</p> <p>N/A</p> |

Remarks:

| | | | | | |
|---|--|----|---|-----|----------------|
| C | Compliance of mitigation measure | NC | Non-compliance of mitigation measure | N/A | Not Applicable |
| * | Non-compliance but rectified by the contractor | R | Recommendation was made during site audit but improved/rectified by the contractor. | | |

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|--------------------|--|---|
| Construction Dust | <p><i>Barging Point & Conveyor Belt System</i></p> <ul style="list-style-type: none"> ◆ The conveyors would be placed within a totally enclosed structure • ◆ Profiled steel cladding would be provided at two sides of loading point. • ◆ Dust suppression sprays would be installed and operated in strategic locations at the feeding inlet and outlet. ◆ The barging point would be placed within a totally enclosed structure incorporating an enclosed chute for material transfer to the barge. Flexible curtain would be hanged on the enclosed chute prevent dust emission when excavated materials/rocks transported into the barge. ◆ Some areas of the Park would remain open for visitors during the construction period. Therefore, suitable buffer zones from major construction activities should be provided where practical and the works areas should be fenced off with hoarding during the construction phase. It is recommended to erect hoarding of a height not less than 2.4m from ground level. | <p>N/A N/A N/A N/A</p> <p>C</p> |
| Construction Noise | <p><i>Construction Phase</i></p> <ul style="list-style-type: none"> ◆ Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme ◆ Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction programme ◆ Mobile plant, if any, should be sited as far from NSRs as possible. ◆ Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum ◆ Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs ◆ Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities | <p>C C C C C N/A</p> |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|--------------------|--|------------------------------|
| Construction Noise | <p><i>Adoption of Quieter Plant</i></p> <ul style="list-style-type: none"> ◆ In order to reduce the excessive noise impacts at the affected NSRs at the Waterfront during normal daytime working hours, quieter plants are recommended. The Contractors do not have to use specific items of quiet plant adopted in this assessment. The Contractors may use other type of quiet plant, which have the same total SWL, to meet their needs | C |
| | <p><i>Use of Movable Noise Barrier</i></p> <ul style="list-style-type: none"> ◆ The use of movable barrier for certain PME could further alleviate the construction noise impacts. In general, 5dB (A) reduction for movable PME and 10dB (A) for stationary PME can be achieved depending on the actual design of movable noise barrier. ◆ The Contractor should be responsible for designing of the movable noise barrier with due consideration given to the size of the PME and the requirement of intercepting the line of sight between the NSRs and PME. Barrier material of surface mass in excess of 7kg/m² is recommended to achieve the predicted screening effect. ◆ Exceedance of up to 5dB (A) would be predicted at the OPC Guest Route during the examination periods. Early liaison with the OPC of this impacted area is recommended to plan for the construction programme. Noisy construction activities should be avoided during the examination period as far as practicable so as to reduce the potential noise impact at the area to comply with the noise criterion of 65dB(A). | <p>C</p> <p>C</p> <p>N/A</p> |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|------------------|--|---|
| Ecology | <p><i>Construction Phase</i></p> <ul style="list-style-type: none"> ◆ All excavation works carried out close to water bodies shall be carefully controlled to avoid runoff entering watercourses, especially during periods of heavy rain. ◆ Site runoff shall be directed towards regularly cleaned and maintained silt traps and where appropriate, oil/grease separators to minimize risk of sedimentation and pollution. ◆ Suitable size / capacity silt traps and oil/grease interceptors shall be used. ◆ Noise mitigation measures including the use of quiet construction plant and movable noise barriers shall be implemented to minimize disturbance to habitats adjacent to the work areas. ◆ Trees located within the works areas shall be preserved as far as practicable. ◆ Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats ◆ Construction activities shall be restricted to the work areas that would be clearly demarcated ◆ The work areas shall be reinstated immediately after completion of the works ◆ Waste skips shall be provided to collect general refuse and construction wastes. The wastes would be disposed of timely and properly off-site. ◆ Drainage arrangements shall include sediment traps to collect and control construction run-off ◆ Open burning on works sites is illegal, and shall be strictly enforced ◆ Landscaping works on newly formed land shall as far as possible make use of native plant species | <p>C</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>C</p> <p>C</p> <p>C</p> <p>C</p> <p>N/A</p> <p>C</p> <p>C</p> <p>C</p> |

Remarks:

| | | | | | |
|---|--|----|---|-----|----------------|
| C | Compliance of mitigation measure | NC | Non-compliance of mitigation measure | N/A | Not Applicable |
| * | Non-compliance but rectified by the contractor | R | Recommendation was made during site audit but improved/rectified by the contractor. | | |

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|------------------|---|--------|
| Water Quality | <i>Construction Runoff and Drainage</i> | |
| | ◆ Before commencing any site formation work, all sewer and drainage connections should be sealed to prevent debris, soil, sand etc. from entering public sewers/drains | C |
| | ◆ Temporary ditches should be provided to facilitate run-off discharge into appropriate watercourses, via appropriately sized/ designed silt retention pond or similar structure. No site run-off should enter artificial ponds. Cut-off ditches should be provided for all major site clearance/ excavation works where soils would be exposed so that instances of uncontrolled run-off from exposed areas would be minimized. As well as channels, earth/ concrete bunds and/ or sand bags, as appropriate, should be deployed to direct surface run-off towards channels. Catchpits and perimeter channels should be constructed in advance of relevant site formation works. | C |
| | ◆ Boundaries of earthworks should be marked and surrounded by dykes or embankments for flood protection, as necessary. | C |
| | ◆ Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the Water Pollution Control Ordinance. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94. All drainage facilities and erosion and sediment control structures should be inspected monthly and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. | C |
| | ◆ Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. | C |
| | ◆ Exposed soil surfaces should be covered. | C |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|------------------|---|--|
| Water Quality | <ul style="list-style-type: none"> Water pumped out from foundation excavations should be discharged into silt removal facilities. If excavation cannot be avoided during rainy seasons, temporarily exposed slope/soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interception channels should be provided (e.g. along the crest/ edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm.. Other measures that need to be implemented before, during and after rainstorms are summarized in ProPECC PN 1/94. Exposed soil areas should be minimized to reduce potential for increased siltation and contamination of runoff. Earthwork final surfaces should be well compacted and subsequent permanent work or surface protection should be immediately performed. Appropriate intercepting channels should be provided where necessary. Rainwater pumped out from trenches or excavations should be directed to silt removal facilities before discharge Open stockpiles of construction materials or construction wastes on-site of more than 50m3 should be covered with tarpaulin or similar fabric during rainstorms | <p>C</p> <p>C</p> <p>C</p> <p>C</p> <p>C</p> |
| | <p><i>General Construction Activities</i></p> <ul style="list-style-type: none"> Debris and refuse generated on-site should be collected Oils and fuels should only be used and stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to nearby water bodies and public drains | <p>R</p> <p>C</p> |
| | <p><i>Sewage from Construction Workforce</i></p> <ul style="list-style-type: none"> Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities | <p>C</p> |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|------------------|--|--|
| Waste / Chemical | <p><i>Good Site Practice</i></p> <ul style="list-style-type: none"> ◆ nomination of an approved personnel, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site ◆ regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors ◆ training of site personnel in proper waste management and chemical handling procedures ◆ provision of sufficient waste disposal points and regular collection for disposal ◆ appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers | <p>C</p> <p>N/A</p> <p>C</p> <p>R</p> <p>C</p> |
| | <p><i>Waste Reduction Measures</i></p> <ul style="list-style-type: none"> ◆ sort C&D waste from demolition and decommissioning of the existing facilities to recover recyclable portions such as metals ◆ segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. ◆ proper storage and site practices to minimise the potential for damage or contamination of construction materials ◆ to encourage collection of aluminium cans by individual collectors, separate labelled bins shall be provided to segregate this waste from other general refuse generated by the work force. ◆ plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste. | <p>C</p> <p>C</p> <p>C</p> <p>C</p> <p>C</p> |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX D - Summary of Environmental Mitigation Implementation Schedule

| Types of Impacts | Mitigation Measures | Status |
|------------------|--|--------|
| Waste / Chemical | <i>General Refuse</i> | R |
| | <ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. | |
| | <i>Construction and Demolition Material</i> | C |
| | <ul style="list-style-type: none"> A Waste Management Plan should be prepared. In order to monitor the disposal of C&D and solid wastes at public filling facilities and landfills and to control fly-tipping, a trip-ticket system should be included. One may make reference to ETWB TCW No.31/2004 for details. A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be proposed. | C |
| | <i>Chemical Waste</i> | C |
| | <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation | |

Remarks:

C Compliance of mitigation measure

* Non-compliance but rectified by the contractor

NC Non-compliance of mitigation measure

R Recommendation was made during site audit but improved/rectified by the contractor.

N/A Not Applicable

APPENDIX E
EVENT ACTION PLANS

APPENDIX E - Event and Action Plan for Construction Noise

| Event | Action | | |
|---------------------|--|---|--|
| | Contractor's ET | Contractor | PM |
| Action Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional noise monitoring to investigate the causes, if necessary 4. Report the investigation results to Contractor and PM 5. Discuss with Contractor for their formulation of remedial measures if the exceedance is related to construction works 6. Conduct additional monitoring to check mitigation effectiveness, if necessary | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit noise mitigation proposals to Contractor's ET and PM. 3. Implement noise mitigation proposals | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented |
| Limit Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional noise monitoring and analyse Contractor's working procedures to determine possible cause of exceedance, if necessary 4. Provide interim report to Contractor and PM on the causes and proposed action to be taken for the exceedances if exceedance is related to construction works 5. Assess effectiveness by additional monitoring and report Contractor and PM, if necessary 6. If exceedance stops, cease additional monitoring, if any | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance 2. Submit proposals for remedial actions to Contractor's ET, and Pm within 3 working days of notification 3. Implement the agreed proposals 4. Resubmit proposals if problem still not under control. 5. Stop the relevant portion of works as determined by the PM until the exceedance is abated | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to propose remedial measures for the analysed noise problem 4. Ensure remedial measures are properly implemented 5. 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 abated. |

APPENDIX E - Event and Action Plan for Air Quality

| Event | Action | | |
|---------------------|---|---|---|
| | Contractor's ET | Contractor | PM |
| Action Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional monitoring to investigate the causes, if necessary 4. Report the investigation results and if exceedance to Contractor and PM | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice. 2. Submit air mitigation proposal and PM for agreement if Contractor's ET indicated that exceedance is related to the construction works 3. Implement agreed proposal within a time scale agreed with PM | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to submit air mitigation proposal 4. Ensure remedial measures are properly implemented |
| Limit Level | <ol style="list-style-type: none"> 1. Identify source 2. Notify Contractor and PM 3. Conduct additional monitoring and investigate the causes, if necessary | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance and rectify any unacceptable practice 2. In consultation with the PM, submit air mitigation proposal to PM for agreement within 3 working days of notification if Contractor's ET indicated that exceedances are related to construction works 3. Implement agreed proposal within a time scale agreed with PM 4. Amend working methods if appropriate. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing 2. Notify Contractor 3. Require Contractor to submit air mitigation proposal 4. Ensure remedial measures are properly implemented |

APPENDIX F

TENTATIVE WORKS PROGRAMME

W. Hing Construction Co., Ltd.

Ocean Park Redevelopment Project Contract No.: CS02 – Rainforest

Outline Program

| | 2009 | | | | | | | |
|----------------------------|------|-----|-----|-----|------|-----|-----|-----|
| | May | Jun | Jul | Aug | Sept | Oct | Nov | Dec |
| | | | | | | | | |
| Funicular Plaza | | | | | | | | |
| Defect Rectification Works | | | | | | | | |
| | | | | | | | | |
| Exhibition House | | | | | | | | |
| Substructure | | | | | | | | |
| Superstructure | | | | | | | | |
| E&M works | | | | | | | | |
| Finishing Works | | | | | | | | |
| | | | | | | | | |
| External Area | | | | | | | | |
| Substructure | | | | | | | | |
| E&M works | | | | | | | | |
| External Finishing works | | | | | | | | |