The Hong Kong Jockey Club

Main Arena of the 2008 Olympic Equestrian Event

Quarterly EM&A Summary Report – February to April 2007

Final

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May 2007

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party



INDEPENDENT ENVIRONMENTAL CHECKER CHECK CERTIFICATE

Independent Environmental Checker for Main Arena of the 2008 Olympic Equestrian Event Quarterly EM&A Summary Report – February 2007 to April 2007 (Final)

We consirm having used reasonable skill and care in the preparation of the Quarterly EM&A Summary Report and we certify that we can verify the report.

Signed:

Independent Environmental Checker

H. J. Cochrane Director and IEC

8/6/07

Date:



Page 1 of 1

ARUP

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Executive Summary

This is the third quarterly environmental monitoring and audit (EM&A) report presenting the progress of environmental monitoring and audit works for the period between February and April 2007, including noise monitoring and landscape and visual audit. Noise was measured in terms of $L_{eq(30min)}$ with L_{10} and L_{90} measurements for reference. Environmental audit works included the weekly environmental audit and the bi-weekly landscape & visual monitoring and audit.

Noise measurements were conducted at three locations during the reporting period. The highest noise level of 64.4dB(A) was recorded at the roof of Chun Cheung Court, HKJC Staff Quarters (NM1) on 26 April 2006 while the lowest noise level of 55.5dB(A) was recorded at the podium outside Block 1 of Ravana Garden (NM3) on 22 February 2006.

There was no exceedance of noise A/L Level recorded during the reporting period.

A total of 7 landscape and visual monitoring and audits had been carried out in the reporting period by a Registered Landscape Architect (RLA). The RLA had the following observations:

Most transplanted and retained trees were generally in fair condition. Retained trees T673, T676
and T003 were unprotected and building materials were stockpiled under the tree canopy. The
Contractor was reminded to remove all material under the tree canopy and install proper tree
protection fencing. Some of the trees such as T678 and T679 were damaged during construction
work. The Contractor was reminded to erect protective fencing around these trees.

A total of 6.96 tonnes of Construction & Demolition (C&D) waste and 2.02 tonnes of C&D materials were disposed of at Landfill and Public Fill Area respectively during the reporting period. No chemical waste was disposed of during the reporting period.

Six environmental complaints were received during the reporting period.

No exceedance of noise monitoring action/limit levels was recorded during the reporting period.

No notification of summon and prosecution was received during the reporting period.

Four Construction Noise Permits were granted during the reporting period.

1 Introduction

1.1 Project Background

Having considered the advantage of established international equine import and export protocols as well as the supporting facilities already in place, the International Olympic Committee (IOC) has accepted the Beijing Organising Committee for the Games of the 29th Olympiad (BOCOG)'s proposal of staging the 2008 Olympic and Paralympic Equestrian Events in Hong Kong.

Given the very tight schedule of the project, Hong Kong Sports Institute (HKSI) in Shatin will be temporarily converted into the core competition venues for the Olympic Equestrian Event. Facilities to be provided on the core venues include:

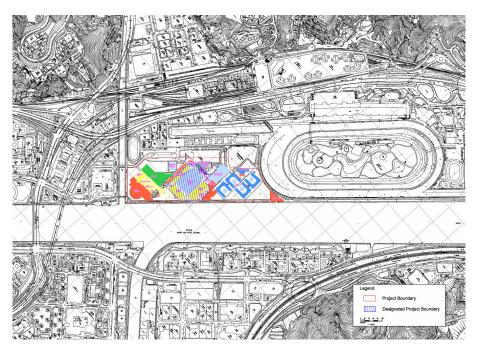
- Main Competition Arena for 20,000 spectators
- Stable Complex
- Training Arenas
- Logistic Compound
- Spectator Entry & Broadcast Compound
- Food & Merchandise

The venues will be in operation for approximately one month during the Olympic event, with the competition expected to last from between 10 to 14 days. 14 days after the Olympic Events, the Paralympic competition will be staged, which will last for a few days.

One year before the 2008 Olympic Event, the site will be occupied for the Test Event, which is used by all divisions of the Olympic Organising Committee to test their organisational capabilities for the Games and Event Management to trail the equine facilities and the footing (riding surface) of the Main Arena, Stables and Training Facilities. These mock up events are known as the 'Test Event Mode', and limited public access will be given.

Figure 1-1 shows the site location plan of the project.

Figure 1-1: Location plan of the project



The implementation of the Project is scheduled from July 2006 to December 2008. Table 1-1 gives the tentative project timetable and phasing.

Table 1-1: Timetable and phasing for the Project

Task	Start	Finish
Pre- Test Event Construction	July 2006	June 2007
Test Event	August 2007 (2 weeks)	
Post Test Event Construction	September 2007	June 2008
Olympic Event	August 2008 (2 weeks)	
Paralympic Event	September 2008 (1 week)	
Reinstatement of HKSI	October 2008	December 2008

The Main Arena of the 2008 Olympic Equestrian Event is classified as a Designated Project (DP) under item O7, Part 1, Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) – an outdoor sporting facility with a capacity to accommodate more than 10,000 persons.

In accordance with the requirements of Section 5(1) of the EIAO, a project profile (No. PP-266/2005) was submitted to Environmental Protection Department (EPD) for the application of an EIA Study Brief on 17 October 2005. Pursuant to Section 5(7)(a) of the EIAO, EPD issued to The Hong Kong Jockey Club (HKJC) a study brief (ref: EIA Study Brief No: ESB-136/2005 dated 7 November 2005) to carry out an EIA study.

The EIA Report for the Project (EIA-118/2005) was approved and an Environmental Permit (EP) (EP-236/2006) granted by EPD on 24th and 25th March 2006 respectively.

1.2 Project Organisation

The Project Proponent is the Hong Kong Jockey Club (HKJC); the Engineer's Representative (ER) is Ove Arup & Partners Hong Kong Ltd (Arup); the Contractor is China State Construction Engrg (HK) Ltd; the Independent Environmental Checker (IEC) is Meinhardt Infrastructure and Environment Ltd; the Environmental Team (ET) is Arup.

1.3 Scope of Impact EM&A

The impact environmental monitoring and audit for the Project included noise monitoring, landscape and visual audit, and environmental site audit.

1.4 Purpose of the Report

The purpose of this quarterly EM&A summary report is to provide information on monitoring methodology, monitoring results, environmental permit status, recommendations and conclusions of the EM&A of the project.

This is the third quarterly EM&A summary report prepared by Arup for the submission to the HKJC summarising the implementation of the EM&A programme from 1 February to 30 April 2007.

2 Scope of Construction Works

2.1 Construction Programme

The construction works was commenced on 15 August 2006. An up-to-date construction programme is attached in **Appendix A**.

2.2 Construction Activities of the Reporting Period

Major construction activities carried out by the Contractor between February and April 2007 include:

- Architectural Builder's Works and Finishes (ABWF) and Electrical and Mechanical (E&M) installation
- Drainage works
- · External water main works
- Excavation works
- Concreting works
- Pre-cast panel installation
- Installation of underground plumbing and Fire Services (FS) pipe
- Structural steel fabrication works and erection works
- Installation of underground chilled water pipe
- Installation of external water mains and F.S. pipework
- · Laying of aggregate
- Road paving

3 Summary of EM&A Requirements

3.1 Construction Noise

3.1.1 Monitoring Parameters

Construction noise is measured in terms of A-weighted equivalent continuous sound pressure level (L_{eq}). L_{10} and L_{90} were also recorded as supplementary reference information for data auditing.

3.1.2 Monitoring Frequency

Noise monitoring was performed on a weekly basis in accordance with the EM&A Manual. The monitoring time periods, parameters and frequency are summarised in Table 3-1.

Table 3-1: Construction noise monitoring parameters and frequency

Time Period (when construction activity is found)	Parameters	Monitoring Frequency	No. of Measurements for Each Monitoring
Between 0700-1900 hours on normal weekdays	Leq(30 min)		1
Between 1900-2300 hours on normal weekdays		Once per	
Between 2300-0700 hours of next day	L _{eq(5 min)} *	week	3 (consecutive)
Between 0700-1900 hours on holidays			

The L_{eq(6 min)} will only be measured if construction activities are conducted in holidays and between the period of 1900 and 0700 hours during normal weekdays.

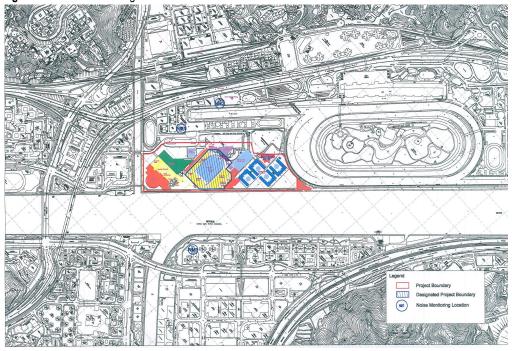
3.1.3 Monitoring Locations

A total of three locations were specified for the noise monitoring as shown in Table 3-2 and Figure 3-1. Measurements are conducted at a position 1.2m above ground and kept away from reflective surface.

Table 3-2: Construction noise monitoring locations

Monitoring Station ID	Location	Monitoring Point
NM1	Chung Cheung Court, HKJC Staff Quarters	On the roof, 1 meter from façade, facing the main works area
NM2	Racecourse Villa	On the roof, 1meter from façade, facing the main works area
NM3	Ravana Garden	On the podium outside Block 1, 1 meter from façade, facing the main works area.

Figure 3-1: Noise Monitoring Location



3.2 Landscape and Visual

3.2.1 Audit Parameters

All landscape and visual mitigation measures implemented by both the Contractor Team (CT) and the Landscape Contractor during the construction phase and the first year of the operational phase will be audited by a landscape auditor, to ensure compliance with the intended aims of the mitigation measures.

3.2.2 Audit Frequency

The landscape and visual monitoring and audit will be undertaken once every two weeks throughout the construction, operation and reinstatement phases.

3.2.3 Audit Location

The landscape and visual monitoring and audit will be conducted throughout the entire site area.

3.3 Performance Limits and Event-Action Plans

The monitoring results will be checked against appropriate standards and requirements. A two-tier system performance limits have been established in the Project specific EM&A Manual. The "Action Level" and the "Limit Level" (A/L) are established according to the EPD

requirements. The ET, ER, IEC, and CT will take corresponding action in accordance with the Event-Action Plans if the monitoring results exceed the performance limits.

3.3.1 Construction Noise

The A/L Levels for construction noise have been established in accordance with TM-EIAO as summarised in Table 3-3.

Table 3-3: Action and Limit Levels for construction noise

Time Period	Action Level	Limit Level
0700 – 1900 hours on any day not being a Sunday or public holiday	When one documented complaint is received	75 dB(A)

The action required to be taken by different parties in the case of occurrence of exceedance of A/L Levels are summarised in the Event and Action Plan in Table 3-4.

Table 3-4: Event and Action Plan for construction noise exceedance

Event	Action							
Event	ET Leader	IEC	ER	Contractor				
Action Level	Notify IEC, ER and the Contractor within 24 hours of identification of the exceedance. Carry out investigation. Report the results of investigation to IEC, ER and the Contractor. Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check mitigation measures.	Review with analysed results submitted by ET. Review the proposed remedial measures by the Contractor and advise ER accordingly. Supervise the implementatio n of remedial measures.	Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented.	Submit noise mitigation proposals to ER and IEC. Implement noise mitigation proposals.				
Limit Level	 Identify the source. Notify IEC, ER, EPD and the Contractor within 24 hours of identification of the exceedance. Repeat measurement to confirm findings. Increase monitoring frequency. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented. Inform IEC, ER, and EPD the causes & actions taken for the exceedances. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. If exceedance stops, cease additional monitoring Report the results of investigation to the IEC, EPD and ER. 	ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions	Confirm receipt of notification of exceedance in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC and ER within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.				

3.4 Site Inspection and Environmental Complaint Handling

3.4.1 Site Inspection

Site inspections provide a direct means to trigger and enforce the specified environmental protection and pollution control measures. They shall be undertaken routinely to inspect the construction activities to ensure appropriate environmental protection and pollution control/mitigation measures are properly implemented. With well-defined pollution control and mitigation specifications and a well-established site inspection, deficiency and action reporting system, site inspection is one of the most effective tools to enforce the environmental protection requirements on the construction site.

The ET Leader shall be responsible for formulating the environmental site inspection, deficiency and action reporting system, and carrying out the site inspection works. He shall submit a proposal on site inspection, deficiency and action reporting procedures within 21 days prior to construction commencement to the Contractor for approval by the ER and IEC.

Regular site inspections shall be carried out at least once per week. The areas of inspection shall not be limited to the environmental conditions, pollution control and mitigation measures within the site. It should also review the environmental condition outside the site area which is likely to be affected, directly or indirectly, by the site activities. The ET Leader shall make reference to the following information in conducting the inspection:

- the EIA recommendations on environmental protection and pollution control mitigation measures:
- works progress and programme;
- individual works methodology (which shall include proposal on associated pollution control measures);
- Contract Specifications on environmental protection;
- · relevant environmental protection and pollution control laws; and
- previous site inspection results.

The Contractor shall update ET Leader with all relevant information of the construction Contract for him to carry out the site inspections. The inspection results and its associated recommendations on improvements to the environmental protection and pollution control works shall be submitted to ER, IEC and the Contractor within 1 working day for reference and for taking immediate actions. The Contractor shall follow the procedures and time-frame as stipulated in the environmental site inspection, deficiency and action reporting system formulated by the ET Leader to report on any remedial measures subsequent to the site inspections.

Ad hoc site inspections shall also be carried out if significant environmental problems are identified. Inspections may also be required subsequent to receipt of an environmental complaint, or as part of the investigation work, as specified in the Action Plan for environmental monitoring and audit.

3.4.2 Environmental Complaints

Complaints shall be referred to the ET Leader for carrying out complaint investigation. The ET Leader shall undertake the following procedures upon receipt of the complaints:

- log complaint and date of receipt onto the complaint database;
- investigate the complaint to determine its validity, and to assess whether the source of the problem is due to works activities;
- identify mitigation measures if a complaint is valid and due to works;
- advise the Contractor accordingly if mitigation measures are required;

- review the Contractor's response on the identified mitigation measures and the updated situation:
- submit interim report to ER on status of the complaint investigation and follow-up action within the time frame assigned by the ER;
- undertake additional monitoring and audit to verify the situation if necessary, and review that any valid reason for complaint does not recur;
- report the investigation results and the subsequent actions to the source of complaint for responding to complainant (If the source of complaint is EPD, the results should be reported within the time frame assigned by EPD); and
- record the complaint, investigation, the subsequent actions and the results in the monthly EM&A reports.

The Contractor and the ER shall also be notified of the nature of complaints. An investigation shall be initiated to determine the validity of the complaint and to identify the source of the problem. As necessary, the ER shall undertake the following steps:

- Investigate and identify the source of the problem;
- Liaise with the ET and IEC to identify remedial measures;
- Require the Contractor to take action to mitigate the situation;
- Repeat monitoring to check compliance with Action and Limit level; and
- Repeat review procedures to identify further possible areas of improvement if monitoring results show exceedances.

The outcome of the investigation and the action taken shall be documented on the complaints proforma. Where possible, a formal response to each complaint received shall be prepared, within a maximum of seven days, so as to notify the concerned person(s) that action has been taken.

All enquires which trigger this process shall be reported in the monthly EM&A reports which shall include results of inspections undertaken by site staff, and details of the measures taken, and additional monitoring results. It should be noted that the receipt of complaints or enquiries will not, in itself be sufficient reason to introduce additional mitigation measures. They will however initiate the Event/Action Plan and these procedures may lead to the introduction of mitigation measures if they are considered necessary. In all cases the complainant shall be notified of the findings of the Event/Action Plan and audit procedures put in place to ensure that the problem does not recur.

During the complaint investigation work, the Contractor and ER shall cooperate with the ET Leader in providing all the necessary information and assistance for completion of the investigation. If mitigation measures are identified in the investigation, the Contractor shall promptly carry out the mitigation. The ER shall ensure that the measures have been carried out by the Contractor.

The Contractor should provide a manned hotline (tape recording is not acceptable) to serve as the community liaison channel to complaints, comments, suggestions or requests for information during the construction and reinstatement of the Project, so that action can be immediately taken to reduce the environmental nuisance in response to complaints raised by nearby residents or relayed from other Government Department.

3.5 Environmental Mitigation Measures

Environmental mitigation measures as recommended in the EIA report were stipulated in the EM&A Manual for the Contractor to adopt. A list of mitigation measures and their implementation status are given in **Appendix B**.

4 Noise Monitoring

4.1 Weather Conditions and Other Factors

No adverse weather conditions, in particular adverse wind speed & wind direction and fog & rain that may significantly affect or invalidate the collected noise monitoring data, were recorded during the reporting period.

Neither unusual operation of the construction site nor abnormal noise source was observed during the reporting period.

4.2 Summary of Results

A total of 13 sets of daytime (0700 - 1900 hours) noise monitoring was conducted during the reporting period.

The highest noise level of 64.4dB(A) was recorded at the roof of Chun Cheung Court, HKJC Staff Quarters (NM1) on 26 April 2006 while the lowest noise level of 55.5dB(A) was recorded at the podium outside Block 1 of Ravana Garden (NM3) on 22 February 2006. There was no exceedance of noise A/L Levels recorded during the reporting period.

Graphical presentation of the noise levels at each monitoring location is illustrated in Figure 5-1.

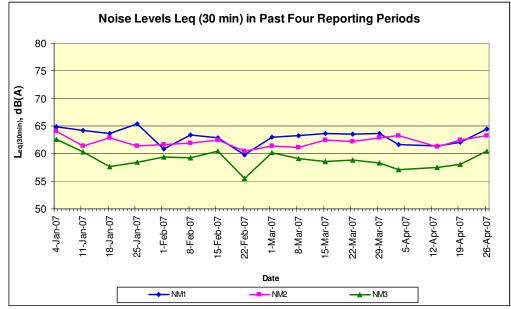


Figure 4-1: Graphical presentation of day-time noise levels in the past four reporting periods

5 Landscape and Visual Monitoring and Audit

A total of 7 landscape and visual monitoring and audits had been carried out in the reporting period by a Registered Landscape Architect (RLA). The RLA has recommended the following:

 Most transplanted and retained trees were generally in fair condition. Retained trees T673, T676 and T003 were unprotected and building materials were stockpiled under the tree canopy. The Contractor was reminded to remove all material under the tree canopy and install proper tree protection fencing. Some of the trees such as T678 and T679 were damaged during construction work. The Contractor was reminded to erect protective fencing around these trees.

6 Quarterly Summary of Waste Disposal, Environmental Complaints, Environmental Licenses and Non-compliance Records

6.1 Waste Disposal

Disposal of waste material during the reporting period generally complied with the corresponding waste disposal requirements. The waste disposal quantity during the reporting period is summarised in Table 6-1.

Table 6-1: Waste disposal quantity between February and April 2007

Type of waste or material		Disposal at	No. of loads or quantities
C&D waste SI		SENT Landfill	6.96 tonnes
C&D material		Public Filling Area in TKO 137	2.02 tonnes
Chemical waste	Spent lube oil	Collected by licensed collector	0 L

6.2 Complaint Record

Six environmental complaints were received during the reporting period.

An environmental complaint on discharge of muddy water was received on 2 April 2007. An additional water pump was installed at the last manhole to collect as much muddy water as possible during rainfall to the on-site treatment facility. EPD was notified of the investigation result and action taken on 3 April 2007.

A complaint on dust and night time construction noise from construction site at HKSI was received on 2 April 2007. The Contractor checked that no construction activity was scheduled during the concerned period. Rectification actions taken included more frequent haul road watering and covering material with tarpaulin sheets. EPD was informed of the investigation result and action taken on 2 April 2007.

A complaint on public holiday construction noise and muddy water in Shing Mun River near the construction site at Yuen Wo Road was received on 10 April 2007. Investigation result suggested that on the concerned day overflowing of site drainage did not occur and only internal finishing works was arranged, which did not lead to excessive noise. The complaint was not substantiated. EPD inspected the site on 10 April and had no further comment.

A complaint on construction dust from construction site at HKSI was received on 17 April 2007. Rectification action taken by the Contractor included more frequent haul road watering and covering dusty material with tarpaulin sheets. EPD was replied on 19 and 22 April 2007.

A complaint on polluted effluent discharged from the construction site at HKSI was received on 18 April 2007. The Contractor then installed more pumps at the last manhole to direct surface runoff during rainfall. EPD conducted on-site checking on the same day and observed that the muddy water was caused by the tide washing over the river sediment.

A complaint on muddy water from construction site at HKSI was received on 25 April 2007. Muddy water was observed at the outfall during site investigation but the source of which could not be traced. The Contractor would keep tracing the source of pollutant. EPD was replied on 27 and 29 April 2007 by email.

A log record on the environmental complaint is given in **Appendix C**.

6.3 Summary of Exceedance

There were no exceedances for noise monitoring during the reporting period.

6.4 Notification of Summons and Successful Prosecution

No notification of summon and prosecution was received during the reporting period.

6.5 Environmental Licenses

Four new Construction Noise Permits (CNP) were granted in the reporting period. A summary of the valid environmental licenses is given in Table 6-2.

Table 6-2: Summary of valid environmental licenses

Type of Licence	Reference No.	Valid from	Valid to	Remarks
Environmental Permit	EP-236/2006	25 March 2006		-
Construction Noise Permit	GW-RN0014-07	26 January 2007	25 July 2007	Excavation works
Construction Noise Permit	GW-RN0033-07	2 February 2007	8 May 2007	Pipe laying
Construction Noise Permit	GW-RN0067-07	1 March 2007	31 August 2007	Road paving
Construction Noise Permit	GW-RN0088-07	6 March 2007	5 September 2007	Cable laying
Construction Noise Permit	GW-RN0125-07	6 April 2007	5 October 2007	General earth and MS finishing works
Registration of Waste Producer	WPN: 5213- 753-C3317-11	1 Nov 2006		-
Site Effluent Discharge Licence	Licence No: 3448	1 Nov 2006	30 Nov 2011	-

6.6 EPD's Inspection

An Inspection Report ("pink form") was issued by EPD to the Contractor on 18 April regarding dust emission from construction site and construction works not being carried out in accordance with the requirements of Air Pollution Control (Construction Dust) Regulation for the control of dust emission.

The cause of the non-compliance was dust emission due to movement of an excavator without dust suppression measures.

Corrective actions taken by the Contractor included immediate suspension of the movement of the excavator and provision of water spraying.

Preventive actions taken by the Contractor included issuance of a warning letter to the concerned subcontractor, issuance of a site memo to all subcontractors requiring the enhancement of dust suppression works on site and convening an internal meeting requiring all frontline staff to monitor the sufficiency of dust suppression works.

6.7 Contacts and Hotline

Contractor: China State Construction Engrg (HK) Ltd

Contact Person: Michael Tsang Contact Number: 9277 4956

7 Comments, Recommendations and Conclusion

7.1 Comments and Recommendations

Construction activities have been carried out in accordance with the EIA Report and EP requirements. Mitigation measures being implemented on site were effective in general. Upon advised by the ET, remedial measures had been taken to mitigate the environmental impacts caused by the construction activities. The environmental performance of the Contractor during the reporting period was in general satisfactory. According to the environmental site inspections performed during the reporting period, the following recommendations were provided:

- Fugitive dust was observed arising from panel cutting. Contractor was reminded to provide water spraying during dusty works;
- Wheel washing facility should be maintained properly;
- The door of air compressor should remain closed during its operation;
- Stagnant water should be cleared regularly;
- Water should be sprayed regularly on unpaved areas; and
- General refuse in stables should be cleared regularly.

The monitoring work in the past reporting period of the project is proving effective and the monitoring data confirmed that the works complied with the corresponding environmental standards.

The environmental monitoring methodologies and procedures were regularly reviewed by the ET. No modification to the existing EM&A programme was recommended.

7.2 Conclusion

Construction phase impact monitoring and audit was conducted in the reporting period. Monitoring and audit programme included construction noise monitoring, landscape and visual monitoring and audit, and weekly site inspection.

Daytime noise levels were monitored at 3 monitoring locations during the reporting period. No exceedance of Limit Level was recorded.

Weekly site inspections were conducted in the reporting period. Some mitigation measures were still being set up. Remedial measures were advised for those deficiencies observed for the Contractor to follow up.

Four Construction Noise Permits were obtained in the reporting period.

Six environmental complaints were received during the reporting period.

There was neither notification of summons nor prosecution received during the reporting period.

Appendix A Construction Programme

ID	Task Name	Duration	Early Start	Early Finish	uary February March April May Jun- 1/8 /15 /22 /29 2/5 /12 /19 /26 3/5 /12 /19 /26 4/2 4/9 /16 /23 /30 5/7 /14 /21 /28 6/4
1	Portion HKSI-1	57 days	Jan 9 '07	Mar 22 '07	
2	Works in Veterinary Stable	57 days	Jan 9 '07	Mar 22 '07	7
3	Building Envelope / External Finishes	25 days	Jan 9 '07	Feb 6 '07	7
4	Structural Steel Installation	6 days	Jan 17 '07	Jan 23 '07	7
5	1/F area structural steel installation	4 days	Jan 17 '07	Jan 20 '07	7
6	Office and General examination area	4 days	Jan 19 '07	Jan 23 '07	7
7	Roof Cladding and Gutter Installation	18 days	Jan 17 '07	Feb 6 '07	7
8	Plant Rooms area - upper roof	2 days	Jan 17 '07	Jan 18 '07	7 🛌
9	Plant Rooms area - lower roof + gutter	6 days	Jan 19 '07	Jan 25 '07	7 🕌
10	Horse stalls area - upper roof	6 days	Jan 17 '07	Jan 23 '07	7
11	Horse stalls area - lower roof	12 days	Jan 17 '07	Jan 30 '07	7
12	1/F AC Plant Room	6 days	Jan 31 '07	Feb 6 '07	7
13	Granite Stone Installation	8 days	Jan 17 '07	Jan 25 '07	7
14	1/F Plant Rooms area external	4 days	Jan 17 '07	Jan 20 '07	7
15	Tx room external	4 days	Jan 22 '07	Jan 25 '07	7
16	Stainless Steel Louver	12 days	Jan 17 '07	Jan 30 '07	7
17	Plant Rooms area	6 days	Jan 17 '07	Jan 23 '07	7
18	Horse stalls area	6 days	Jan 24 '07	Jan 30 '07	7
19	Precast Panel Installation	10 days	Jan 17 '07	Jan 27 '07	7
20	Plant rooms areas	4 days	Jan 17 '07	Jan 20 '07	7 _
21	Horse stalls area	6 days	Jan 17 '07	Jan 23 '07	7
22	Office and general examination area	4 days	Jan 24 '07	Jan 27 '07	7
23	Metal Louvers	18 days	Jan 9 '07	Jan 29 '07	7
24	Remedial works at Tx Room	12 days	Jan 9 '07	Jan 22 '07	7
25	Remedial works at Gen Set Room	6 days	Jan 23 '07	Jan 29 '07	7
26	Internal ABWF and E&M Installation	56 days	Jan 10 '07	Mar 22 '07	7
27	Transformer Room	14 days	Jan 16 '07	Jan 31 '07	7
28	Wall tiles (RC Wall)	2 days	Jan 17 '07	Jan 18 '07	7
29	Promat board to metal louver/metal door	2 days	Jan 23 '07	Jan 24 '07	7
30	E&M Access to COMEEL	11 days	Jan 16 '07	Jan 27 '07	7 116
31	E&M Installation	10 days	Jan 16 '07	Jan 26 '07	7 Lymn 1
32	E&M Final Fix + T&C	4 days	Jan 27 '07	Jan 31 '07	7
33	Promat board blank off to stainless steel louver	2 days	Jan 24 '07	Jan 25 '07	7
34	Structural steel bracing	2 days	Jan 22 '07	Jan 23 '07	7
35	Promat board ceiling installation	2 days	Jan 24 '07	Jan 25 '07	7
36	Painting works (ceiling)	2 days	Jan 26 '07	Jan 27 '07	7
37	Epoxy floor painting	2 days	Jan 29 '07	Jan 30 '07	7
38	Cable trench cover installation	1 day	Jan 31 '07	Jan 31 '07	
		Task			Milestone
	onths Rolling Programme_MP06	Split			Summary External Milestone
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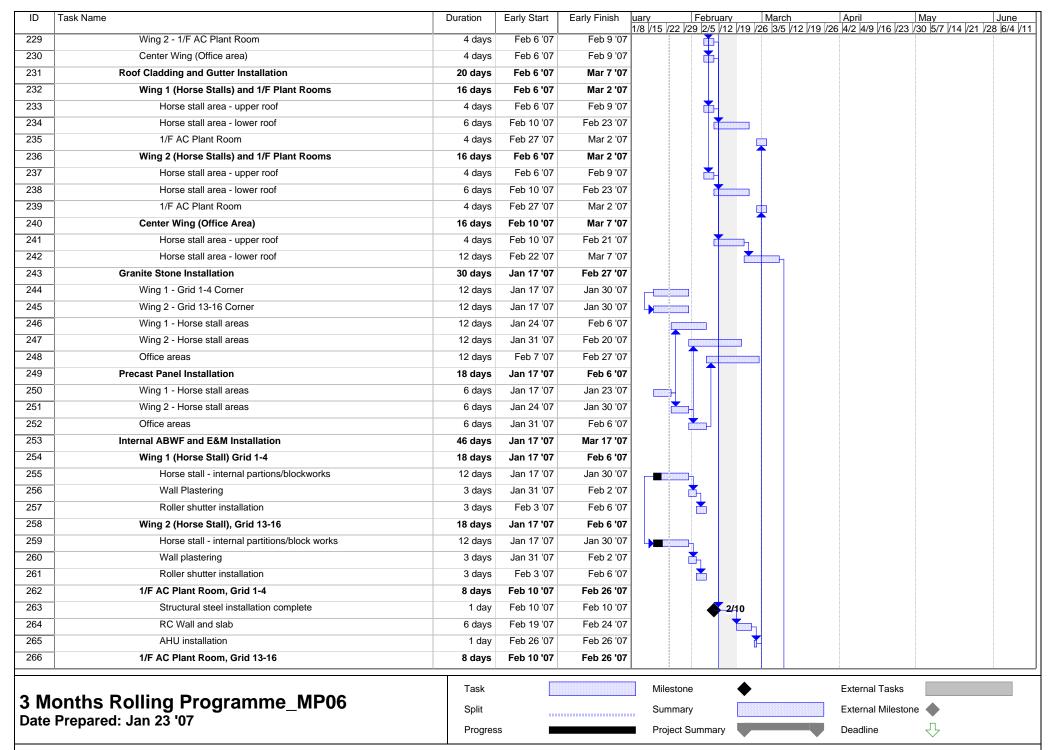
ID	Task Name	Duration	Early Start	Early Finish	Uary February March April May June 1/8 /15 /22 /29 2/5 /12 /19 /26 3/5 /12 /19 /26 4/2 4/9 /16 /23 /30 5/7 /14 /21 /28 6/4 /1
39	CLP Installation at Transformer Room	56 days	Jan 10 '07	Mar 22 '07	
40	Pre inspection	1 day	Jan 10 '07	Jan 10 '07	7 1/10 -
41	Handover Inspection	1 day	Feb 1 '07	Feb 1 '07	2/1
42	CLP Installation	36 days	Feb 1 '07	Mar 21 '07	
43	Power On	1 day	Mar 22 '07	Mar 22 '07	3/22
44	New Switch Room/FS Tank/ Fuel Tank room	18 days	Jan 23 '07	Feb 19 '07	7 Y
45	Wall tiles (RC Wall)	2 days	Jan 23 '07	Jan 24 '07	
46	Promat board to metal louver/metal door	2 days	Jan 30 '07	Jan 31 '07	
47	Painting to wall	1 day	Feb 1 '07	Feb 1 '07	
48	E&M Access to COMEEL	1 day	Jan 26 '07	Jan 26 '07	7 1/26
49	E&M Installation	11 days	Jan 26 '07	Feb 7 '07	
50	E&M Final Fix + T&C	4 days	Feb 8 '07	Feb 19 '07	7
51	Promat board blank off to stainless steel louver	2 days	Jan 24 '07	Jan 25 '07	
52	Structural steel bracing at roof	2 days	Jan 24 '07	Jan 25 '07	
53	Promat board ceiling installation	2 days	Jan 26 '07	Jan 27 '07	
54	Painting works (ceiling)	2 days	Jan 29 '07	Jan 30 '07	
55	Epoxy floor painting	2 days	Jan 31 '07	Feb 1 '07	
56	Cable trench cover installation	1 day	Feb 2 '07	Feb 2 '07	
57	Feed Tack, Wash Bay, Changing Rm, Lavatory Areas	12 days	Jan 17 '07	Jan 30 '07	
58	Internal block works	10 days	Jan 17 '07	Jan 27 '07	
59	Plastering	10 days	Jan 19 '07	Jan 30 '07	
60	1/F AC Plant Room	8 days	Jan 22 '07	Jan 30 '07	
61	Structural steel installation complete	1 day	Jan 22 '07	Jan 22 '07	7 1/22
62	RC Wall and slab	6 days	Jan 23 '07	Jan 29 '07	
63	AHU installation	1 day	Jan 30 '07	Jan 30 '07	7 1/30
64	Works in Main Stable No.1	33 days	Jan 17 '07	Mar 2 '07	
65	RC Works	8 days	Jan 30 '07	Feb 7 '07	
66	Sand rolls wall construction	8 days	Jan 30 '07	Feb 7 '07	
67	Building Envelope / External Finishes	33 days	Jan 17 '07	Mar 2 '07	7
68	Structural Steel Installation	7 days	Jan 17 '07	Jan 24 '07	
69	Wing 1 - 1/F AC Plant Room	5 days	Jan 17 '07	Jan 22 '07	7
70	Wing 2 - 1/F AC Plant Room	7 days	Jan 17 '07	Jan 24 '07	7
71	Center Wing (Office area)	6 days	Jan 17 '07	Jan 23 '07	
72	Roof Cladding and Gutter Installation	19 days	Jan 17 '07	Feb 7 '07	
73	Wing 1 (Horse Stalls) and 1/F Plant Rooms	17 days	Jan 17 '07	Feb 5 '07	
74	Horse stall area - upper roof	9 days	Jan 17 '07	Jan 26 '07	
75	Horse stall area - lower roof	9 days	Jan 17 '07	Jan 26 '07	
76	1/F AC Plant Room	4 days	Feb 1 '07	Feb 5 '07	
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ID	Task Name	Duration	Early Start		Luary February March April May June 1/8 1/5 22 29 2/5 1/2 1/9 26 3/5 1/2 1/9 26 4/2 4/9 1/6 23 30 5/7 1/4 21 28 6/4 1/1 20 20 20 20 20 20 20 2
77	Wing 2 (Horse Stalls) and 1/F Plant Rooms	10 days	Jan 27 '07	Feb 7 '07	
78	Horse stall area - upper roof	6 days	Jan 27 '07	Feb 2 '07	
79	Horse stall area - lower roof	6 days	Jan 31 '07	Feb 6 '07	
80	1/F AC Plant Room	4 days	Feb 3 '07	Feb 7 '07	
81	Center Wing (Office Area)	6 days	Jan 24 '07	Jan 30 '07	
82	Horse stall area - upper roof	4 days	Jan 24 '07	Jan 27 '07	
83	Horse stall area - lower roof	4 days	Jan 26 '07	Jan 30 '07	
84	Granite Stone Installation	33 days	Jan 17 '07	Mar 2 '07	
85	Wing 1 - Grid 1-4 Corner	12 days	Jan 17 '07	Jan 30 '07	
86	Wing 2 - Grid 13-16 Corner	12 days	Jan 17 '07	Jan 30 '07	
87	Wing 1 - Horse stall areas	12 days	Jan 27 '07	Feb 9 '07	
88	Wing 2 - Horse stall areas	12 days	Feb 3 '07	Feb 23 '07	
89	Office areas	12 days	Feb 10 '07	Mar 2 '07	
90	Precast Panel Installation	21 days	Jan 17 '07	Feb 9 '07	
91	Wing 1 - Horse stall areas	9 days	Jan 17 '07	Jan 26 '07	
92	Wing 2 - Horse stall areas	6 days	Jan 27 '07	Feb 2 '07	
93	Office areas	6 days	Feb 3 '07	Feb 9 '07	
94	Internal ABWF and E&M Installation	15 days	Jan 17 '07	Feb 2 '07	
95	Wing 1 (Horse Stall) Grid 1-4	9 days	Jan 17 '07	Jan 26 '07	
96	Horse stall - internal partions/blockworks	6 days	Jan 17 '07	Jan 23 '07	
97	Wall Plastering	3 days	Jan 24 '07	Jan 26 '07	
98	Roller shutter installation	3 days	Jan 20 '07	Jan 23 '07	
99	Wing 2 (Horse Stall), Grid 13-16	12 days	Jan 17 '07	Jan 30 '07	
100	Horse stall - internal partitions/block works	6 days	Jan 17 '07	Jan 23 '07	
101	Wall plastering	3 days	Jan 24 '07	Jan 26 '07	
102	Roller shutter installation	3 days	Jan 27 '07	Jan 30 '07	
103	1/F AC Plant Room, Grid 1-4	8 days	Jan 23 '07	Jan 31 '07	
104	Structural steel installation complete	1 day	Jan 23 '07	Jan 23 '07	1/23
105	RC Wall and slab	6 days	Jan 24 '07	Jan 30 '07	
106	AHU installation	1 day	Jan 31 '07	Jan 31 '07	
107	1/F AC Plant Room, Grid 13-16	8 days	Jan 25 '07	Feb 2 '07	
108	Structural steel installation complete	1 day	Jan 25 '07	Jan 25 '07	1/25
109	RC Wall and slab	6 days	Jan 26 '07	Feb 1 '07	
110	AHU installation	1 day	Feb 2 '07	Feb 2 '07	
111	Center Wing - Office Areas	15 days	Jan 17 '07	Feb 2 '07	
112	Internal partions/blockworks	12 days	Jan 17 '07	Jan 30 '07	- -
113	Wall Plastering	3 days	Jan 31 '07	Feb 2 '07	
114	Works in Main Stable No.2	26 days	Jan 17 '07	Feb 22 '07	
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ID	Task Name	Duration	Early Start	Early Finish	Uary February March April May Jun 1/8 /15 /22 /29 2/5 /12 /19 /26 3/5 /12 /19 /26 4/2 4/9 /16 /23 /30 5/7 /14 /21 /28 6/4
115	RC Works	6 days	Jan 26 '07	Feb 1 '07	
116	Sand rolls wall construction	6 days	Jan 26 '07	Feb 1 '07	7
117	Building Envelope / External Finishes	26 days	Jan 17 '07	Feb 22 '07	7
118	Structural Steel Installation	12 days	Jan 17 '07	Jan 30 '07	7
119	Wing 1 - Horse stall areas	9 days	Jan 17 '07	Jan 26 '07	7
120	Wing 2 - Horse stalls areas	9 days	Jan 17 '07	Jan 26 '07	7
121	Wing 1 - 1/F AC Plant Room	9 days	Jan 20 '07	Jan 30 '07	7
122	Wing 2 - 1/F AC Plant Room	9 days	Jan 20 '07	Jan 30 '07	7
123	Center Wing (Office area)	5 days	Jan 23 '07	Jan 27 '07	7
124	Roof Cladding and Gutter Installation	21 days	Jan 20 '07	Feb 20 '07	7
125	Wing 1 (Horse Stalls) and 1/F Plant Rooms	21 days	Jan 20 '07	Feb 20 '07	7
126	Horse stall area - upper roof	4 days	Jan 27 '07	Jan 31 '07	7
127	Horse stall area - lower roof	10 days	Jan 20 '07	Jan 31 '07	7
128	1/F AC Plant Room	4 days	Feb 9 '07	Feb 20 '07	7
129	Wing 2 (Horse Stalls) and 1/F Plant Rooms	21 days	Jan 20 '07	Feb 20 '07	7
130	Horse stall area - upper roof	4 days	Jan 27 '07	Jan 31 '07	7
131	Horse stall area - lower roof	10 days	Jan 20 '07	Jan 31 '07	7
132	1/F AC Plant Room	4 days	Feb 9 '07	Feb 20 '07	7
133	Center Wing (Office Area)	8 days	Jan 29 '07	Feb 6 '07	7
134	Horse stall area - upper roof	4 days	Jan 29 '07	Feb 1 '07	7
135	Horse stall area - lower roof	4 days	Feb 2 '07	Feb 6 '07	7
136	Granite Stone Installation	26 days	Jan 17 '07	Feb 22 '07	7
137	Wing 1 - Grid 1-4 Corner	12 days	Jan 17 '07	Jan 30 '07	7
138	Wing 2 - Grid 13-16 Corner	12 days	Jan 17 '07	Jan 30 '07	7 4
139	Wing 1 - Horse stall areas	12 days	Jan 24 '07	Feb 6 '07	7
140	Wing 2 - Horse stall areas	12 days	Jan 26 '07	Feb 8 '07	7
141	Office areas	12 days	Feb 2 '07	Feb 22 '07	7
142	Precast Panel Installation	14 days	Jan 17 '07	Feb 1 '07	7
143	Wing 1 - Horse stall areas	6 days	Jan 17 '07	Jan 23 '07	7
144	Wing 2 - Horse stall areas	6 days	Jan 19 '07	Jan 25 '07	7
145	Office areas	6 days	Jan 26 '07	Feb 1 '07	7
146	Internal ABWF and E&M Installation	23 days	Jan 17 '07	Feb 19 '07	7
147	Wing 1 (Horse Stall) Grid 1-4	12 days	Jan 17 '07	Jan 30 '07	7
148	Horse stall - internal partions/blockworks	6 days	Jan 17 '07	Jan 23 '07	7 -
149	Wall Plastering	3 days	Jan 24 '07	Jan 26 '07	7
150	Roller shutter installation	3 days	Jan 27 '07	Jan 30 '07	7
151	Wing 2 (Horse Stall), Grid 13-16	12 days	Jan 17 '07	Jan 30 '07	
152	Horse stall - internal partitions/block works	6 days	Jan 17 '07	Jan 23 '07	7
		Task			Milestone
	onths Rolling Programme_MP06	Split			Summary External Milestone
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ID	Task Name	Duration	Early Start	Early Finish	uary February March	April May June June
153	Wall plastering	3 days	Jan 24 '07	Jan 26 '07	1/6 / 15 / 22 / 29 2/3 / 12 / 19 / 20 3/3 / 12 / 19 /	20 4/2 4/9 /10 /23 /30 3/7 /14 /21 /28 0/4 /11
154	Roller shutter installation	3 days	Jan 27 '07	Jan 30 '07		
155	1/F AC Plant Room, Grid 1-4	8 days	Jan 31 '07	Feb 8 '07		
156	Structural steel installation complete	1 day	Jan 31 '07	Jan 31 '07	1/31	
157	RC Wall and slab	6 days	Feb 1 '07	Feb 7 '07		
158	AHU installation	1 day	Feb 8 '07	Feb 8 '07		
159	1/F AC Plant Room, Grid 13-16	8 days	Jan 31 '07	Feb 8 '07		
160	Structural steel installation complete	1 day	Jan 31 '07	Jan 31 '07	1/31	
161	RC Wall and slab	6 days	Feb 1 '07	Feb 7 '07		
162	AHU installation	1 day	Feb 8 '07	Feb 8 '07	† 	
163	Center Wing - Office Areas	9 days	Feb 2 '07	Feb 19 '07		
164	Internal partions/blockworks	6 days	Feb 2 '07	Feb 8 '07		
165	Wall Plastering	3 days	Feb 9 '07	Feb 19 '07		
166	Works in Main Stable No.3	32 days	Jan 17 '07	Mar 1 '07		
167	RC Works	12 days	Jan 17 '07	Jan 30 '07		
168	Remaining grade slab and sand rolls slab construction	6 days	Jan 17 '07	Jan 23 '07	-	
169	Sand rolls wall construction	6 days	Jan 24 '07	Jan 30 '07		
170	Building Envelope / External Finishes	32 days	Jan 17 '07	Mar 1 '07		
171	Structural Steel Installation	10 days	Jan 23 '07	Feb 2 '07		
172	Wing 1 - Horse stall areas	6 days	Jan 23 '07	Jan 29 '07		
173	Wing 2 - Horse stalls areas	6 days	Jan 23 '07	Jan 29 '07		
174	Wing 1 - 1/F AC Plant Room	4 days	Jan 30 '07	Feb 2 '07		
175	Wing 2 - 1/F AC Plant Room	4 days	Jan 30 '07	Feb 2 '07		
176	Center Wing (Office area)	4 days	Jan 30 '07	Feb 2 '07		
177	Roof Cladding and Gutter Installation	20 days	Jan 30 '07	Feb 28 '07		
178	Wing 1 (Horse Stalls) and 1/F Plant Rooms	16 days	Jan 30 '07	Feb 23 '07		
179	Horse stall area - upper roof	4 days	Jan 30 '07	Feb 2 '07		
180	Horse stall area - lower roof	6 days	Feb 3 '07	Feb 9 '07		
181	1/F AC Plant Room	4 days	Feb 20 '07	Feb 23 '07		
182	Wing 2 (Horse Stalls) and 1/F Plant Rooms	16 days	Jan 30 '07	Feb 23 '07		
183	Horse stall area - upper roof	4 days	Jan 30 '07	Feb 2 '07	1	
184	Horse stall area - lower roof	6 days	Feb 3 '07	Feb 9 '07		
185	1/F AC Plant Room	4 days	Feb 20 '07	Feb 23 '07		
186	Center Wing (Office Area)	16 days	Feb 3 '07	Feb 28 '07		
187	Horse stall area - upper roof	4 days	Feb 3 '07	Feb 7 '07	1	
188	Horse stall area - lower roof	12 days	Feb 8 '07	Feb 28 '07		
189	Granite Stone Installation	32 days	Jan 17 '07	Mar 1 '07		
190	Wing 1 - Grid 1-4 Corner	12 days	Jan 17 '07	Jan 30 '07		
		Task			Milestone	External Tasks
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	Prepared: Jan 23 '07	Split	111			External Milestone
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ID	Task Name	Duration	Early Start	Early Finish	uary February March 1/8 /15 /22 /29 2/5 /12 /19 /26 3/5 /12 /19 /	April May	June
191	Wing 2 - Grid 13-16 Corner	12 days	Jan 17 '07	Jan 30 '07	1/8 /15 /22 /29 2/5 /12 /19 /26 3/5 /12 /19 /	26 4/2 4/9 /16 /23 /30 5/7 /14 /21 /	/28 6/4 /11
192	Wing 1 - Horse stall areas	12 days	Jan 31 '07	Feb 20 '07			
193	Wing 2 - Horse stall areas	12 days	Feb 2 '07	Feb 22 '07			
194	Office areas	12 days	Feb 9 '07	Mar 1 '07			
195	Precast Panel Installation	20 days	Jan 17 '07	Feb 8 '07			
196	Wing 1 - Horse stall areas	12 days	Jan 17 '07	Jan 30 '07			
197	Wing 2 - Horse stall areas	8 days	Jan 24 '07	Feb 1 '07			
198	Office areas	6 days	Feb 2 '07	Feb 8 '07			
199	Internal ABWF and E&M Installation	28 days	Jan 17 '07	Feb 24 '07			
200	Wing 1 (Horse Stall) Grid 1-4	18 days	Jan 17 '07	Feb 6 '07			
201	Horse stall - internal partions/blockworks	12 days	Jan 17 '07	Jan 30 '07			
202	Wall Plastering	3 days	Jan 31 '07	Feb 2 '07			
203	Roller shutter installation	3 days	Feb 3 '07	Feb 6 '07			
204	Wing 2 (Horse Stall), Grid 13-16	18 days	Jan 17 '07	Feb 6 '07			
205	Horse stall - internal partitions/block works	12 days	Jan 17 '07	Jan 30 '07			
206	Wall plastering	3 days	Jan 31 '07	Feb 2 '07			
207	Roller shutter installation	3 days	Feb 3 '07	Feb 6 '07			
208	1/F AC Plant Room, Grid 1-4	8 days	Feb 3 '07	Feb 19 '07			
209	Structural steel installation complete	1 day	Feb 3 '07	Feb 3 '07	2/3		
210	RC Wall and slab	6 days	Feb 5 '07	Feb 10 '07			
211	AHU installation	1 day	Feb 19 '07	Feb 19 '07			
212	1/F AC Plant Room, Grid 13-16	8 days	Feb 3 '07	Feb 19 '07			
213	Structural steel installation complete	1 day	Feb 3 '07	Feb 3 '07	2/3		
214	RC Wall and slab	6 days	Feb 5 '07	Feb 10 '07			
215	AHU installation	1 day	Feb 19 '07	Feb 19 '07			
216	Center Wing - Office Areas	9 days	Feb 8 '07	Feb 24 '07			
217	Internal partions/blockworks	6 days	Feb 8 '07	Feb 21 '07			
218	Wall Plastering	3 days	Feb 22 '07	Feb 24 '07			
219	Works in Main Stable No.4	46 days	Jan 17 '07	Mar 17 '07			
220	RC Works	12 days	Jan 17 '07	Jan 30 '07			
221	Internal RC Wall partition	6 days	Jan 17 '07	Jan 23 '07			
222	Remaining grade slab and sand rolls slab construction	6 days	Jan 17 '07	Jan 23 '07			
223	Sand rolls wall construction	6 days	Jan 24 '07	Jan 30 '07			
224	Building Envelope / External Finishes	46 days	Jan 17 '07	Mar 17 '07			
225	Structural Steel Installation	10 days	Jan 30 '07	Feb 9 '07			
226	Wing 1 - Horse stall areas	6 days	Jan 30 '07	Feb 5 '07			
227	Wing 2 - Horse stalls areas	6 days	Jan 30 '07	Feb 5 '07			
228	Wing 1 - 1/F AC Plant Room	4 days	Feb 6 '07	Feb 9 '07			
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ID	Task Name	Duration	Early Start	Early Finish	uary February March	April May June
267	Structural steel installation complete	1 day	Feb 10 '07	Feb 10 '07	2/10	1 120 H/2 H/3 1 10 123 130 D/1 1 14 1/21 1/20 D/4 1/11
268	RC Wall and slab	6 days	Feb 19 '07	Feb 24 '07		
269	AHU installation	1 day	Feb 26 '07	Feb 26 '07		
270	Center Wing - Office Areas	9 days	Mar 8 '07	Mar 17 '07		
271	Internal partions/blockworks	6 days	Mar 8 '07	Mar 14 '07	1	
272	Wall Plastering	3 days	Mar 15 '07	Mar 17 '07		
273	External Drainage Works	20 days	Jan 17 '07	Feb 8 '07		
274	Drainage MHS13.6 to MHS13.7, DN450	4 days	Jan 17 '07	Jan 20 '07		
275	Excavation	1 day	Jan 17 '07	Jan 17 '07	- I	
276	Pipelaying	1 day	Jan 18 '07	Jan 18 '07		
277	Manhole construction	1 day	Jan 19 '07	Jan 19 '07		
278	Backfilling	1 day	Jan 20 '07	Jan 20 '07		
279	Drainage MHS13.7 to MHS13.7A, DN225	4 days	Jan 23 '07	Jan 26 '07		
280	Excavation	1 day	Jan 23 '07	Jan 23 '07		
281	Pipelaying	1 day	Jan 24 '07	Jan 24 '07		
282	Manhole construction	1 day	Jan 25 '07	Jan 25 '07		
283	Backfilling	1 day	Jan 26 '07	Jan 26 '07		
284	Drainage MHS13.7A to MHS13.8, DN225	4 days	Jan 24 '07	Jan 27 '07		
285	Excavation	1 day	Jan 24 '07	Jan 24 '07		
286	Pipelaying	1 day	Jan 25 '07	Jan 25 '07		
287	Manhole construction	1 day	Jan 26 '07	Jan 26 '07		
288	Backfilling	1 day	Jan 27 '07	Jan 27 '07		
289	Drainage MHS13.8 to MHS13.9, DN225	4 days	Jan 25 '07	Jan 29 '07		
290	Excavation	1 day	Jan 25 '07	Jan 25 '07		
291	Pipelaying	1 day	Jan 26 '07	Jan 26 '07		
292	Manhole construction	1 day	Jan 27 '07	Jan 27 '07		
293	Backfilling	1 day	Jan 29 '07	Jan 29 '07		
294	Drainage MHSVS40 to MHSVS38, DN300	7 days	Jan 17 '07	Jan 24 '07		
295	Excavation	2 days	Jan 17 '07	Jan 18 '07		
296	Pipelaying	2 days	Jan 19 '07	Jan 20 '07		
297	Manhole construction	2 days	Jan 22 '07	Jan 23 '07		
298	Backfilling	1 day	Jan 24 '07	Jan 24 '07		
299	Drainage MHS13.11 to MHS13.12, DN225	6 days	Jan 17 '07	Jan 23 '07		
300	Excavation	1 day	Jan 17 '07	Jan 17 '07	- B-1	
301	Pipelaying	2 days	Jan 18 '07	Jan 19 '07		
302	Manhole construction	2 days	Jan 20 '07	Jan 22 '07		
303	Backfilling	1 day	Jan 23 '07	Jan 23 '07	1 🚼	
304	Drainage MHS13.11 to MHS13.10, DN225	7 days	Jan 24 '07	Jan 31 '07		
		Task			Milestone	External Tasks
3 M	onths Rolling Programme_MP06	Split			Summary	External Milestone
	Prepared: Jan 23 '07					■
		Progres	SS		Project Summary	Deadline

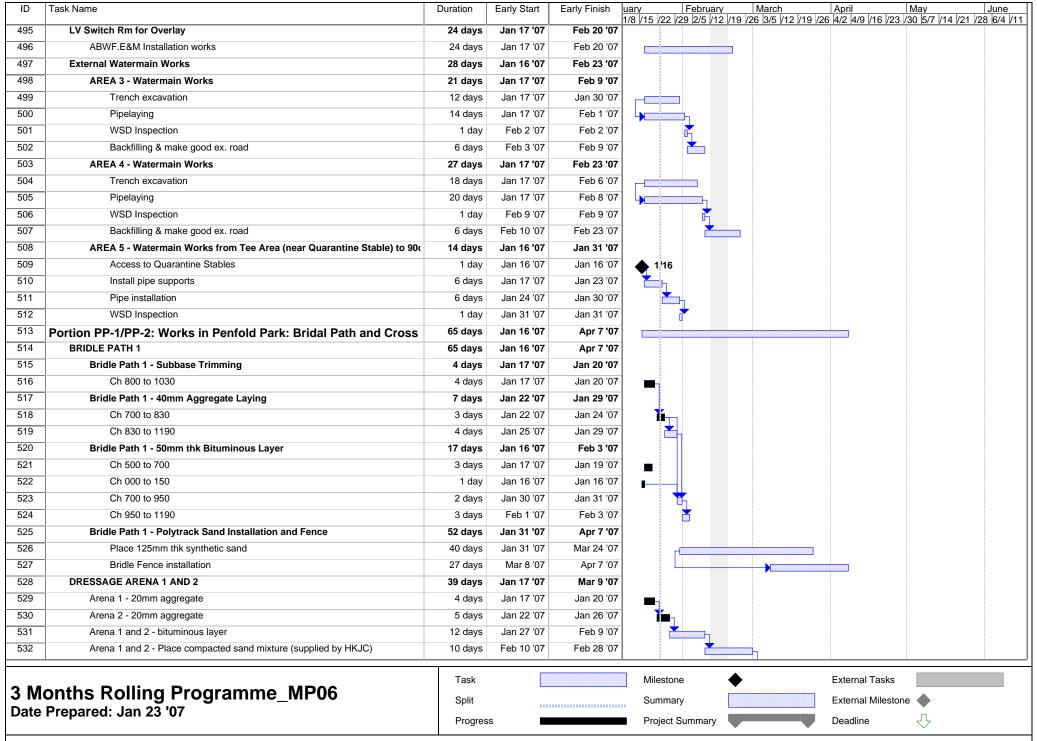
ID	Task Name	Duration	Early Start	Early Finish	uary February March April May June 1/8 //15 //22 //29 //25 //12 //19 //26 //3/5 //12 //19 //26 //3/6 3/5 //12 //19 //26 //3/6 //2 //19 //16 //23 //30 //3/6 //3/6 //3/6 5/7 //14 //21 //28 //3/6 3/6/4
305	Excavation	2 days	Jan 24 '07	Jan 25 '07	
306	Pipelaying	2 days	Jan 26 '07	Jan 27 '07	
307	Manhole construction	2 days	Jan 29 '07	Jan 30 '07	
308	Backfilling	1 day	Jan 31 '07	Jan 31 '07	
309	Drainage MHS18.4 to MHS18.3, DN150	7 days	Feb 1 '07	Feb 8 '07	
310	Excavation	2 days	Feb 1 '07	Feb 2 '07	
311	Pipelaying	2 days	Feb 3 '07	Feb 5 '07	
312	Manhole construction	2 days	Feb 6 '07	Feb 7 '07	
313	Backfilling	1 day	Feb 8 '07	Feb 8 '07	
314	External Watermain Works (Chilled Water, FS/Plumbing)	22 days	Jan 17 '07	Feb 10 '07	
315	Area 8 (Between Main Stable 1&2/ Vet Stable & Main Stable 3)	10 days	Jan 17 '07	Jan 27 '07	
316	Chilled watermain pipelaying	4 days	Jan 17 '07	Jan 20 '07	
317	FS/Plumbing pipelaying	3 days	Jan 22 '07	Jan 24 '07	
318	Irrigation pipelaying	2 days	Jan 25 '07	Jan 26 '07	
319	WSD inspection	1 day	Jan 27 '07	Jan 27 '07	
320	Area 9 (Along Road ST6)	10 days	Jan 23 '07	Feb 2 '07	
321	Chilled watermain pipelaying	4 days	Jan 23 '07	Jan 26 '07	
322	FS/Plumbing pipelaying	3 days	Jan 27 '07	Jan 30 '07	
323	Irrigation pipelaying	2 days	Jan 31 '07	Feb 1 '07	
324	WSD inspection	1 day	Feb 2 '07	Feb 2 '07	
325	Area 9 (Along Road ST7)	10 days	Jan 27 '07	Feb 7 '07	
326	Chilled watermain pipelaying	4 days	Jan 27 '07	Jan 31 '07	
327	FS/Plumbing pipelaying	3 days	Feb 1 '07	Feb 3 '07	
328	Irrigation pipelaying	2 days	Feb 5 '07	Feb 6 '07	
329	WSD inspection	1 day	Feb 7 '07	Feb 7 '07	
330	Area 9 (between Main Stable 3 and 4)	9 days	Feb 1 '07	Feb 10 '07	
331	Chilled watermain pipelaying	3 days	Feb 1 '07	Feb 3 '07	
332	FS/Plumbing pipelaying	3 days	Feb 5 '07	Feb 7 '07	
333	Irrigation pipelaying	2 days	Feb 8 '07	Feb 9 '07	
334	WSD inspection	1 day	Feb 10 '07	Feb 10 '07	
335	Portion HKSI-2	70 days	Jan 17 '07	Apr 14 '07	
336	Footing for Light Mast	21 days	Jan 17 '07	Feb 9 '07	
337	Footing 1- Install holding down bolt and cast	9 days	Jan 17 '07	Jan 26 '07	
338	Footing 2- Install holding down bolt and cast	6 days	Jan 27 '07	Feb 2 '07	
339	Footing 3- Install holding down bolt and cast	6 days	Jan 27 '07	Feb 2 '07	
340	Footing 4- Install holding down bolt and cast	6 days	Feb 3 '07	Feb 9 '07	
341	External Drainage/Watermain Works	70 days	Jan 17 '07	Apr 14 '07	
342	Drainage MHS18.5 to MHS18.6, DN300	10 days		Jan 27 '07	
		Task			Milestone
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ID	Task Name	Duration	Early Start	Early Finish	uary February March	April May June /12 /19 /26 4/2 4/9 /16 /23 /30 5/7 /14 /21 /28 6/4 /11
343	Excavation	2 days	Jan 17 '07	Jan 18 '07		12 / 19 / 20 4/2 4/9 / 10 / 23 / 30 / 3/1 / 14 / 21 / 20 / 3/4 / 11
344	Pipelaying	3 days	Jan 19 '07	Jan 22 '07		
345	Manhole construction	4 days	Jan 23 '07	Jan 26 '07		
346	Backfilling	1 day	Jan 27 '07	Jan 27 '07	+	
347	Drainage MHS18.6 to MHS18.7, DN300	10 days	Jan 19 '07	Jan 30 '07		
348	Excavation	2 days	Jan 19 '07	Jan 20 '07		
349	Pipelaying	3 days	Jan 22 '07	Jan 24 '07		
350	Manhole construction	4 days	Jan 25 '07	Jan 29 '07		
351	Backfilling	1 day	Jan 30 '07	Jan 30 '07		
352	Drainage MHS18.7 to MHS17.2, DN225	10 days	Jan 22 '07	Feb 1 '07	-	
353	Excavation	2 days	Jan 22 '07	Jan 23 '07		
354	Pipelaying	3 days	Jan 24 '07	Jan 26 '07		
355	Manhole construction	4 days	Jan 27 '07	Jan 31 '07	1	
356	Backfilling	1 day	Feb 1 '07	Feb 1 '07	+	
357	Drainage MHS17.2 to MHS17.3, DN225	10 days	Jan 24 '07	Feb 3 '07		
358	Excavation	2 days	Jan 24 '07	Jan 25 '07		
359	Pipelaying	3 days	Jan 26 '07	Jan 29 '07		
360	Manhole construction	4 days	Jan 30 '07	Feb 2 '07		
361	Backfilling	1 day	Feb 3 '07	Feb 3 '07		
362	Drainage MHS18.5 to MHS18.2, DN300	10 days	Feb 1 '07	Feb 19 '07		
363	Excavation	2 days	Feb 1 '07	Feb 2 '07	-	
364	Pipelaying	3 days	Feb 3 '07	Feb 6 '07		
365	Manhole construction	4 days	Feb 7 '07	Feb 10 '07		
366	Backfilling	1 day	Feb 19 '07	Feb 19 '07	1 1 1	
367	Drainage MHS18.2 to MHS18.1, DN375	10 days	Feb 3 '07	Feb 21 '07		
368	Excavation	2 days	Feb 3 '07	Feb 5 '07		
369	Pipelaying	3 days	Feb 6 '07	Feb 8 '07		
370	Manhole construction	4 days	Feb 9 '07	Feb 20 '07	1	
371	Backfilling	1 day	Feb 21 '07	Feb 21 '07		
372	Drainage MHS18.1 to CP (Ex), DN225	10 days	Feb 6 '07	Feb 23 '07		
373	Excavation	2 days	Feb 6 '07	Feb 7 '07		
374	Pipelaying	3 days	Feb 8 '07	Feb 10 '07	1 1	
375	Manhole construction	4 days	Feb 19 '07	Feb 22 '07		
376	Backfilling	1 day	Feb 23 '07	Feb 23 '07		
377	Drainage MHS18.1 to MHS18.11, DN150	10 days	Feb 8 '07	Feb 26 '07		
378	Excavation	2 days	Feb 8 '07	Feb 9 '07		
379	Pipelaying	3 days	Feb 10 '07	Feb 20 '07	1	
380	Manhole construction	4 days	Feb 21 '07	Feb 24 '07		
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	onths Rolling Programme_MP06	Split	111		Summary	External Milestone
Date	Prepared: Jan 23 '07	Progres	SS		Project Summary	Deadline

ID	Task Name	Duration	Early Start	Early Finish	uary February March April May June 1/8 //15 //22 //29 //25 //12 //19 //26 //35 //12 //19 //26 //36 //35 //12 //19 //26 //36 //36 //37 //36 //37 //37 //37 //3
381	Backfilling	1 day	Feb 26 '07	Feb 26 '07	11.0 y 1.0 y
382	Watermain Works at Area 7	10 days	Jan 23 '07	Feb 2 '07	
383	Excavation	2 days	Jan 23 '07	Jan 24 '07	
384	Pipelaying	3 days	Jan 25 '07	Jan 27 '07	
385	Manhole construction	4 days	Jan 29 '07	Feb 1 '07	
386	Backfilling	1 day	Feb 2 '07	Feb 2 '07	
387	Watermain Works at Area 6	20 days	Feb 1 '07	Mar 2 '07	
388	Divert existing site access	1 day	Feb 1 '07	Feb 1 '07	-
389	Excavation works	3 days	Feb 2 '07	Feb 5 '07	
390	Watermain connection works (pipelaying, thrustblocks etc)	12 days	Feb 6 '07	Feb 26 '07	
391	WSD Inspection	1 day	Feb 27 '07	Feb 27 '07	
392	Backfilling & make good ex. road	3 days	Feb 28 '07	Mar 2 '07	
393	Grass Training Arena	48 days	Feb 19 '07	Apr 14 '07	
394	Site clearance on existing log compound	6 days	Feb 19 '07	Feb 24 '07	
395	Sub soil drain installation	12 days	Feb 26 '07	Mar 10 '07	
396	Geotextile + subbase	6 days	Mar 12 '07	Mar 17 '07	1 Land Land
397	20mm aggregate + bituminous layer	12 days	Mar 19 '07	Mar 31 '07	
398	Compacted sand mixture	12 days	Apr 2 '07	Apr 14 '07	
399	Portion HKSI-3	78 days	Jan 17 '07	Apr 24 '07	
400	Storm Drainage STM1 to S.12.21A to S12.21 (exist) DN850	10 days	Jan 17 '07	Jan 27 '07	
401	Excavation	2 days	Jan 17 '07	Jan 18 '07	
402	Pipelaying	8 days	Jan 19 '07	Jan 27 '07	
403	Manhole construction	8 days	Jan 19 '07	Jan 27 '07	
404	Foul Drainage FTM1 to F12.24, DN750	7 days	Jan 29 '07	Feb 5 '07	
405	Pipelaying	5 days	Jan 29 '07	Feb 2 '07	
406	Manhole construction	5 days	Jan 29 '07	Feb 2 '07	- L
407	Backfilling	2 days	Feb 3 '07	Feb 5 '07	
408	Foul Drainage F12.21A to F12.22, DN300	8 days	Jan 17 '07	Jan 25 '07	
409	Excavation	5 days	Jan 17 '07	Jan 22 '07	
410	Pipelaying	3 days	Jan 19 '07	Jan 22 '07	
411	Manhole construction	3 days	Jan 19 '07	Jan 22 '07	↑ →
412	Backfilling	3 days	Jan 23 '07	Jan 25 '07	
413	Foul Drainage F12.21A to F12.21, DN300	54 days	Jan 26 '07	Apr 5 '07	
414	Excavation	6 days	Jan 26 '07	Feb 1 '07	1
415	Pipelaying	3 days	Feb 2 '07	Feb 5 '07	
416	Manhole construction	3 days	Feb 6 '07	Feb 8 '07	
417	Backfilling	3 days	Feb 9 '07	Feb 19 '07	1 <u>*-</u> ,
418	Foul Drainage F12.21 to F12.20, DN300	15 days	Feb 20 '07	Mar 8 '07	
		Task			Milestone External Tasks
	onths Rolling Programme_MP06	Split			Summary External Milestone
	Prepared: Jan 23 '07				
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ID	Task Name	Duration	Early Start	Early Finish	uary February March April May June 1/8 15 22 29 2/5 12 19 26 3/5 12 19 26 4/2 4/9 16 23 30 5/7 14 21 28 6/4 11
419	Excavation	6 days	Feb 20 '07	Feb 26 '07	110 113 122 123 112 113 120 133 112 113 120 142 143 110 123 130 131 114 121 120 1014 111
420	Pipelaying	3 days	Feb 27 '07	Mar 1 '07	
421	Manhole construction	3 days	Mar 2 '07	Mar 5 '07	
422	Backfilling	3 days	Mar 6 '07	Mar 8 '07	
423	Foul Drainage F12.20 to F11.6, DN300	24 days	Mar 9 '07	Apr 5 '07	
424	Excavation	12 days	Mar 9 '07	Mar 22 '07	
425	Pipelaying	12 days	Mar 16 '07	Mar 29 '07	
426	Manhole construction	3 days	Mar 30 '07	Apr 2 '07	i i i i i i i i i i i i i i i i i i i
427	Backfilling	3 days	Apr 3 '07	Apr 5 '07	
428	Foul Drainage F11.5 to F11.6, DN300	15 days	Jan 23 '07	Feb 8 '07	
429	Excavation	6 days	Jan 23 '07	Jan 29 '07	
430	Pipelaying	3 days	Jan 30 '07	Feb 1 '07	
431	Manhole construction	3 days	Feb 2 '07	Feb 5 '07	<u> </u>
432	Backfilling	3 days	Feb 6 '07	Feb 8 '07	
433	Foul Drainage F11.5 to F11.4, DN300	20 days	Feb 9 '07	Mar 10 '07	
434	Excavation	10 days	Feb 9 '07	Feb 27 '07	
435	Pipelaying	10 days	Feb 21 '07	Mar 3 '07	
436	Manhole construction	3 days	Mar 5 '07	Mar 7 '07	
437	Backfilling	3 days	Mar 8 '07	Mar 10 '07	
438	Foul Drainage F11.4 to F11.3, DN300	16 days	Mar 12 '07	Mar 29 '07	
439	Excavation	6 days	Mar 12 '07	Mar 17 '07	
440	Pipelaying	6 days	Mar 16 '07	Mar 22 '07	
441	Manhole construction	3 days	Mar 23 '07	Mar 26 '07	
442	Backfilling	3 days	Mar 27 '07	Mar 29 '07	
443	Foul Drainage F11.3 to F11.2, DN300	22 days	Mar 30 '07	Apr 24 '07	
444	Excavation	12 days	Mar 30 '07	Apr 12 '07	
445	Pipelaying	12 days	Apr 4 '07	Apr 17 '07	L _i
446	Manhole construction	3 days	Apr 18 '07	Apr 20 '07	
447	Backfilling	3 days	Apr 21 '07	Apr 24 '07	
448	Portion HKSI-4	118 days	Jan 17 '07	Jun 11 '07	
449	Foundation Works- 40m Light Mast	70 days	Jan 17 '07	Apr 14 '07	
450	Soil Investigation	4 days	Jan 17 '07	Jan 20 '07	
451	Soil Investigation Pile Cap B	2 days	Jan 17 '07	Jan 18 '07	
452	Soil Investigation Pile Cap A	4 days	Jan 17 '07	Jan 20 '07	
453	Soil Investigation Pile Cap D	4 days	Jan 17 '07	Jan 20 '07	
454	Minipiles Drilling	70 days	Jan 17 '07	Apr 14 '07	
455	Pile Cap C - minipile drilling	16 days	Jan 17 '07	Feb 3 '07	
456	Pile Cap B - minipile drilling	24 days	Jan 19 '07	Feb 22 '07	
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ID	Task Name	Duration	Early Start	Early Finish	uary February March April May June 1/8 /15 /22 /29 /2/5 /12 /19 /26 /3/5 /12 /19 /26 /3/5 /12 /19 /26 /4/2 /4/9 /16 /23 /30 /5/7 /14 /21 /28 /6/4 /11
457	Pile Cap A - minipile drilling	24 days	Jan 22 '07	Feb 24 '07	
458	Pile Cap D - minipile drilling	24 days	Jan 22 '07	Feb 24 '07	
459	Minipile load test	24 days	Feb 26 '07	Mar 24 '07	†
460	Pile Cap Construction	18 days	Mar 26 '07	Apr 14 '07	
461	External Drainage Works	20 days	Jan 19 '07	Feb 10 '07	
462	Drainage MHS12.2 to MHS12.3, DN750	12 days	Jan 19 '07	Feb 1 '07	
463	Excavation	4 days	Jan 19 '07	Jan 23 '07	
464	Pipelaying	3 days	Jan 24 '07	Jan 26 '07	
465	Manhole construction	4 days	Jan 27 '07	Jan 31 '07	
466	Backfilling	1 day	Feb 1 '07	Feb 1 '07	
467	Drainage MHS12.6 to MHS12.5, DN675	12 days	Jan 24 '07	Feb 6 '07	
468	Excavation	4 days	Jan 24 '07	Jan 27 '07	
469	Pipelaying	3 days	Jan 29 '07	Jan 31 '07	
470	Manhole construction	4 days	Feb 1 '07	Feb 5 '07	
471	Backfilling	1 day	Feb 6 '07	Feb 6 '07	
472	Drainage MHS12.2 to MHS12.6, DN300	12 days	Jan 29 '07	Feb 10 '07	
473	Excavation	4 days	Jan 29 '07	Feb 1 '07	
474	Pipelaying	3 days	Feb 2 '07	Feb 5 '07	
475	Manhole construction	4 days	Feb 6 '07	Feb 9 '07	1 📩
476	Backfilling	1 day	Feb 10 '07	Feb 10 '07	
477	Main Competition Arena	115 days	Jan 20 '07	Jun 11 '07	
478	Drainage Works	64 days	Jan 20 '07	Apr 11 '07	
479	Excavation	4 days	Jan 20 '07	Jan 24 '07	
480	U channels	12 days	Jan 25 '07	Feb 7 '07	
481	Toe wall + backfill	24 days	Feb 8 '07	Mar 14 '07	1
482	Sub soil drain	24 days	Mar 15 '07	Apr 11 '07] <u>*</u>
483	Sub soil drain	51 days	Apr 12 '07	Jun 11 '07	
484	Subbase laying + geotextile	6 days	Apr 12 '07	Apr 18 '07	<u> </u>
485	Laser filled 20mm gravel + 4-8mm grvel	12 days	Apr 19 '07	May 3 '07	1 <u>*</u>
486	Compacted sand	24 days	May 4 '07	May 31 '07	1
487	Arena egdes+ turf	9 days	Jun 1 '07	Jun 11 '07	
488	Portion HKSI-6	37 days	Jan 16 '07	Mar 6 '07	
489	CLP Outdoor Transformer	36 days	Jan 17 '07	Mar 6 '07	
490	CLP Installation	36 days	Jan 17 '07	Mar 6 '07	
491	CLP HV Switch Room	36 days		Mar 6 '07	
492	CLP Installation	36 days	Jan 17 '07	Mar 6 '07	
493	LV Switch Rm for Broadcast	24 days	Jan 17 '07	Feb 20 '07	
494	ABWF.E&M Installation works	24 days	Jan 17 '07	Feb 20 '07	
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ID	Task Name	Duration	Early Start	Early Finish	uary Februar	y March 2 /19 /26 3/5 /12 /19 /2	April 1/2 1/4 1/23 1/4	May	June 28 6/4 /11
533	Arena fence and gate installation	8 days	Mar 1 '07	Mar 9 '07	170 110 122 120 1270 117	2 13 20 0/3 12 13 12	.0 4/2 4/3 / 10 /23	00 0/1 14 Z1).	20 0/4 / 11
		Task			Milestone		External Tasks		
3 M	onths Rolling Programme_MP06 Prepared: Jan 23 '07	Split			Summary	V	External Milestone		
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Appendix B
Environmental Mitigation Implementation Schedule

Environmental Mitigation Implementation Schedule Main Arena of 2008 Olympic Equestrian Events

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S3.8	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation • Any excavated of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where	Good construction site practices to control the dust impact at the nearby sensitive receivers to within the	Contractor	Entire construction site	Construction stage	√	To control the dust impact to within the HKAQO and TM-EIA criteria
	practicable within 24 hours of the excavation or unloading; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads or	relevant criteria.				✓	(Ref. 1-hr and 24hr TSP levels are 500 μ gm ⁻³ and 260
	 streets; The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle; 					✓	μ gm ⁻³ , respectively)
	Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point.					~	
	should be paved with concrete, bituminous materials or hardcores; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout					√	
	 the construction period; The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials: 					✓	
	Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the					✓	
	entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of					N/A	
	the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; • Any skip hoist for material transport should be totally enclosed by impervious sheeting;					✓	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S3.8.2	The Contract shall adopt adequate measures to mitigate the odour impact to acceptable level: A sanitary environment will always be maintained in the stable area. The current waste management practices will be extended to cover the new stable area at HKSI. Detailed design of stable will cater for the health, safety and environmental protection considerations in accordance with the HKJC policy and practice; Regular maintenance of the odour removal system, such as carbon filter system will be carried out to maintain the odour removal efficiency; and Enclosed containers, similar to those at the existing stables near HKSI, will be provided for the stockpiling of waste.	minimize the potential odour impact to nearby sensitive receivers	Contractor	Stables	Operational Phase	N/A	TM-EIA, Annex 4 Sodour units based on averaging time of 5 seconds
S4.8.1.1	1) Use of good site practices to limit noise emissions by considering the following: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) 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, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site officer and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	Control construction airborne noise by means of good site practices	Contractor	Entire construction site	Construction stage	* * * * *	Noise Control Ordinance

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EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S4.8.1.2	Install temporary hoarding of 2.4m high located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	Entire construction site	Construction stage	~	Noise Control Ordinance Annex 5, TM-EIA Hoarding should have no openings and a superficial surface density of at least 14kg/m².
S4.8.1.3	3) Install movable noise barriers (typically density @14kg/m²), acoustic mat close to noisy plants including air compressor, water pump, hand-held breaker and pipe pile rigs.	Screen the noisy plant items to be used at all construction sites	Contractor	Entire construction site	Construction stage	~	Noise Control Ordinance Annex 5, TM-EIA 75dB(A) for residential premises and 70dB(A) for schools during daytime The movable barrier should achieve at least 5dB(A) and the full enclosure should be designed to achieve 10dB(A)

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S4.8.1.4	4) Liaise with the school representative(s) including, but not limited to Hong Kong Institute of Vocational Education (Shatin), Jockey Club Ti-1 College, International Christian School – Elementary and Leung Kui Kau Primary School to obtain the examination schedule and avoid noisy construction activities during school examination period.	Schedule the construction works outside school examination periods to less intrusive periods	Contractor	Construction sites near the schools such as Hong Kong Institute of Vocational Education (Shatin), Jockey Club Ti-1 College, International Christian School – Elementary and Leung Kui Kau Primary School	Construction stage	N/A	Noise Control Ordinance Annex 5, TM-EIA To comply with the daytime construction noise criterion of 65dB(A) at school during the examination periods,
S4.8.1.5	5) Select "Quiet plants" which comply with the BS 5228 Part 1 or TM standards.	Reduce the noise levels of plant items	Contractor	Entire construction site	Construction stage	~	Noise Control Ordinance & its TM Annex 5, TM- EIA
S4.8.1.6	6) Sequencing operation of construction plant equipment.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	Entire construction site where practicable	Construction stage	~	Noise Control Ordinance Annex 5, TM- EIA
S4.8.4.1	1) The Louvres should be orientated away from adjacent NSRs where possible, preferably onto Sha Tin Racecourse which are less sensitive.	Control operational noise from fixed sources	Designers	E&M plant items	Design stage	√	• HKPSG
S4.8.4.1	2) Adequate direct noise mitigation measures including silencers, acoustic louvers, acoustic enclosures should be allowed for in the design.	Control operational noise from fixed sources	Designers	E&M plant items	Design stage	√	• HKPSG
S4.8.4.2	A cluster of small power rated loudspeakers should be used instead of a few large power rated loudspeakers	Control operational noise from fixed sources	Designers	PA system	Design stage	~	• HKPSG

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S4.8.4.2	Directional loudspeakers should be used and orientated them to point towards the audience and away from the nearby noise sensitive receivers	Control operational noise from fixed sources	Designers	PA system	Design stage	~	• HKPSG
S5.6.1	Follow the site practices outlined in ProPECC PN 1/94 as far as practicable in order to minimise surface runoff and the chance of erosion, and to reduce any suspended solids prior to discharge.	Good site practice to control construction water quality	Contractor	Entire construction site	Construction stage	✓	Requirements laid down in ProPECC PN 1/94
S5.6.1	Sewage Effluent 1) Portable chemical toilets and sewage holding tanks are recommended for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.	Control sewage effluent arising from the sanitary facilities provided for the on-site construction workforce	Contractor	On-site sanitary facilities	Construction stage	~	ProPECC PN 1/94 Water Pollution Control Ordinance Waste Disposal Ordinance

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S5.6.1	At the start of site establishment (including the barging facility), perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an	Control construction runoff and erosion from site surface, drainage channel, stockpiles, barging facility, wheel washing facilities, etc to minimize water quality during construction stage	Contractor	Entire construction site	Construction stage	*	ProPECC PN 1/94 Water Pollution Control Ordinance
	appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. • The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt/sand traps should be 5 minutes under maximum flow conditions.					√	
	• Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.					*	
	• The overall slope of the site should be kept to a minimum to reduce the erosive potential of surface water flows, and all trafficked areas and access roads protected by coarse stone ballast. An additional advantage accruing from the use of crushed stone is the positive traction gained during prolonged periods of inclement weather and the reduction of surface sheet flows.					~	
	 All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas. 					~	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
	Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.					✓	
	Open stockpiles of construction materials (for example, aggregates, sand and fill material) of more than 50 m3 should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.					✓	
	 Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers. 					✓	
	 Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes. 					✓	
	• All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing bay should be provided at every construction site exit. Wash-water should have sand and silt settled out and removed at least on a weekly basis to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.					✓	
	Oil interceptors should be provided in the site drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.					N/A	
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EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
	 Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. Requirements for solid waste management are detailed in Section 6 of the EIA Report. 					√	
	 All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby. 					√	
S5.6.2.1	A low flow interceptor drainage system should be constructed to intercept the first foul flush and convey it to a storage tank from where it is pumped to the foul drainage system. The catchment area of the low flow interceptor drainage covers the area of Main Stable Complex. Sand traps will also be provided at the stable to prevent sand from being conveyed into the pipe system.	Control surface runoff	Scheme designers and/or Operator	Drainage system	Design and/or operational stage	В	TM-water Water Pollution Control Ordinance
S5.6.2.2	A new 450mm public gravity sewer should be constructed along the pathway of the Shing Mun River and be connected to the existing 450mm public sewer at the southeastern corner of HKSI to collect the sewage from the new Stable Complex and the low flow interceptor system.	Control sewage collection	Scheme designers	Sewage System	Design stage	В	Water Pollution Control Ordinance TM-water
S6.5.1.1	1) The requirements as recommended in ETWB TC 15/2003 Waste Management on Construction Sites and its latest version, and other relevant guidelines, should be included in the Particular Specification as appropriate.	Develop waste management strategies and minimize construction waste disposal	Scheme Designer	Entire construction site	Design stage	~	Waste Disposal Ordinance ETWB TC 15/2003
S6.5.1.1	2) Prior to the commencement of construction work, the Contractor should prepare a WMP to provide an overall framework for waste management and reduction.	Develop waste management and reduction strategies	Contractor	Entire construction site	Construction stage	~	Waste Disposal Ordinance ETWB TC 15/2003 Wste Disposal (Chemical Waste) (General) Regulation ETWBTC 34/2002

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S6.5.1.2 & S6.5.1.3	Construction and Demolition Material Opportunity for re-using of fill material for back filling should be optimized. Excavated materials that cannot be recycled should be transported to public filling areas. Careful design, planning and good site management can minimise over-ordering and waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic fencing should be considered to increase the potential for reuse. The contractor should recycle as much as possible of the construction waste on-site. Proper segregation of wastes on site will increase the feasibility of recycling certain components of the waste stream by recycling contractors. Concrete and masonry can be used as general fill and steel reinforcement bars can be used by scrap steel mills. Different areas should be designated for such segregation and storage wherever site conditions permit. Maintain temporary stockpiles and reuse excavated fill material for backfilling and reinstatement. Surplus artificial hard materials should be delivered to Tuen Mun Area 38 recycling plant or its successor for recycling into subsequent useful products.	Good site practice to minimize the waste generation and recycle the C&D materials as far as practicable so as to reduce the amount for final disposal	measures? Contractor	Entire construction site	measures? Construction stage	* * * * * * *	
	considered as one of the best practice in waste management and hence, should be implemented in all projects generating construction waste. The sorted public fill and construction & demolition (C&D) waste should be disposed to public filling areas and landfills, respectively.					Ť	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
	Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate.					√	
	• Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified.					✓	
	• Implement an enhanced Waste Management Plan similar to ETWB TC(W) No. 15/2003 – "Waste Management on Construction Sites" to encourage on-sitting sorting of C&D materials and to minimize their generation during the course of construction.					✓	
S6.5.1.4	 Chemical Waste Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, should be handled in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Containers used for the storage of chemical wastes should be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; have a capacity of less than 450 liters unless the specification has been approved by the EPD; and display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the regulation. The storage area for chemical wastes should be clearly labelled and used solely for the storage of chemical waste; enclosed on at least 3 sides; have an impermeable floor and bunding of sufficient capacity to accommodate 110% of the volume of the largest container or 20 % of the total volume of waste stored in that area. 	Control the chemical waste and ensure proper storage, handling and disposal.	Contractor	Entire construction site	Construction stage	N/A ✓	Waste Disposal (Chemical Waste) General) Regulation Code of Practice on the Packaging, Labelling and Storage of Chemical Waste
	whichever is the greatest; have adequate ventilation; covered to prevent rainfall entering; and arranged so that incompatible materials are adequately separated. • Disposal of chemical waste should be via a licensed waste collector; be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Centre which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a reuser of the waste, under approval from the EPD.					N/A	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S6.5.1.6	Sewage • Adequate numbers of portable toilets should be provided for the workers. The portable toilets should be maintained in a state, which will not deter the workers from utilizing these portable toilets. Night soil should be collected by licensed collectors regularly.	Proper handling of sewage from worker to avoid odour, pest and litter impacts	Contractor	Entire construction site	Construction stage	√	Waste Disposal Ordinance
S6.5.1.5	General Refuse • General refuse generated on-site should be stored in enclosed bins or compaction units separately from construction and chemical wastes.	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	Entire construction site	Construction stage	√	Waste Disposal Ordinance
	• 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.					~	
	 Aluminium cans are often recovered from the waste stream by individual collectors if they are segregated and made easily accessible. Separate labelled bins for their deposit should be provided if feasible. 					√	
	Office wastes can be reduced through the recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme should be considered by the Contractor. In addition, waste separation facilities for paper, aluminium cans, plastic bottles etc., should be provided.					√	

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S6.5.2.1	 Municipal Waste Recycling bins will be provided at shops and food service locations to collect cardboard containers. Personnel in office will be provided with bins to recycle office paper. 	Storage and handing of waste	Operator	Entire project site	Operational stage	В	Waste Disposal Ordinance
	Aluminium can recycling bins will be placed at prominent locations for collection					В	
	• Recycling bins for plastic bottle recovery should be set up at prominent places to facilitate visitors' participation in material recovery activities.					В	
	The landscaping works will generate a certain amount of grass clippings, leaves, bush and tree trimmings. However, the handling capacity of the existing Sha Ling composting facility is limited and is currently composting livestock wastes. The facility is unlikely to be able to handle the green waste generated from the Project site. Should there be a market or facility which could process the green waste arising from the Project site, the establishment of a recycling programme for green waste should be considered. The venue operator should make arrangements with the laser					N/A	
	printer toner cartridge suppliers to collect and recycle used toner cartridges for laser printers to avoid disposal of the cartridge at landfills as far as practicable.					В	
\$6.5.2.2	Waste from Stables Waste from horse stables (mainly the horse manure) would be collected on a regular basis following HKJC's sanitary practices.	Storage and handing of waste	Operator	Entire project site	Operational stage	В	Waste Disposal Ordinance

EIA Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to implement the measures?	Implementation	What requirements or standards for the measures to achieve?
S9.3 & S9.7	1) An Independent Environmental Checker needs to be employed as per the EM&A Manual.	Control EM&A Performance	Project Proponent	All construction sites	Construction stage	√	• EIAO Guidance Note No.4/2002
	2) Establish a telephone hotline which enables the public to raise any matters of concern regarding the project such as complaints, comments, suggestions or requests for information.					✓	• TM-EIAO
S9.5	An Environmental Team needs to be employed as per the EM&A Manual.	Perform environmental monitoring & auditing	Contractor	All construction sites	Construction stage	√	EIAO Guidance Note No.4/2002 TM-EIAO
	2) Prepare a systematic Environmental Management Plan to ensure effective implementation of the mitigation measures.					✓	TWILIAG
	3) An environmental impact monitoring needs to be implementing by the Environmental Team to ensure all the requirements given in the EM&A Manual are fully complied with.					✓	
	4) Real-time reporting of monitoring data for the Project through a dedicated internet website need to be provided and maintained by the Environmental Team					√	

Note: \checkmark - Implemented

O - Partially implemented
B - To be implemented
N/A - Not applicable

Appendix C
Log records and details
of environmental complaints

Log Record on Environmental Complaints

No.	Date of Complaint Received	Description	Investigation Result and Proposed Actions	Completion Date	Remarks
No. 001		Discharge of muddy water into Shing Mun River	Investigation Result and Proposed Actions No evidence had shown the source of the muddy water discharge from subjected site. In fact, there were three main contractors working inside the HKSI area and all share the same discharge outlet. However, contractor had carried out the following measures to prevent any further discharge of muddy water from the subject site areas: 1. Keep closely checking on the performance of the wastewater treatment system; 2. Closely monitoring of the discharge outlet at Shing Mun River and tracing of the source origin immediately if muddy water was observed; 3. Made use of the shallow ground areas on site to temporary trap stormwater inside the site to prevent any direct discharge; 4. Construction of temporary drainage channel and use of water pump to properly divert the trapped stormwater to the temporary sump pit; 5. Control pumping of all muddy water collected from the sump pit to the wastewater treatment plant within its treatment capacity before discharging.		Remarks EPD inspected the site drainage system on 1 Sept 2006 and was satisfied.

No.	Date of Complaint Received	Description	Investigation Result and Proposed Actions	Completion Date	Remarks
002	27 Sep 2006	Construction dust from construction site at HKSI	No direct evidence was found during Contractor's investigation. The Contractor had reviewed the site dust mitigation measures, including more frequent haul road watering and covering the dusty materials.	27 Sep 2006	EPD was replied on 28 Sept 2006 by email.
003	8 Nov 2006	Construction Noise generated from area at HKSI on 5 Nov 2006 (Sunday)	Rectification action: a. Introduction of the Permit to Work system for works to be carried out during restricted hours. b. Consider to apply for a more realistic CNP for the construction works.	12 Nov 2006	EPD was replied on 10 Nov 2007 by email.
004	9 Nov 2006	Dust nuisance from construction site of HKSI	Rectification action: Avoid stockpile of dusty materials on site. Compact the exposed areas when watering on these areas is not effective.	9 Nov 2006	EPD inspected on 10 Nov 2006. There was no adverse comment.
005	15 Nov 2006	Dump trucks not covering their load were found at the dumping sites	 Rectification action: Enhancement of the current checking system at vehicular entrance by security personnel. Give warning to subcontractors and establish penalty measures. Give warning to the security company for the site and request them to enhance the checking system for every dump truck leaving the site. 	17 Nov 2006	EPD inspected on 23 Nov 2006. The rectify actions were introduced and they had no further comment.
006	21 Nov 2007	Muddy water from construction site at HKSI	Muddy water was observed during Amber rainstorm. Rectification action included installing more water pumps to direct surface runoff.	22 Nov 2006	EPD was replied on 21 Nov 2006 by email.

No.	Date of Complaint Received	Description	Investigation Result and Proposed Actions	Completion Date	Remarks
007	8 Jan 2007	Dust and effluent from construction site at HKSI	 Investigation Result: Dust and muddy water spread to cycle track during the drilling processes. Rectification action: Clean cycle track regularly Erect screen along the cycle track 	9 Jan 2007	EPD inspected on 9 Jan 2007. They were satisfied with the improvement works. EPD was replied on 12 Jan 2007 by email.
008	15 Jan 2007	Construction dust from construction site at HKSI	Investigation Result: 2. Dust and muddy water spread to cycle track during the drilling processes. Rectification action: 1. Additional screen was erected and worker was arranged to clean the cycle track regularly.	15 Jan 2007	EPD believed it was the same complaint as the one on 8 Jan 2007. EPD was replied on 15 and 16 2007 by email.
009	2 Apr 2007	Discharge of muddy water to Shing Mun River Channel	Rectification action: Installation of additional water pump at the last manhole to direct as much muddy water as possible during rainfall to the on-site treatment facility.	3 Apr 2007	The discharge of muddy water occurred after a heavy rainfall on 2 April 2007. EPD was replied on 3 April 2007 by email.
010	2 Apr 2007	Dust and night time construction noise from construction site at HKSI	 Investigation result: No construction activity was scheduled during the concerned period. Rectification action: more frequent haul road watering covering dusty material with tarpaulin sheets. 	2 Apr 2007	EPD was replied on 3 April 2007 by email.

No.	Date of Complaint Received	Description	Investigation Result and Proposed Actions	Completion Date	Remarks
011	10 Apr 2007	Public holiday construction noise and muddy water in Shing Mun River near the construction site at Yuen Wo Road	 Investigation result: The rainfall on 8 Apr 2007 was 0.3mm, overflowing of site drainage did not occur Only internal finishing works was arranged on 8 Apr 2007, which did not lead to excessive noise The complaint was not substantiated. 	10 Apr 2007	EPD inspected on 10 April and no further comment.
012	17 Apr 2007	Construction dust from construction site at HKSI	Rectification action: 1. more frequent haul road watering 2. covering dusty material with tarpaulin sheets	17 Apr 2007	EPD was replied on 19 and 22 Apr 2007 by email.
013	18 Apr 2007	Polluted effluent discharged from the construction site at HKSI	Investigation result: 1. Muddy water was observed after the rainfall on 17 Apr 2007. Rectification action: 1. More pumps were installed at the last manhole	18 Apr 2007	On site checking with EPD on the same day revealed that muddy water was caused by the tide washing over the river sediment.
014	25 Apr 2007	Muddy water from construction site at HKSI	Investigation result: 1. Muddy water was observed at outfall, but the source of the muddy water could not be traced. The Contractor will keep tracing the source of pollutant.	25 Apr 2007	EPD was replied on 27 and 29 Apr 2007 by email.