


Cheung Hing Construction Co. Ltd.

Contract No. SSW327

***Reprovisioning of Cape Collinson
Crematorium***

**Monthly Environmental and Audit Report
January 2013
(Version 1.0)**

Approved By 
Environmental Team Leader

REMARKS:

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

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EXECUTIVE SUMMARY

1. This is the 29th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Ltd. for the Project “Phased Reprovisioning of Cape Collinson Crematorium”. This report presents the findings of environmental auditing works conducted for Reprovision Cape Collinson Crematorium on January 2013.
2. The site activities undertaken in the reporting month was:
 - N/A

Environmental Monitoring and Audit Works

3. Environmental monitoring and audit works for the Project is stipulated in the approved EM&A Manual. Site audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
4. Summary of the events and action taken in the reporting month is tabulated in **Table I**.

Table I Summary Table for Events Recorded in the Reporting Month

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

Construction Noise

5. All construction noise monitoring was conducted as scheduled in reporting month. No Action/Limit Level exceedance was recorded.

Air Quality*1-hour TSP Monitoring*

6. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

7. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Visual

8. The monthly monitoring of visual was conducted in January 2013. The purpose is to ensure the design of implementation and maintenance of visual mitigation measures that are fully required in according to EIA report.

Environmental Licenses and Permits

9. Licenses/Permits granted to the Project include the Environmental Permit (EP); Registered as Waste Producer under Waste Disposal (Chemical Waste) General Regulation and Water Discharge Licence.

Key Information in the Reporting Month

10. Summary of key information in the reporting month is tabulated in **Table II**.

Key Information in the EIA Report

11. According to the EIA Report, air quality, noise and visual would be the key environmental issues during the construction phase of the project. Details of the implementation of mitigation measures are provided in the **Appendix M**.

Table II Summary Table for Key Information in the Reporting Month

Event	Event Details		Action Taken	Status	Remark
	Number	Nature			
Complaint received	0	---	N/A	N/A	---
Changes to the assumptions and key construction / operation activities recorded	0	---	N/A	N/A	---
Status of submissions under EP	1	EM&A Monthly Report December 2012	Submitted to EPD on 17 th January 2013	N/A	---
Notifications of any summons & prosecutions received	0	---	N/A	N/A	---
Future Key Issues:					
Major site activities for the coming two months include:					
<ul style="list-style-type: none"> • Erection of hoardings; • Excavation for trial pit for soil sampling; • Soil treatment for contaminated soil; and • Taking samples for ACM and DCM. 					

1 INTRODUCTION

Background

- 1.1 Food and Environmental Hygiene Department (FEHD) is the Project Proponent and is responsible for the operation of the project “Phased Reprovisioning of Cape Collinson Crematorium” (hereinafter called the Project) after completion of construction works, while Architectural Services Department (ArchSD) is the works agent for the project management and implementation of the project. The project was commissioned to Cheung Hing Construction Co. Ltd. (hereinafter called the “CH”). The scope of the Project includes the following works:
- (i) Construct and operate 4 new cremators with ancillary facilities under Phase 1;
 - (ii) Demolition of the existing crematorium and the existing underground fuel tank under Phase 2; and
 - (iii) Construct and operate 6 new cremators with ancillary facilities under Phase 2.
- 1.2 An environmental impact assessment (EIA) report of the Phased Reprovisioning of Cape Collinson Crematorium (Register No. AEIAR-137/2009) has been prepared in March 2009 and the Environmental Monitoring and Audit Manual (Project’s EM&A Manual) was also included as part of the EIA report in the register. An Environmental Permit No. EP-335/2009 was issued on 19 June 2009 for this Project to the Food and Environmental Hygiene Department as the Permit Holder. The site location is shown in **Figure 1**.
- 1.3 Cinotech Consultants Ltd. was designated as the Environmental Team (ET) to undertake the EM&A works for the Project. This is the 29th monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech for the Project on January 2013 in accordance with the approved EM&A Manual.

Project Organizations

- 1.4 Different parties with different levels of involvement in the project organization include:
- Project Proponent – Food and Environmental Hygiene Department (FEHD).
 - Works Agent – Architectural Services Department (ArchSD).
 - Architect Representative (AR) – Andrew Lee King Fun & Associates Architects Limited (ALKF).
 - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech).
 - Independent Environmental Checker (IEC) – EDMS Consulting Limited (EDMS).
 - Main Contractor – Cheung Hing Construction Co. Ltd. (CH).
- 1.5 The responsibilities of respective parties are detailed in Sections 1.15 to 1.20 of the EM&A Manual of the Project.
- 1.6 The key contacts of the Project are shown in **Table 1.1** and the organization chart of ET is shown in **Figure 5**.

Monthly Environmental Monitoring and Audit Report (January 2013)**Table 1.1 Key Project Contacts**

Party	Role	Name	Position	Phone No.	Fax No.
ASD	Works Agent	Mr. LS Tam	Senior Project Manager	2867 4120	2123 9024
		Miss Denise Lo	Project Manager	2867 3723	2523 9622
		Mr. Yiu Hak Hung	ER/COW	2597 4408	2911 4706
ALKF	Architect	Mr. Andrew Lee	Managing Director	2525 0008	2868 5371
	Architect's Representative	Mr. Franklin Yu	Project Architect	2901 0915	
		Mr. Leung Pak Kuen	Resident Clerk of Works	2505 7210	2505 1586
Cinotech	Environmental Team	Dr. Priscilla Choy	ET Leader	2151 2089	3107 1388
		Mr. Charles Ma	Project Coordinator & Audit Team Leader	2151 2078	
		Mr. Henry Leung	Monitoring Team Leader	2151 2087	
EDMS	Independent Environmental Checker	Mr. James Choi	Director	2230 7168	3007 8556
CH	Main Contractor	Mr. Daniel Pong	General Manager	2572 2384	2572 2972
		Mr. Parker Pang	Director	2572 2384	
		Mr. Dennis Ho	Site Agent	96723470	2505 5130
		Mr. Kelvin Ip	Environmental Supervisor	61368190	

Construction Programme

1.7 The site activities undertaken in the reporting month included:

- N/A

Summary of EM&A Requirements

1.8 The EM&A programme requires construction phase monitoring for air quality, construction noise, visual and environmental site audit. The EM&A requirements for each parameter are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event Action Plans;
- Environmental mitigation measures, as recommended in the project EIA study final report; and
- Environmental requirements in contract documents.

1.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in Section 5 of this report.

1.10 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely dust, noise levels, visual and audit works conducted for the Project in January 2013.

2 AIR QUALITY

Monitoring Requirements

- 2.1 1-hour and 24-hour TSP monitoring were conducted to monitor the air quality. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Equipment

- 2.2 Both 1-hour TSP monitoring and continuous 24-hour TSP impact air quality monitoring were performed and complied with the specifications stipulated in the approved EM&A Manual. **Table 2.1** summarizes the equipment used in the impact air quality monitoring programme. Copies of the calibration certificates for the equipment are presented in **Appendix B**.

Table 2.1 Air Quality Monitoring Equipment

HVS Samplers	GMWS 2310 HVS, Model GS-2310105-1	1
	Tisch Environmental, Inc.; Model no. TE-5170	1
Laser Dust Meter	Sibata; Model no. LD-3B	3
RS232 Integral Vane Digital Anemometer	AZ Instrument (Model No. AZ8904)	1
Calibrator	Thermo Andersen; Model no. G25A	1

Monitoring Locations

- 2.3 Impact air quality monitoring was conducted at the 2 designated monitoring stations, as shown in **Figure 2**. **Table 2.2** describes the locations of the air quality monitoring stations.

Table 2.2 Air Quality Monitoring Locations

Monitoring Station	Description	Location of Measurement
AM1	Staff Quarters of Cape Collinson Crematorium	Ground
*AM2	King Tsui Court	Roof

Remarks: * with wind logger

Monitoring Parameters, Frequency and Duration

- 2.4 **Table 2.3** summarizes the monitoring parameters, monitoring period and frequencies of impact air quality monitoring.

Table 2.3 Frequency and Parameters of Impact Air Quality Monitoring

Monitoring Station	Location for Measurement	Parameter	Period	Frequency
AM1	Staff Quarters of Cape Collinson Crematorium	1-hour TSP	0700-1900	3 times/6 days
		24-hour TSP	24 hours	once/6 days
AM2	King Tsui Court	1-hour TSP	0700-1900	3 times/6 days
		24-hour TSP	24 hours	once/6 days

Monitoring Methodology and QA/QC Procedure

- 2.5 Weather data was recorded during the monitoring period and is shown in **Appendix H**. The data was obtained from the Meteorological Observations for King's Park Automatic Weather Station. The general weather conditions (i.e. sunny, cloudy or rainy) were recorded by the field staff's observation on the monitoring day.

Monitoring Methodology and QA/QC Procedure

1-hour TSP Monitoring

Measuring Procedures

- 2.6 The measuring procedures of the 1-hour dust meters were in accordance with the Manufacturer's Instruction Manual as follows:
- Pull up the air sampling inlet cover
 - Change the Mode 0 to BG with once
 - Push Start/Stop switch once
 - Turn the knob to SENSI.ADJ and press it
 - Push Start/Stop switch once
 - Return the knob to the position MEASURE slowly
 - Push the timer set switch to set measuring time
 - Remove the cap and make a measurement

Maintenance/Calibration

- 2.7 The following maintenance/calibration was required for the direct dust meters:
- Check the meter at a 3-month interval and calibrate the meter at a 1-year interval throughout all stages of the air quality monitoring.

24-hour TSP Monitoring

Instrumentation

- 2.8 High volume (HVS) samplers (Model no. TE-5170 and GS-2310105-1) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Monthly Environmental Monitoring and Audit Report (January 2013)Operating/Analytical Procedures

- 2.9 Operating/analytical procedures for the operation of HVS were as follows:
- A horizontal platform was provided with appropriate support to secure the samplers against gusty wind.
 - No two samplers were placed less than 2 meters apart.
 - The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protrudes above the sampler.
 - A minimum of 2 meters of separation from walls, parapets and penthouses was required for rooftop samples.
 - A minimum of 2 meters separation from any supporting structure, measured horizontally was required.
 - No furnaces or incineration flues were nearby.
 - Airflow around the sampler was unrestricted.
 - The sampler was more than 20 meters from the drip line.
 - Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring.
- 2.10 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 1.1 m³/min. and 1.4 m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50.
- 2.11 Fiberglass filters were used which have a collection efficiency of larger than 99% for particles of 0.3 µm diameter.
- 2.12 The power supply was checked to ensure the sampler worked properly. On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- 2.13 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centered with the stamped number upwards, on a supporting screen.
- 2.14 The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- 2.15 The shelter lid was closed and secured with the aluminum strip.
- 2.16 The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number).
- 2.17 After sampling, the filter was removed and sent to the laboratory for weighing. The elapsed time was also recorded.

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- 2.18 Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than $\pm 3^\circ\text{C}$; the relative humidity (RH) should be $< 50\%$ and not vary by more than $\pm 5\%$. A convenient working RH is 40%.

Maintenance/Calibration

- 2.19 The following maintenance/calibration was required for the HVS:
- The high volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition.
 - High volume samplers were calibrated at bi-monthly intervals using Calibration Kit (Thermo Andersen; Model no. G25A) throughout all stages of the air quality monitoring.

Results and Observations

- 2.20 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix I**.
- 2.21 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded. Summary of exceedance is presented in **Appendix I**.
- 2.22 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendices D** and **E** respectively.
- 2.23 According to our field observations, the identified dust sources at the monitoring stations were mainly the road dust.

3 NOISE

Monitoring Requirements

- 3.1 A noise monitoring station, namely M1 was designated in the EM&A Manual for impact monitoring. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

- 3.2 **Table 3.1** gives the location of the monitoring station, which is also shown in **Figure 3**.

Table 3.1 Location of Noise Monitoring Station

Monitoring Station	Description	Location of Measurement
M1	Staff Quarters of Cape Collinson Crematorium	Rooftop, facing Cape Collinson Crematorium

Monitoring Equipment

- 3.3 Integrating Sound Level Meter was used for noise monitoring. The meter is a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) and also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. **Table 3.2** summarizes the noise monitoring equipment being used. Copies of the calibration certificates for the sound level meter and calibrator are attached in **Appendix B**.

Table 3.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 955	1
Calibrator	SV30A	1

Monitoring Parameters, Frequency and Duration

- 3.4 **Table 3.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix C**.

Table 3.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
M1	L_{10} (30 min.) dB(A) L_{90} (30 min.) dB(A) L_{eq} (30 min.) dB(A)	0700-1900 hrs. on weekdays	Once per week	Façade measurement

Monitoring Methodology and QA/QC Procedures

3.5 **Table 3.4** summarizes the types of measurement undertaken in the monitoring station.

Table 3.4 Type of Measurement

Monitoring Station	Measurement
M1	Façade measurement

3.6 Weather data was recorded during the Impact period and is presented in **Appendix H**.

Field Monitoring

3.7 The monitoring procedures are as follows:

- The microphone of the sound level meter was positioned 1m exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acts as a reflecting surface.
- The battery condition was checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - frequency weighting : A
 - time weighting : Fast
 - measurement time : 5 minutes (Leq (30-min) would be determined for daytime noise by calculating the logarithmic average of six Leq (5min) data.)
- Prior to and after noise measurement, the meter was calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement was considered invalid and repeat of noise measurement was required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station was checked with the portable wind meter.
- Monitoring data was recorded and stored automatically within the sound level meter system. At the end of the monitoring period, noise levels in term of L_{eq} , L_{90} and L_{10} were recorded. In addition, site conditions and noise sources were recorded when the equipment were checked and inspected every two days.
- All the monitoring data within the sound level meter system was downloaded through the computer software, and all these data was checked and reviewed within the computer.

Maintenance and Calibration

3.8 Maintenance and Calibration procedures were as follows:

- The microphone of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator were checked and calibrated at yearly intervals.
- Immediately prior to and following each noise measurement the accuracy of the sound level meter shall be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

3.9 All construction noise monitoring at designated location was conducted as scheduled in the reporting month.

3.10 No Action/Limit Level exceedance was recorded in the reporting month. Summary of exceedance is presented in **Appendix I**.

3.11 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured Leq – Baseline Leq = Measured CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the allowed CNL (Limit Level) at each designated noise monitoring station are presented at **Table 3.5**.

3.12 All noise monitoring results and graphical presentations of the data are provided in **Appendix F**.

Table 3.5 Baseline Noise Level and Allowed Construction Noise Level for Monitoring Stations

Station	Baseline Noise Level, dB (A)	Limit Level, dB (A)
M1	54.4	75

4 VISUAL MONITORING**Monitoring Requirements**

4.1 In accordance with the EM&A Manual, Visual Monitoring is required to be conducted monthly in construction phase for ensuring the design of implementation and maintenance of visual mitigation measures that are fully required in according to EIA report.

Construction Phase Audit Summary

4.2 The proposed and implementation status of visual mitigation measures in construction phase were shown in **Table 4.1**.

4.3 The reference photo for visual mitigation measures are shown in **Appendix G**.

Table 4.1 Proposed and Implementation Status of Visual Mitigation Measures in Construction Phase

ID No.	Visual Mitigation Measures	Implementation Status	Reference Photo
CM1	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Planting work for phase 1 has been completed.	1 & 2
CM2	Existing trees to be retained on site should be carefully protected during construction.	Tree protection zone and protective fence was set up for retaining trees.	3
CM3	Trees unavoidably affected by the works should be transplanted where practical.	No transplantation work was conducted in reporting month.	N/A
CM4	Compensatory tree planting should be provided to compensate for felled trees.	No tree felling work was conducted in reporting month.	N/A
CM5	Control of night-time lighting.	Minimum lighting was provided for public and security.	4 & 5
CM6	Erection of decorative screen hoarding compatible with the surrounding setting.	Hoardings in light colour were used as screening.	6

5 ENVIRONMENTAL AUDIT

Environmental Site Audits

- 5.1 Environmental site audits were carried out on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site.
- 5.2 Site audits for the Project in the reporting month were conducted on 4th, 11th, 18th, 24th and 28th January 2013. No non-compliance was observed during the site audits.
- 5.3 Site inspections were undertaken to ensure and check the compliance with the FEP and that the implementation and maintenance of air quality, noise and visual mitigation measures are being properly carried out in the reporting month in accordance to section 2.4, 5.7 and 6.16 of the EM&A Manual respectively. No non-compliance was observed during the site inspections.
- 5.4 The summaries of site audits are attached in **Appendix J**.
- 5.5 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations are summarized in **Table 5.1**.

Table 5.1 Observations and Recommendations of Site Audits

Parameters	Date	Observations	Remediation/ Follow up
Water Quality	18/1/2013	Clear the discarded leaves in the U-channel.	The discarded leaves had been removed from the U-channel.
	24/1/2013	Clear the stagnant water in the construction material.	The stagnant water was removed.
Waste/Chemical Management	4/1/2013	Clear the general refuse deposited near the site hoarding.	The general refuse deposited near the site hoarding has been cleared.
	28/1/2013	Clear the general refuse and construction waste properly.	The general refuse has been removed.
Air Quality	--	--	--
Landscape and Visual	--	--	--
Permits/Licenses	11/1/2013	The relevant licence/ permit should be displayed or posted on site.	The copy of Environmental Permit was displaced accordingly.

Status of Environmental Licensing and Permitting

- 5.6 Environmental license or permit obtained in the reporting month is shown in **Table 5.2**.

Table 5.2 Environmental License or Permit Obtained in Reporting Month

Type of License/ Permit	Number	Valid Period		Details	Status
		From	To		

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License to conduct Specified Process	L-12-008(1)	02/03/2012	01/03/2017	Premises: 9 Cape Collinson Road, Chai Wan, Hong Kong Classification of specified process: Incinerators	Valid
Water Discharge License	WT00007 200-2010	05/08/2010	31/08/2015	Discharge Premises: 9 Cape Collinson Road, Chai Wan, Hong Kong	Valid
Registration as Chemical Waste Producer	WPN: 5213-165-C3110-19	03/08/2010	N/A	Location: 9 Cape Collinson Road, Chai Wan, Hong Kong ii)Major Chemical Waste: Spend Lubricating oil, Spend Solvent and Soil Containing Lubricating Oil/Diesel	Valid
Environmental Permit	EP-335/2009	19/06/2009	N/A	Location: Existing Cape Collinson Crematorium, Cape Collinson Road, Eastern District	Valid
Further Environmental Permit	FEP-01/335/2009	06/07/2010	N/A	Location: Existing Cape Collinson Crematorium, Cape Collinson Road, Eastern District	Valid

Status of Waste Management

- 5.7 The amount of waste generated by the construction activities of the Project in the reporting month is attached in **Appendix K**. No Inert C&D waste was disposed. 2.151 tons C&D waste, including metals, paper/ cardboard packaging and plastics, were sent to recyclers. No other C&D waste, e.g. general refuse, were disposed to SENT landfill in January 2013.

Implementation Status of Environmental Mitigation Measures

- 5.8 According to the Environmental Permit and the EM&A Manual, the mitigation measures detailed in the documents are required to be implemented. Details of implementation Status of Environmental Mitigation Measures are provided in **Appendix M**.

Implementation Status of Event Action Plans

- 5.9 The Event Action Plans for construction noise are presented in **Appendix L**.

Construction Noise

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

Summary of Complaints and Prosecutions

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

Number of Existing and New Cremators Operating During Testing and Commissioning (T&C) Period under Phase 1

- 5.12 In according to condition 4.1 of EP: EP-335/2009 and FEP: FEP-01/335/2009, the total number of cremators in operation shall be limited during the four months T&C period, and no more than eight existing cremators and two new cremators should be operated concurrently at any one time.
- 5.13 T&C period has been completed in September 2012.

6 FUTURE KEY ISSUES

Key Issues for the Coming Month

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

- Surface runoff generated from the construction activities (e.g. soldier piling work) and rain;
- Dust emission from loading and unloading excavated materials, excavation works and exposed stockpiles;
- Noise nuisance from operation of equipments/ machineries;
- Maintenance of de-silting facilities and drainage system such as U-channels;
- Blockage of wheel washing facility by accumulated silt;
- Mosquito breeding due to the ponding water and stagnant water around the site areas;
- Accumulation of C&D waste and general waste on site; and
- Oil spillage/ leakage from the equipment on site.

Construction Program for the Next Month

6.2 The tentative construction program for the Project is provided in **Appendix O**.

Monitoring Schedule for the Next Month

6.3 The tentative environmental monitoring schedule in February 2013 for the Project is provided in **Appendix C**.

7 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 7.1 Environmental monitoring and audit works were performed in the reporting month and all monitoring results were checked and reviewed.

1-hour TSP Monitoring

- 7.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

24-hour TSP Monitoring

- 7.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise Monitoring

- 7.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Environmental Audit

- 7.5 Environmental site audits were conducted as weekly basis in the reporting month. No non-compliance was recorded.

Complaint and Prosecution

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

Recommendations

- 7.7 According to the environmental audits performed in the reporting month, the following recommendations were made:

Water Quality

- To avoid accumulation of stagnant water on site.

Air Quality

- To ensure water spray is applied for the dust emissive works, such as breaking, loading and unloading of soil materials; and
- To implement dust suppression measures on haul road, stockpiles and dry surfaces.

Noise

- To space out noisy equipment and position as far away as possible from sensitive receivers;

- To review the works sequence of site activities so as to reduce the number of noisy equipment in concurrent operation;
- To provide temporary noise barriers for noisy activities, such as breaking works and drilling works; and
- To employ quiet powered mechanical equipment if possible.

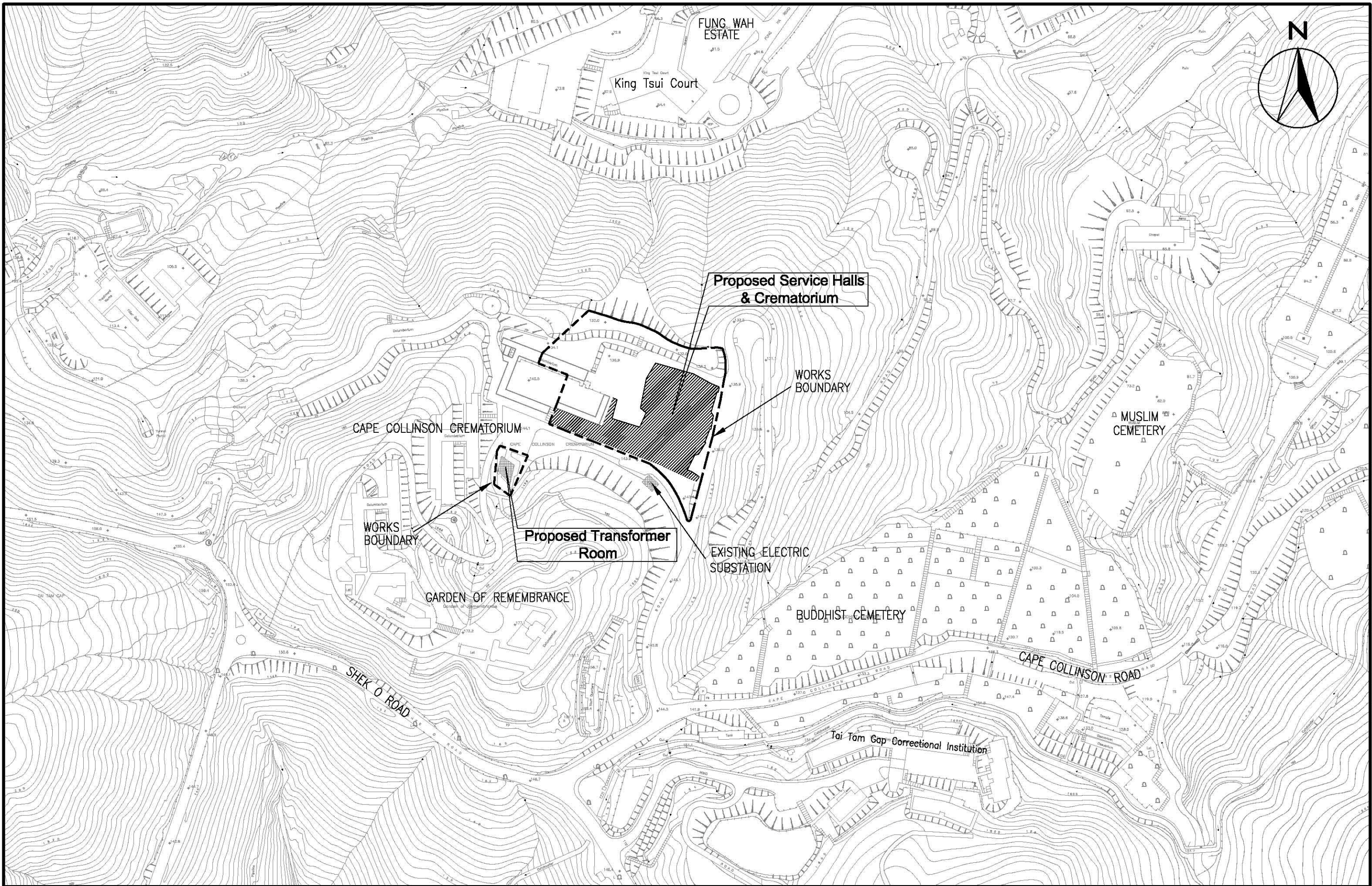
Waste/Chemical Management

- To check for any accumulation of waste materials or rubbish on site;
- To avoid any discharge of chemical waste or oil directly from the site;
- To well maintain the equipments and drip trays to avoid oil leakage; and
- To avoid improper handling or storage of oil and paint drum on site.

Landscape and Visual

- To re-install the hoarding to reduce visual impacts; and
- To well maintain the tree protection barriers and tree protection zone to avoid damage to trees.

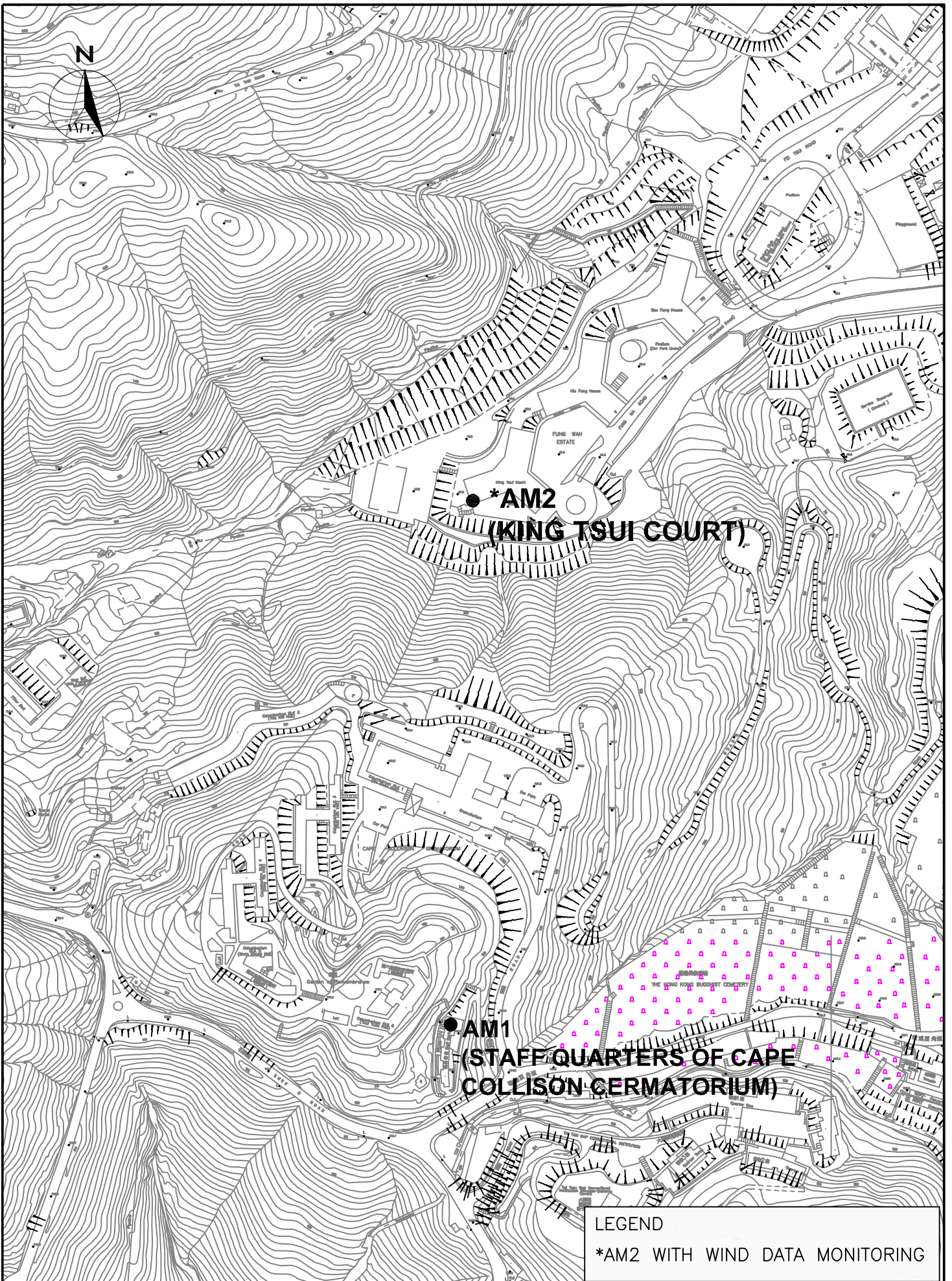
FIGURES



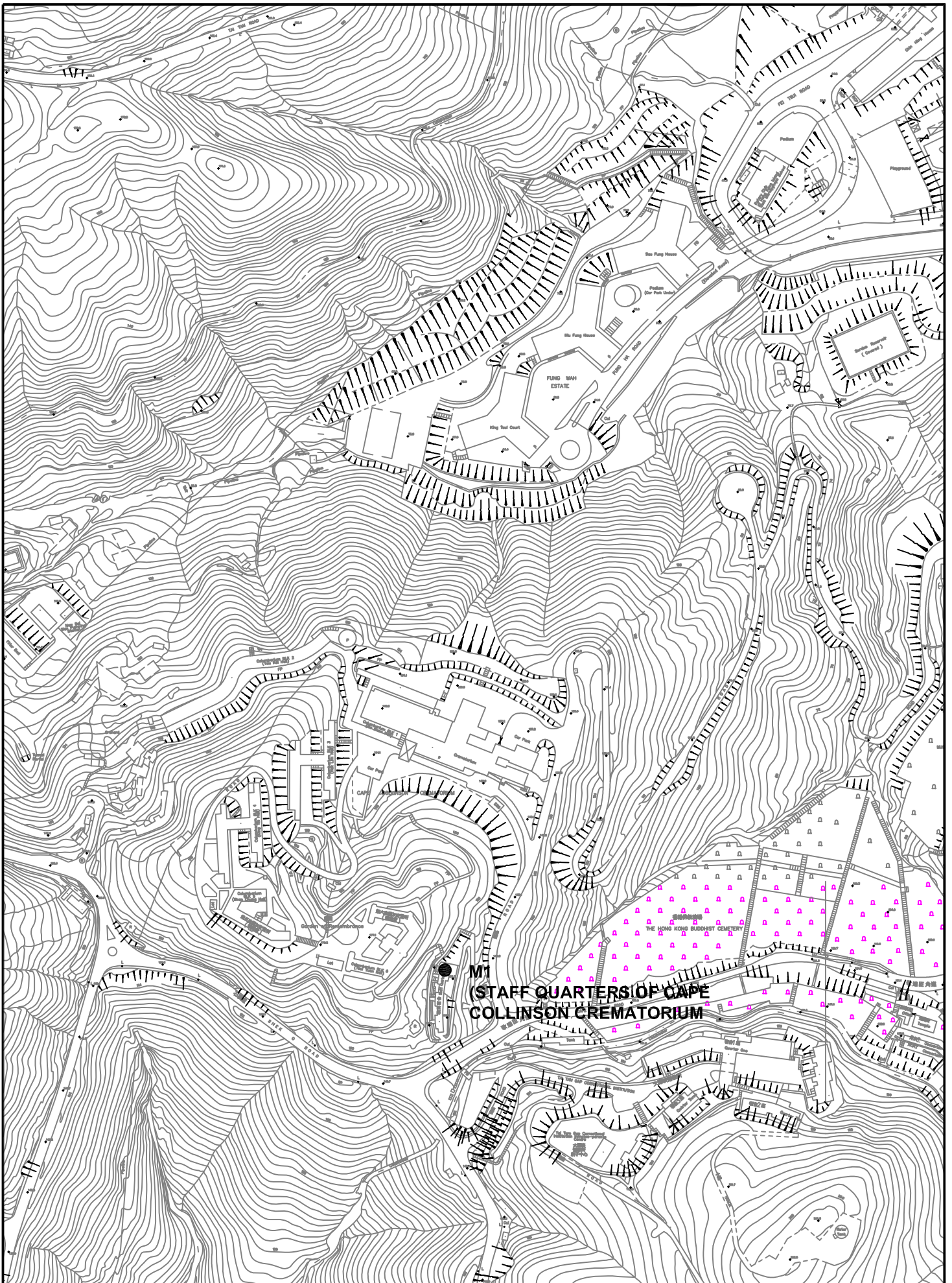
CINOTECH

Contract No. SSW 327
 Repeovisioning of Cape Collinson Crematorium
 Layout Plan of the Project

Scale	A3 1:2000	Date	June - 2010
Check	GL	Drawn	GL
Project No.	MA 0031	Figure No.	Figure 1
		REV	—



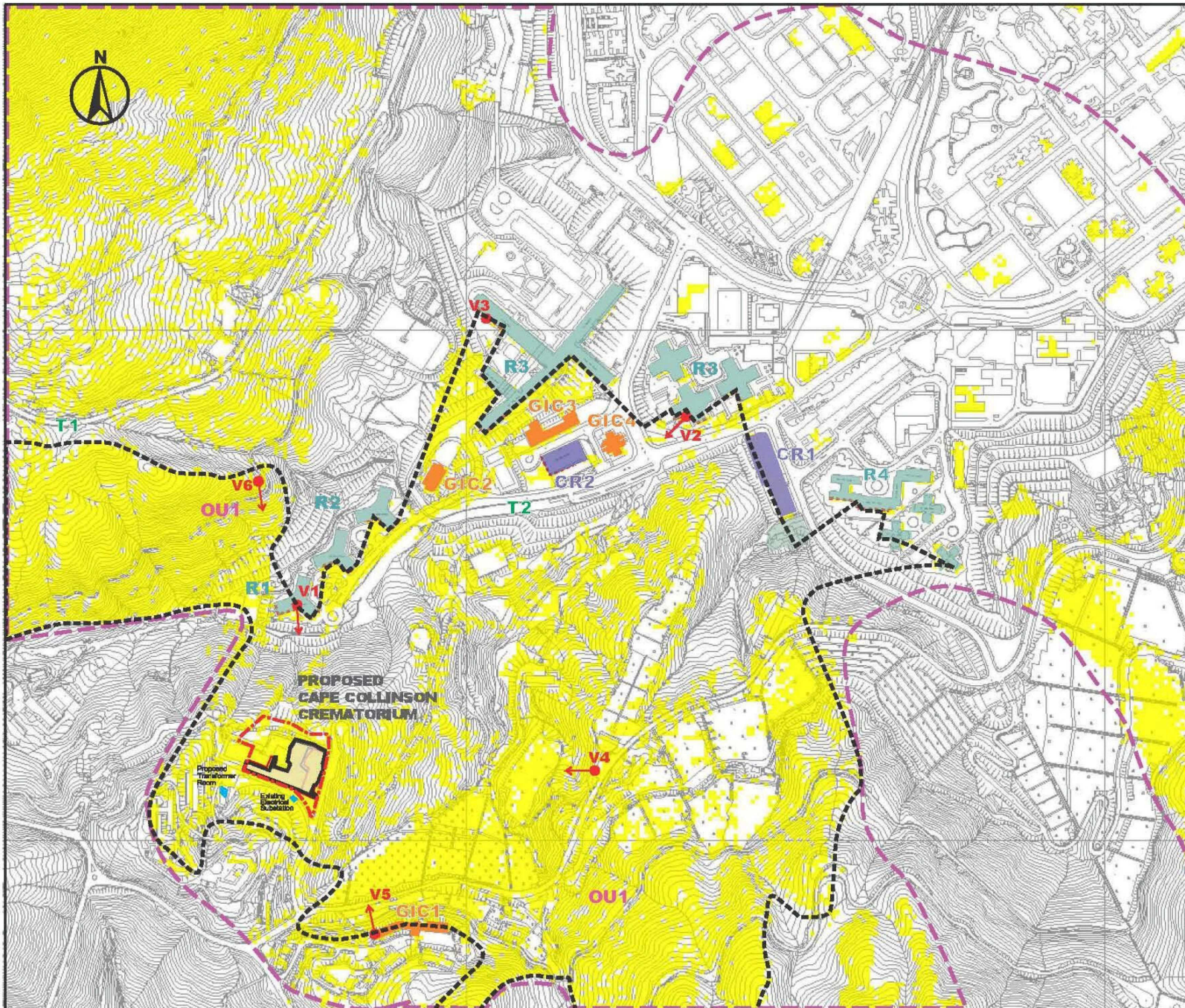
SCALE	1:3000 (A4)	DATE	JUL 2010
CHECK	PC	DRAWN	SL
JOB No.	MA0031	FIGURE NO.	2
		REV	-



Contract No. SSW 327
 Reprovisioning of Cape Collinson Crematorium

**LOCATIONS OF NOISE
 MONITORING STATIONS**

SCALE	1:3000 (A4)	DATE	JUL 2010	
CHECK	PC	DRAWN	SL	
JOB No.	MA0031	FIGURE NO.	3	REV
				-



LEGEND:

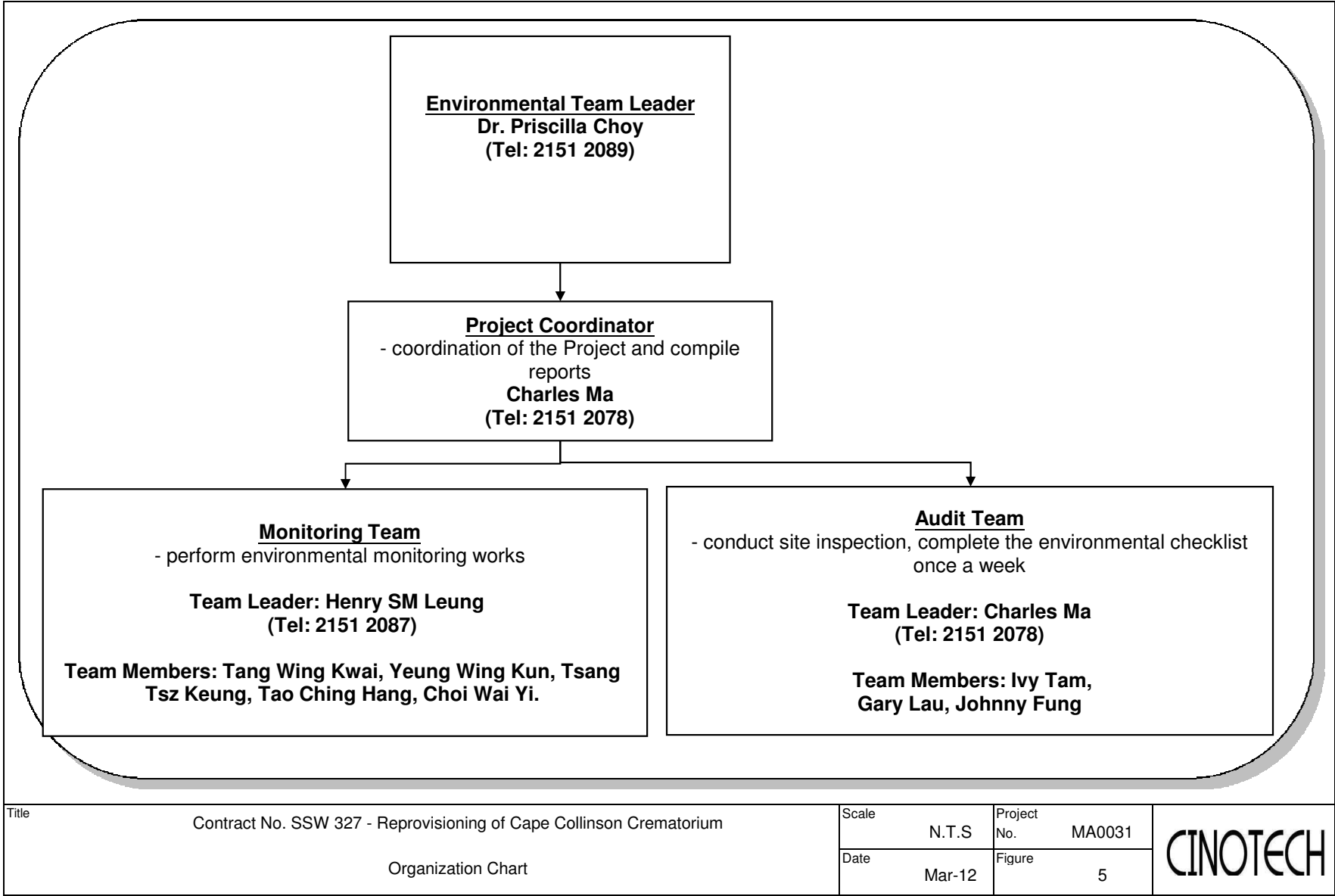
- WORKS AREA
- PROPOSED CREMATOURIUM
- PRIMARY ZONE OF VISUAL INFLUENCE
- SECONDARY ZONE OF VISUAL INFLUENCE
- COMMERCIAL RESIDENTIAL (CR)
- RESIDENTIAL (R)
- GOVERNMENT, INSTITUTION/ COMMUNITY (GIC)
- TRAVELLERS (T)
- OTHERS SPECIFIED USE (OU)
- ↖ PHOTO TAKEN VIEW POINT

VISUAL SENSITIVE RECEIVERS:

- R1** King Tsui Court
- R2** Fung Wah Estate
- R3** Hing Wah Estate
- R4** Yan Tsui Court, Yuet Chui Court and Housing Dept. Chai Wan Staff Quarters
- CR1** Yen Lok & Kin Yip Building
- CR2** Moon Wah & Man Wah Building
- GIC1** Tai Tam Gap Correctional Institution
- GIC2** Morninghope School
- GIC3** Cognitio College (Hong Kong)
- GIC4** Fire Service Department Quarters
- T1** Tai Tam Road
- T2** Fei Tsui Road
- OU1** Hikers/ Cemetery visitors

Zone of visual influence is generated base on Visual Contour Map; provided in Figure 6.3; where's proposed work will be seen mainly in areas of yellow shaded.

Scale	NTS	Date	June - 2010
Check	GL	Dwan	GL
Project No.	MA 0031	DRAWING No.	Figure 4
		REV	—



Title Contract No. SSW 327 - Re-provisioning of Cape Collinson Crematorium

Organization Chart

Scale	N.T.S	Project No.	MA0031
Date	Mar-12	Figure	5



**APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR
QUALITY AND NOISE QUALITY**

Appendix A Action and Limit Levels**Table A-1 Action and Limit Levels for 1-Hour TSP**

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	394	500
AM2	283	500

Table A-2 Action and Limit Levels for 24-Hour TSP

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	164	260
AM2	151	260

Table A-3 Action and Limit Level for Construction Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75* dB(A)

* reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

**APPENDIX B
COPIES OF CALIBRATION
CERTIFICATES**

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/121102/1
Date of Issue:	2012-11-05
Date Received:	2012-11-02
Date Tested:	2012-11-02
Date Completed:	2012-11-05
Next Due Date:	2013-01-04

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 62%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/120104/1
Date of Issue:	2013-01-07
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-07
Next Due Date:	2013-03-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 853944
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 685 CPM
Equipment No.	: A-02-04

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 66%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031
-------------------------	--------

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/120104/2
Date of Issue:	2013-01-07
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-07
Next Due Date:	2013-03-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 014750
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 790 CPM
Equipment No.	: A-02-06

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 66%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0030
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/120104/4
Date of Issue:	2013-01-07
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-07
Next Due Date:	2013-03-06

ATTN: Mr. W. K. Tang

Page: 1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095029
Sensitivity (K) 1 CPM	: 0.001 mg/m ³
Sen. Adjustment Scale Setting	: 551 CPM
Equipment No.	: A-02-10

Test Conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 66%

Test Specifications & Methodology:

1. Instruction and Operation Manual High Volume Sampler, Andersen Samplers, Inc.
2. In-house method in according to the instruction manual: The Laser Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Laser Dust Monitor and High Volume Sampler.

Results:

Correlation Factor (CF)	0.0031
-------------------------	--------

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
Laboratory Manager

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/13/0016

Station AM1 - Staff Quarters of Cape Collinson Crematorium Operator: WK
 Date: 2-Jan-13 Next Due Date: 1-Mar-13
 Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	289.2	Pressure, Pa (mmHg)	767.7

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	[ΔH x (Pa/760) x (298/Ta)] ^{1/2}	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	[ΔW x (Pa/760) x (298/Ta)] ^{1/2} Y-axis
1	11.9	3.52	62.15	8.2	2.92
2	10.2	3.26	57.60	6.7	2.64
3	7.6	2.81	49.83	5.0	2.28
4	5.4	2.37	42.14	3.3	1.85
5	3.3	1.85	33.12	2.1	1.48

By Linear Regression of Y on X
 Slope, mw = 0.0497 Intercept, bw : -0.1998
 Correlation coefficient* = 0.9984
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM
 From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.61

Remarks: _____

Conducted by: Wk Tang Signature: Kwan Date: 2/1/13
 Checked by: LD Signature: _____ Date: 2 January 2013

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/45/0015

Station AM2 - King Tsui Court Operator: WK
 Date: 8-Nov-12 Next Due Date: 7-Jan-13
 Equipment No.: A-01-45 Serial No. 1309

Ambient Condition			
Temperature, Ta (K)	295.8	Pressure, Pa (mmHg)	763.9

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.7	3.44	60.80	8.3	2.90
2	10.0	3.18	56.27	6.7	2.60
3	7.6	2.77	49.16	5.0	2.25
4	5.2	2.29	40.81	3.3	1.83
5	3.3	1.83	32.68	2.0	1.42

By Linear Regression of Y on X

Slope, mw = 0.0518 Intercept, bw : -0.2822
 Correlation coefficient* = 0.9992

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 3.74

Remarks: _____

Conducted by: Wk Tang Signature: [Signature] Date: 8/11/12
 Checked by: [Signature] Signature: [Signature] Date: 8 November 2012

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/45/0016

Station AM2 - King Tsui Court Operator: WK
 Date: 7-Jan-13 Next Due Date: 6-Mar-13
 Equipment No.: A-01-45 Serial No. 1309

Ambient Condition			
Temperature, Ta (K)	287.2	Pressure, Pa (mmHg)	768

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	2-Oct-13	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	ΔW (HVS), in. of oil	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.9	3.53	62.37	8.4	2.97
2	10.0	3.24	57.25	6.7	2.65
3	7.8	2.86	50.66	5.2	2.34
4	5.2	2.34	41.51	3.3	1.86
5	3.1	1.80	32.24	1.9	1.41

By Linear Regression of Y on X

Slope, mw = 0.0512 Intercept, bw : -0.2532
 Correlation coefficient* = 0.9994

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 43 CFM	
From the Regression Equation, the "Y" value according to	
$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>3.62</u>	

Remarks: _____

Conducted by: Wk. Tang Signature: [Signature] Date: 7/1/13
 Checked by: [Signature] Signature: [Signature] Date: 7 January 2013

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/12/120501
Date of Issue:	2012-05-02
Date Received:	2012-05-01
Date Tested:	2012-05-01
Date Completed:	2012-05-02
Next Due Date:	2013-05-01

ATTN: Mr. W.K Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description : RS232 Integral Vane Digital Anemometer
Manufacturer : AZ Instrument
Model No. : AZ8904
Serial No. : 974835
Equipment No. : A-03-03

Test conditions:

Room Temperature : 23 degree Celsius
Relative Humidity : 67%
Pressure : 101.2 kPa

Methodology:

The anemometer has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

	Reference Set Point	Instrument Readings
Measuring Air Velocity, m/s	2.00	2.00
Temperature, °C	21.0	21.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE

Laboratory Manager

TEST REPORT

Description	Calibration Orifice	Manufacturer	TISCH
Serial No.	0993	Temperature, Ta (K)	298
Model No.	TE-5025A	Pressure, Pa (mmHg)	759.2
Date	3 October 2012		

Plate	Diff.Vol (m ³)	Diff.Time (min)	Diff.Hg (mm)	Diff.H ₂ O (in.)
1	1.00	1.3820	3.2	2.00
2	1.00	0.9800	6.2	4.00
3	1.00	0.8770	7.8	5.00
4	1.00	0.8380	8.7	5.50
5	1.00	0.6930	12.7	8.00

DATA TABULATION

Vstd	(X axis) Qstd	(Y axis)
0.9947	0.7197	1.4134
0.9907	1.0109	1.9989
0.9886	1.1273	2.2348
0.9874	1.1783	2.3439
0.9822	1.4173	2.8268

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta})]$

Qstd Slope (m) = 2.02751

Intercept (b) = -0.04785

Coefficient (r) = 0.99999

Va	(X axis) Qa	(Y axis)
0.9958	0.7205	0.8861
0.9918	1.0121	1.2531
0.9897	1.1285	1.4010
0.9885	1.1796	1.4694
0.9833	1.4189	1.7721

Y axis= $\text{SQRT}[\text{H}_2\text{O}(\text{Ta}/\text{Pa})]$

Qa Slope (m) = 1.26959

Intercept (b) = -0.03000

Coefficient (r) = 0.99999

CALCULATIONS

$V_{\text{std}} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/760](298/\text{Ta})$

$Q_{\text{std}} = V_{\text{std}}/\text{Time}$

$V_{\text{a}} = \text{Diff. Vol}[(\text{Pa} - \text{Diff. Hg})/\text{Pa}]$

$Q_{\text{a}} = V_{\text{a}}/\text{Time}$

For subsequent flow rate calculations:

$Q_{\text{std}} = l/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Pa}/760)(298/\text{Ta}))]-b\}$

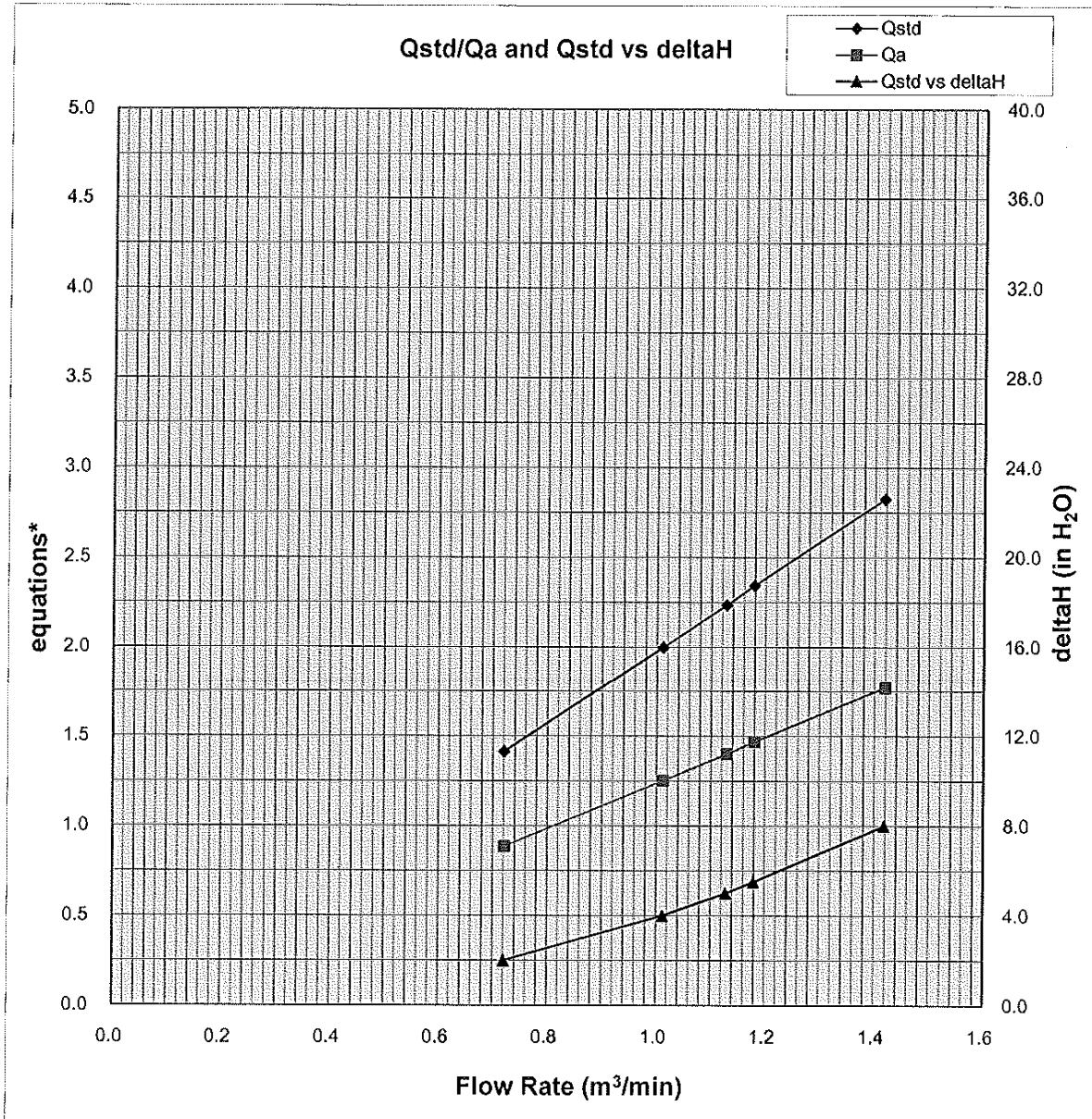
$Q_{\text{a}} = l/m\{[\text{SQRT}(\text{H}_2\text{O}(\text{Ta}/\text{Pa}))]-b\}$

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT



Y-axis equations:

Qstd series: $\text{SQRT}[\Delta H(\text{Pa}/\text{Pstd})(\text{Tstd}/\text{Ta})]$

Qa series: $\text{SQRT}[\Delta H(\text{Ta}/\text{Pa})]$

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/120824/1
Date of Issue:	2012-08-25
Date Received:	2012-08-24
Date Tested:	2012-08-24
Date Completed:	2012-08-25
Next Due Date:	2013-08-24

ATTN: Mr. W.K. Tang

Page: 1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 21139
Microphone No.	: 43690
Equipment No.	: N-08-06

Test conditions:

Room Temperature	: 22 degree Celsius
Relative Humidity	: 65%

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

TEST REPORT

APPLICANT: Cinotech Consultants Limited
Room 1710, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	C/N/121109/1
Date of Issue:	2012-11-11
Date Received:	2012-11-09
Date Tested:	2012-11-09
Date Completed:	2012-11-11
Next Due Date:	2013-11-10

ATTN: Mr. W.K. Tang

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: Brüel & Kjær
Model No.	: 4231
Serial No.	: 2326353
Project No.	: C13
Equipment No.	: N-02-01

Test conditions:

Room Temperature	: 23 degree Celsius
Relative Humidity	: 67 %

Methodology:

The sound calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

Results:

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**



PATRICK TSE
Laboratory Manager

**APPENDIX C
ENVIRONMENTAL MONITORING
SCHEDULES**

**Contract No. SSW 327 - Re provisioning of Cape Collinson Crematorium
Impact Air Quality and Noise Monitoring for January 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Jan	2-Jan	3-Jan	4-Jan	5-Jan
			1 hr TSP	1 hr TSP Noise 24 hrs TSP		
6-Jan	7-Jan	8-Jan	9-Jan	10-Jan	11-Jan	12-Jan
	1 hr TSP		24 hrs TSP	1 hr TSP	1 hr TSP Noise	
13-Jan	14-Jan	15-Jan	16-Jan	17-Jan	18-Jan	19-Jan
		24 hrs TSP	1 hr TSP Noise	1 hr TSP	1 hr TSP	
20-Jan	21-Jan	22-Jan	23-Jan	24-Jan	25-Jan	26-Jan
	24 hrs TSP	1 hr TSP	1 hr TSP	1 hr TSP Noise		24 hrs TSP
27-Jan	28-Jan	29-Jan	30-Jan	31-Jan		
		1 hr TSP Noise	1 hr TSP			

Air Quality Monitoring Station (1 hr TSP & 24 hr TSP)
AM1- Staff Quarters of Cape Collinson Crematorium
AM2 - King Tsui Court

Noise Monitoring Station
M1 - Staff Quarters of Cape Collinson Crematorium

**Contract No. SSW 327 - Re provisioning of Cape Collinson Crematorium
Tentative Impact Air Quality and Noise Monitoring for February 2013**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Feb	2-Feb
					1 hr TSP Noise 24 hrs TSP	
3-Feb	4-Feb	5-Feb	6-Feb	7-Feb	8-Feb	9-Feb
	1 hr TSP	1 hr TSP		24 hrs TSP	1 hr TSP Noise	
10-Feb	11-Feb	12-Feb	13-Feb	14-Feb	15-Feb	16-Feb
				24 hrs TSP	1 hr TSP Noise	
17-Feb	18-Feb	19-Feb	20-Feb	21-Feb	22-Feb	23-Feb
	1 hr TSP	1 hr TSP	24 hrs TSP		1 hr TSP Noise	
24-Feb	25-Feb	26-Feb	27-Feb	28-Feb		
		1 hr TSP 24 hrs TSP		1 hr TSP Noise		

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

Air Quality Monitoring Station (1 hr TSP & 24 hr TSP)

AM1- Staff Quarters of Cape Collinson Crematorium

AM2 - King Tsui Court

Noise Monitoring Station

M1 - Staff Quarters of Cape Collinson Crematorium

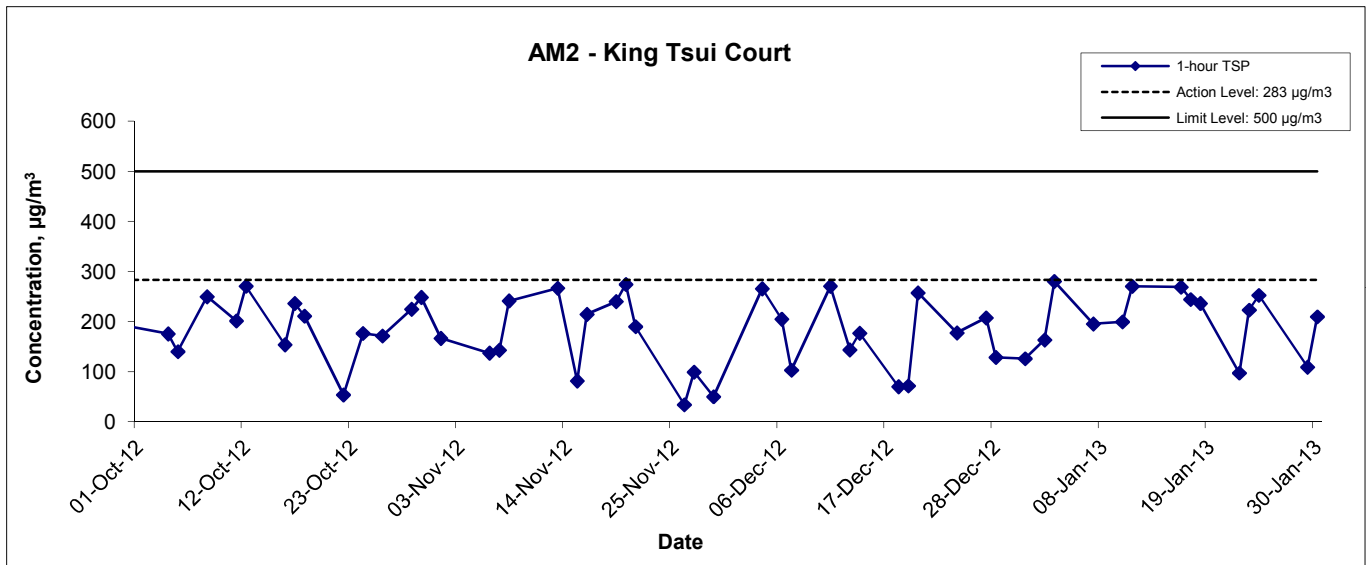
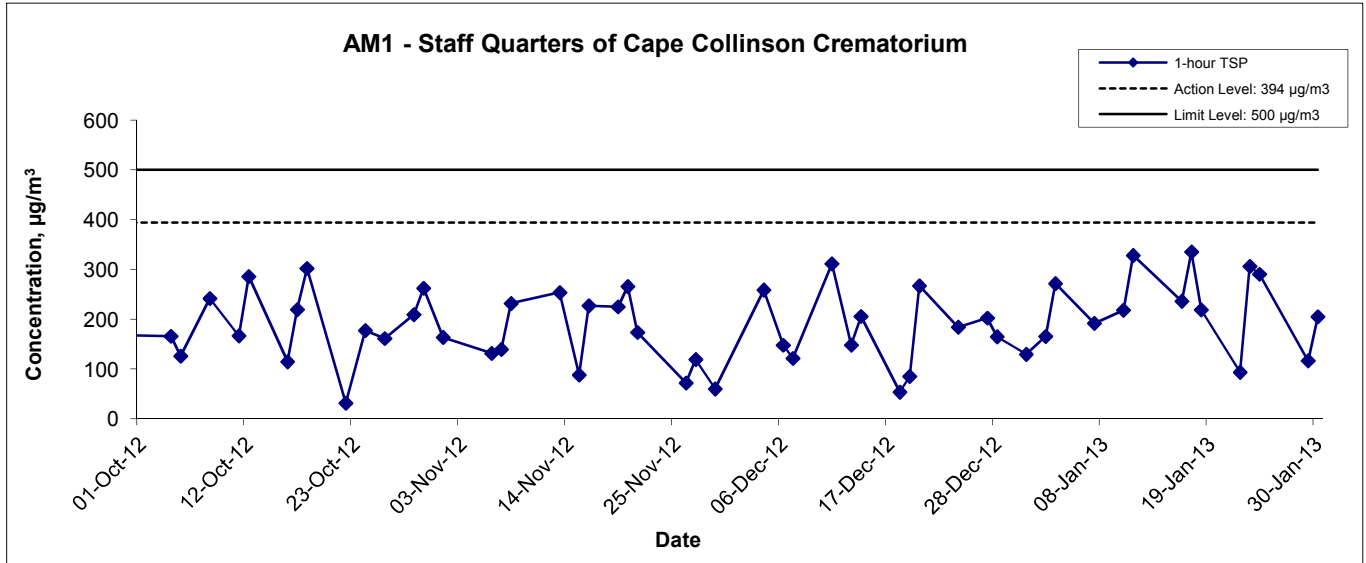
**APPENDIX D
1-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

Appendix D - 1-hour TSP Monitoring Results

Location AM1 - Staff Quarters of Cape Collinson Crematorium			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jan-13	14:15	Sunny	165.7
3-Jan-13	14:20	Cloudy	271.7
7-Jan-13	14:20	Sunny	191.9
10-Jan-13	13:30	Cloudy	218.1
11-Jan-13	11:00	Sunny	328.4
16-Jan-13	11:00	Sunny	236.2
17-Jan-13	11:00	Sunny	335.2
18-Jan-13	10:53	Cloudy	218.8
22-Jan-13	10:35	Sunny	93.6
23-Jan-13	11:00	Cloudy	306.2
24-Jan-13	14:20	Sunny	290.6
29-Jan-13	11:00	Sunny	116.6
30-Jan-13	11:00	Sunny	205.2
		Average	229.1
		Maximum	335.2
		Minimum	93.6

Location AM2 - King Tsui Court			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jan-13	13:00	Sunny	163.4
3-Jan-13	13:00	Cloudy	280.2
7-Jan-13	13:00	Sunny	195.3
10-Jan-13	15:00	Cloudy	199.5
11-Jan-13	9:30	Sunny	270.3
16-Jan-13	9:30	Sunny	268.9
17-Jan-13	9:30	Sunny	244.1
18-Jan-13	13:17	Cloudy	236.0
22-Jan-13	9:10	Sunny	97.2
23-Jan-13	9:30	Cloudy	223.0
24-Jan-13	13:00	Sunny	252.4
29-Jan-13	9:30	Sunny	109.1
30-Jan-13	9:30	Sunny	209.6
		Average	211.5
		Maximum	280.2
		Minimum	97.2

1-hr TSP Concentration Levels



Title Contract No. SSW 327 Reprovisioning of Cape Collinson Crematorium Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. MA0031	
	Date Jan 13	Appendix D	

**APPENDIX E
24-HOUR TSP MONITORING RESULTS
AND GRAPHICAL PRESENTATIONS**

Appendix E - 24-hour TSP Monitoring Results

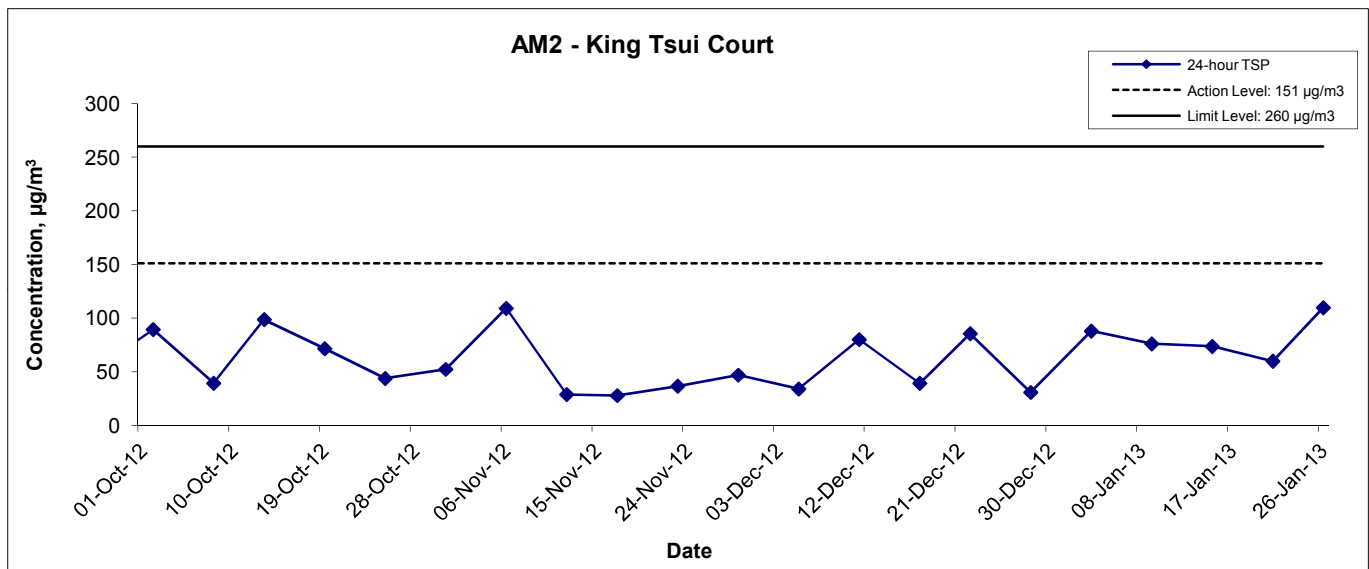
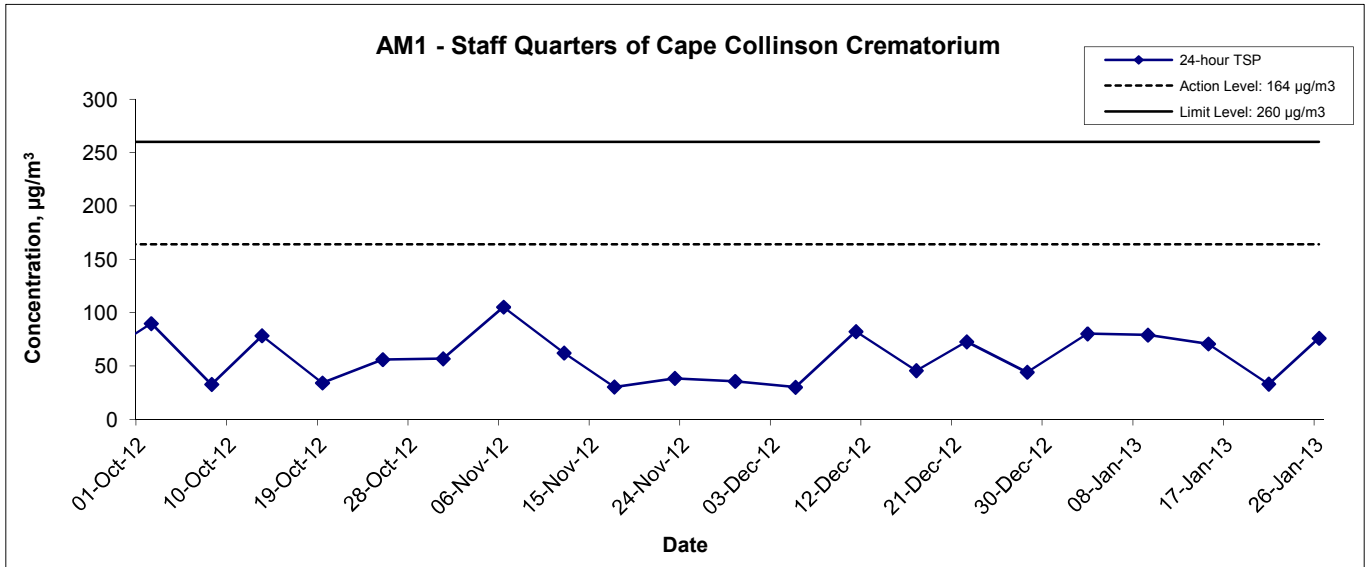
Location AM1 - Staff Quarters of Cape Collinson Crematorium

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
3-Jan-13	Sunny	289.2	771.1	3.1760	3.3167	0.1407	11608.3	11632.3	24.0	1.22	1.22	1.22	1754.5	80.2
9-Jan-13	Cloudy	287.2	769.0	3.0522	3.1911	0.1389	11632.3	11656.3	24.0	1.22	1.22	1.22	1757.9	79.0
15-Jan-13	Sunny	287.7	769.9	3.0712	3.1954	0.1242	11656.3	11680.3	24.0	1.22	1.22	1.22	1757.4	70.7
21-Jan-13	Sunny	292.5	768.4	3.0876	3.1450	0.0574	11680.3	11704.3	24.0	1.21	1.21	1.21	1742.8	32.9
26-Jan-13	Sunny	290.5	767.2	3.1486	3.2814	0.1328	11704.3	11728.3	24.0	1.21	1.21	1.21	1747.0	76.0
													Min	32.9
													Max	80.2
													Average	67.8

Location AM2 - King Tsui Court

Start Date	Weather Sunny	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
3-Jan-13	Sunny	289.2	771.1	3.1766	3.3324	0.1558	8318.5	8342.5	24.0	1.23	1.23	1.23	1769.3	88.1
9-Jan-13	Cloudy	287.2	769.0	3.0570	3.1901	0.1331	8342.5	8366.5	24.0	1.21	1.21	1.21	1748.9	76.1
15-Jan-13	Sunny	287.7	769.9	3.0622	3.1911	0.1289	8366.5	8390.5	24.0	1.21	1.21	1.21	1748.4	73.7
21-Jan-13	Sunny	292.5	768.4	3.0560	3.1599	0.1039	8390.5	8414.5	24.0	1.20	1.20	1.20	1734.2	59.9
26-Jan-13	Sunny	290.5	767.2	3.1043	3.2950	0.1907	8414.5	8438.5	24.0	1.21	1.21	1.21	1738.3	109.7
													Min	59.9
													Max	109.7
													Average	81.5

24-hr TSP Concentration Levels



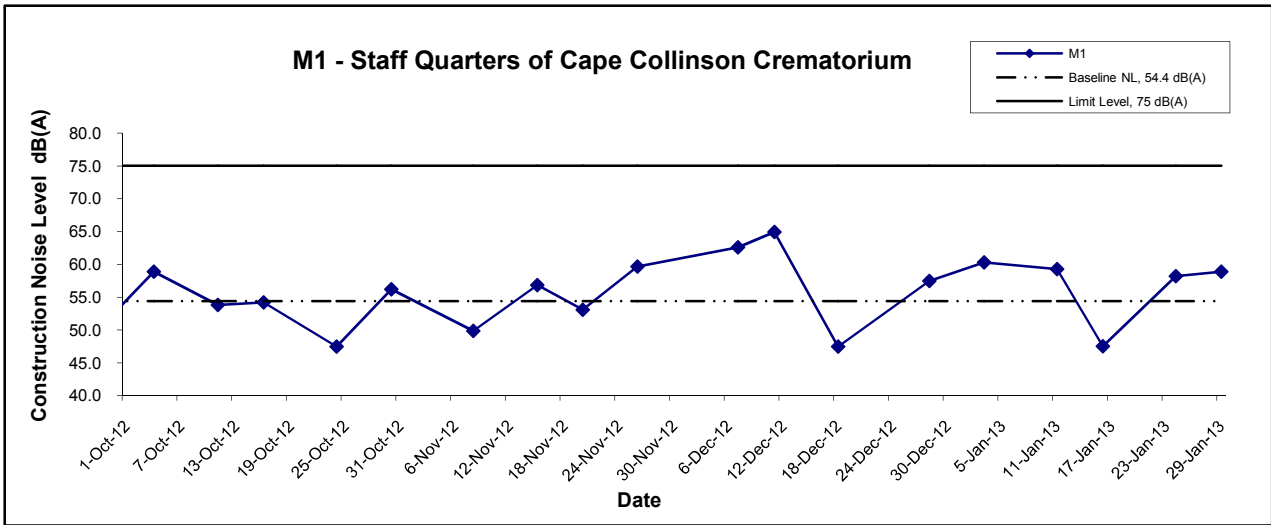
Title Contract No. SSW 327 Reprovisioning of Cape Collinson Crematorium Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA0031	
	Date Jan 13	Appendix E	

**APPENDIX F
NOISE MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Appendix F - Noise Monitoring Results

Location M1 - Staff Quarters of Cape Collinson Crematorium							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Jan-13	14:20	Cloudy	61.3	63.7	50.2	54.4	60.3
11-Jan-13	11:00	Sunny	60.5	62.3	51.7		59.3
16-Jan-13	11:00	Sunny	47.5	51.3	42.2		47.5 Measured ≤ Baseline
24-Jan-13	14:20	Sunny	59.7	62.1	50.1		58.2
29-Jan-13	11:00	Sunny	60.2	60.9	44.6		58.9

Noise Levels



Title Contract No. SSW 327 Reprovisioning of Cape Collinson Crematorium Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA0031	CINOTECH
	Date Jan 13	Appendix F	

**APPENDIX G
VISUAL MITIGATION MEASURES
PHOTOGRAPHIC RECORD**

Appendix G – Visual Mitigation Measures Photographic Record



Photo 1

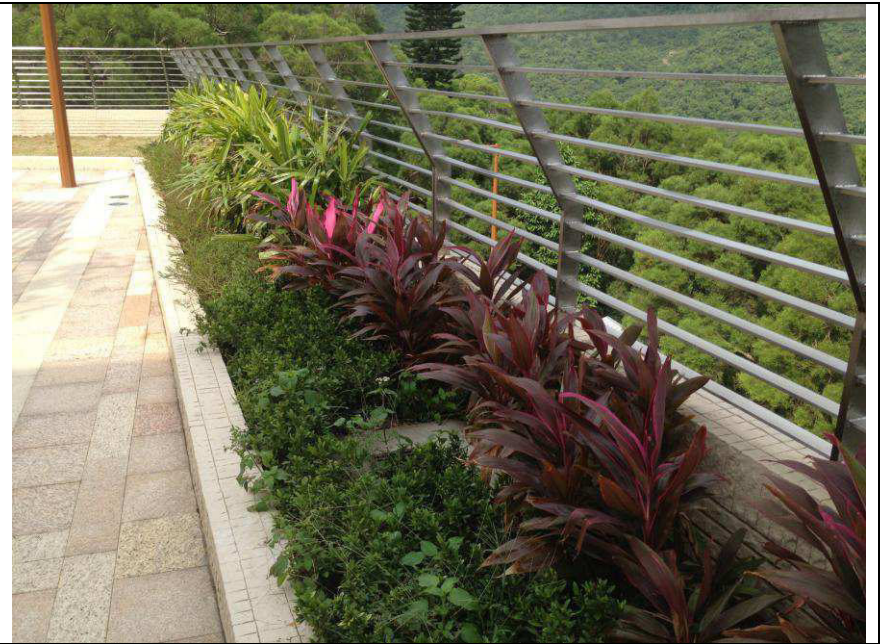


Photo 2



Photo 3



Photo 4



Photo 5



Photo 6

**APPENDIX H
WEATHER CONDITION ON
MONITORING DATE**

Appendix H Weather Conditions on Monitoring Date

Date	Air Temperature (°C)	Mean Relative Humidity (%)
2 - January -2013	14.9 – 19.3	64
3 - January -2013	14.5 – 19.1	72
7 - January -2013	12.7 – 17.5	71
9 - January -2013	14.6 – 18.3	63
10 - January -2013	13.1 – 16.3	65
11 - January -2013	14.6 – 18.8	73
15 - January -2013	14.1 – 17.1	74
16 - January -2013	14.9 – 21.4	71
17 - January -2013	15.2 – 19.6	67
18 - January -2013	13.3 – 16.6	69
21 - January -2013	18.9 – 22.8	76
22 - January -2013	18.9 – 25.6	78
23 - January -2013	16.8 – 20.0	86
24 - January -2013	16.6 – 21.5	78
26 - January -2013	16.3 – 19.8	80
29 - January -2013	16.0 – 21.2	68
30 - January -2013	16.6 – 20.4	74

* The above information was extracted from the daily weather summary by Hong Kong Observatory.

**APPENDIX I
SUMMARY OF EXCEEDANCE**

APPENIDX I – SUMMARY OF EXCEEDANCE

Reporting Month: January 2013

- a) Exceedance Report for 1-hr TSP (NIL)**
- b) Exceedance Report for 24-hr TSP (NIL)**
- c) Exceedance Report for Construction Noise (NIL)**

**APPENDIX J
SITE AUDIT SUMMARY**

Contract No. SSW 327

Re-provisioning of Cape Collinson Crematorium

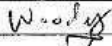

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130104
Date	4 January 2013 (Friday)
Time	10:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130104-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">Clear the general refuse deposited near the site hoarding. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">Follow-up on the previous audit session (Ref. No. 121228), all environmental deficiencies were improved/ rectified by the Contractor.	E liii

	Name	Signature	Date
Recorded by	Woody Poon		7 January 2013
Checked by	Dr. Priscilla Choy		7 January 2013

Contract No. SSW 327

Re-provisioning of Cape Collinson Crematorium

Record Summary of Environmental Site Inspection



Inspection Information

Checklist Reference Number	130111
Date	11 January 2013 (Friday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
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130111-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licences</p> <ul style="list-style-type: none">The relevant licence / Permit should be displayed or posted on site. <p>Others</p> <ul style="list-style-type: none">Follow-up on the previous audit session (Ref. No.130104), all environmental deficiencies were improved/ rectified by the Contractor.	(F1 & F3)
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	Name	Signature	Date
Recorded by	Woody Poon		11 January 2013
Checked by	Dr. Priscilla Choy		11 January 2013

Contract No. SSW 327

Re-provisioning of Cape Collinson Crematorium



Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130118
Date	18 January 2013 (Friday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130118-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none">• Clear the discarded leaves in the U-channel. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">• Follow-up on the previous audit session (Ref. No. 130111), all environmental deficiencies were improved/ rectified by the Contractor.	A1, 19

	Name	Signature	Date
Recorded by	Johnny Fung		18 January 2013
Checked by	Dr. Priscilla Choy		18 January 2013

Contract No. SSW 327

Re-provisioning of Cape Collinson Crematorium

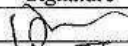
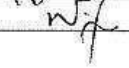
Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130124
Date	24 January 2013 (Thursday)
Time	13:30 – 14:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130124-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none">• Clear the stagnant water in the construction material. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">• Follow-up on the previous audit session (Ref. No. 130118), all environmental deficiencies were improved/ rectified by the Contractor.	A11

	Name	Signature	Date
Recorded by	Johnny Fung		24 January 2013
Checked by	Dr. Priscilla Choy		24 January 2013

Contract No. SSW 327

Re-provisioning of Cape Collinson Crematorium

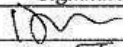

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130128
Date	28 January 2013 (Monday)
Time	10:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-

Ref. No.	Remarks/Observations	Related Item No.
130128-R01	<p>Part A - Water Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part B - Landscape and Visual</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part C - Air Quality</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part D - Noise</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Part E - Waste / Chemical Management</p> <ul style="list-style-type: none">• Clear the general refuse and construction waste properly. <p>Part F - Permit / Licenses</p> <ul style="list-style-type: none">• No environmental deficiency was identified during the site inspection. <p>Others</p> <ul style="list-style-type: none">• Follow-up on the previous audit session (Ref. No. 130124), all environmental deficiencies were improved/ rectified by the Contractor.	E1i, 4ii

	Name	Signature	Date
Recorded by	Johnny Fung		28 January 2013
Checked by	Dr. Priscilla Choy		28 January 2013

**APPENDIX K
SUMMARY OF AMOUNT OF WASTE
GENERATED**

Contract No. / Works Order No.: - SS W327

Monthly Summary Waste Flow Table for 2013 [year] [to be submitted not later than the 15th day of each month following reporting month]

(All quantities shall be rounded off to 3 decimal places.)

Month	Actual Quantities of Inert Construction Waste Generated Monthly				
	(a)=(b)+(c)+(d)+(e) Total Quantity Generated	(b) Broken Concrete (see Note 4)	(c) Reused in the Contract	(d) Reused in other Projects	(e) Disposed of as Public Fill
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)
Jan	0	0	0	0	0
Feb					
Mar					
Apr					
May					
Jun					
Sub-total	0	0	0	0	0
Jul					
Aug					
Sep					
Oct					
Nov					
Dec					
Total	0	0	0	0	0

Month	Actual Quantities of Non-inert Construction Waste Generated Monthly												
	Timber		Metals		Paper/ cardboard packaging		Plastics (see Note 3)		Chemical Waste		Other Recyclable Materials (pls. specify)		General Refuse disposed of at Landfill
	(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000kg)		(in '000m ³)
	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated	recycled	generated
Jan	0	0	2.030	2.030	0.101	0.101	0.020	0.020	0	0	0	0	0
Feb													
Mar													
Apr													
May													
Jun													
Sub-total	0	0	2.030	2.030	0.101	0.101	0.020	0.020	0	0	0	0	0
Jul													
Aug													
Sep													
Oct													
Nov													
Dec													
Total	0	0	2.030	2.030	0.101	0.101	0.020	0.020	0	0	0	0	0

Description of mode and details of recycling if any for the month e.g. XX kg of used timber was sent to YY site for transformation into fertilizers					
NIL	Sent to recycling company	Sent to recycling company	Sent to recycling company	NIL	NIL

- Notes:
- (1) The performance targets are given in the Particular Specification on Environmental Management Plan.
 - (2) The waste flow table shall also include construction waste that are specified in the Contract to be imported for use at the site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 - (4) Broken concrete for recycling into aggregates.
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.

APPENDIX L
EVENT/ ACTION PLANS

Appendix L – Event Action Plan

Event	Action			
	ET	IEC	ER	Contractor
Action Level being exceeded	<ol style="list-style-type: none"> 1. Notify ER, IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC, ER and Contractor; 4. Discuss with the IEC and Contractor on remedial measures required; 5. Increase monitoring frequency to check mitigation effectiveness. 	<ol style="list-style-type: none"> 1. Review the investigation results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Advise the ER on the effectiveness of the proposed remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level being exceeded	<ol style="list-style-type: none"> 1. Inform IEC, ER, Contractor and EPD; 2. Repeat measurements to confirm findings; 3. Increase monitoring frequency; 4. Identify source and investigate the cause of exceedance; 5. Carry out analysis of Contractor's working procedures; 6. Discuss with the IEC, Contractor and ER on remedial measures required; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise the implementation of remedial measures; 5. If exceedance continues, consider stopping the Contractor to continue working on that portion of work which causes the exceedance until the exceedance is abated. 	<ol style="list-style-type: none"> 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. Submit further proposal if problem still not under control; 5. Stop the relevant portion of works as instructed by the ER until the exceedance is abated.

**APPENDIX M
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE**

EIA Ref#	Environmental Protection Measures/ Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
3.102	<p><u>Construction & Demolition Phase</u></p> <p>Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation:</p> <p>skip hoist for material transport should be totally enclosed by impervious sheeting;</p> <p>every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site;</p> <p>the area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;</p> <p>where a site boundary adjoins a road, streets or other accessible to the public, hording of not less than 2.4m high from ground level should be provided along the entire length except for a site entrance or exit;</p> <p>every stack of more than 20 bags of cement should be covered entirely by impervious sheeting places in an area sheltered on the top and the 3 sides;</p> <p>all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet;</p> <p>the excavation area should be limited to as small in size as possible and backfilled with clean and/or treated soil shortly after excavation work;</p> <p>the height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation</p>	Works Sites / During Construction Phase	Contractor		√			EIAO-TM	#

EIA Ref #	Environmental Protection Measures/ Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
3.91	<p>from unloading; the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure dust materials do not leak from the vehicle; and implementation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of works if dusty conditions arise.</p> <p>Implementation of precautionary and mitigation measures for removal of Asbestos Containing Material stipulated in Air Pollution Control Ordinance:</p> <ul style="list-style-type: none"> enclosure of the work area; containment and sealing for the asbestos containing waste; provision of personal decontamination facilities; use of personal decontamination facilities; use of personal respiratory/protection equipment; use of vacuum cleaner fitted with a high efficiency particulate air filter for cleaning up the works area; and carrying out air quality monitoring during the asbestos abatement works. 						APCO		
S3.8 – S3.22 and	<p><u>Operation Phase</u></p> <p>Although the final selection of cremation technology and air pollution control system would be subject to open tendering procedure, the performance and</p>	Cremators / During Operation Phase	Contractor	√		√		APCO	N/A

EIA Ref #	Environmental Protection Measures/ Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
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3.77	specifications of the new cremators and air pollution control system shall fully comply with target emission limits and the BPM12/2(06); Use of towngas as burning fuel for the new cremators; and Adoption of flue gas treatment system for joss paper burners.								
3.108	The monitoring of the air pollutants shall comply with the requirements of BPM and future Specified Process License of new crematorium, to be issued by EPD under the APCO.					√		APCO	

All recommendations and requirements resulted during the course of EIA/EA Process, including ACE and / or accepted public comment to the proposed project.

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
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Waste Management									
S.4.58	<u>Construction & Demolition Phase</u> <u>Good Site Practice</u> Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap. 354) and the Land (Miscellaneous Provision) Ordinance (Cap. 28) <ul style="list-style-type: none"> • Prepare a Waste Management Plan approved by the Engineers / Supervising Officer of the Project based on current best practice on Construction Site • Use waste licensed collector to collect waste • Establish trip ticket system as contractual requirement with reference to ETWB(W) No. 31/2004 for monitoring of public fill and C&D waste at public filling facilities and landfills. • Provide training to site staff in terms of proper waste management and chemical waste handling procedures • Separate chemical wastes for special handling and dispose them at licensed facility for treatment • Provide sufficient waste disposal points and regular collection for disposal • Establish recording system for the amount of wastes generated, recycled and disposed of 	Project site / design, construction and demolition phase	Contractor	√	√			Waste Disposal Ordinance (Cap. 354) Waste Disposal (Chemical Waste) (General) Regulation Waste Disposal (Charges for Disposal of Construction Waste) Regulation ETWBTC(W) 19/2005 ETWB(W) No. 31/2004	#
S.4.59	<u>Environmental Management Plan</u> <ul style="list-style-type: none"> • The ETWB TCW No.19/2005 “Environmental Management on Construction” includes procedures on waste management requiring contractors to reduce the C&D material to be 	Project site / design, construction and	Contractor	√	√	√		ETWBTC(W) 19/2005	^

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
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Waste Management									
	disposed of during the course of construction. Under this ETWB TCW No.19/2005, the Contractor is required to prepare and implement an Environmental Management Plan (EMP) and the Waste Management Plan (WMP) becomes part of the EMP.	demolition phase							
S.4.60	<u>Waste Reduction Measures</u> <ul style="list-style-type: none"> Prior to disposal of C&D waste, wood, steel and other metals should be separated for reuse and / or recycling to minimize the quantity of waste to be disposed of to landfill Minimize use of wood and reuse non-timber formwork to reduce the amount of C&D waste As far as practicable, segregate and store different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal Encourage collection of aluminium cans, plastic bottles and packaging material (e.g. carton boxes) and office paper 	Project site / construction and demolition phase	Contractor		√	√		WBCT No. 32/1992 WBCT No. 19/2005	#
S.4.61-S4.62	<u>Excavated Materials</u> <ul style="list-style-type: none"> Rock and soil generated from excavation should be reused during site formation and landscaping as far as practicable to reduce total amount dispose off site. Trip ticket should be implemented for surplus excavated materials 	Project site / construction and demolition phase	Contractor / ArchSD		√			WBTC No. 12/2000 ETWB TC(W) No. 31/2004	^
S.4.63 – S.4.66	<u>Construction and Demolition Materials</u> <ul style="list-style-type: none"> Well-planned design and good site management can minimize over-loading and generation of waste materials such as concrete and cement grouts. Wooden frame should be replaced by metals. Plastic fencing and reusable site office structure can reduce 	Project site / construction and demolition phase	Contractor / ArchSD	√	√			WBTC No. 2/93 The Land (Miscellaneous Provision) Ordinance	^

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	C&D waste generation. <ul style="list-style-type: none"> The Contractor should recycle as much C&D materials as possible. Proper segregation of waste types on site to enhance reuse and recycling of materials. Designated areas for different materials storage should be assigned for segregation. Under the Construction Waste Disposal Charging Scheme, construction waste producers such as construction and renovation contractors and premises owners, prior using government waste disposal facilities, need to prepare a billing account with EPD and pay for construction waste disposal. It is expected that trip-ticket system should be implemented for surplus C&D materials disposal in accordance with ETWB TC(W) No.31/2004 and the Construction Waste Disposal Charging Scheme. Waste should be delivered to a public fill reception facility. Copies or counterfoils of trip tickets will be kept for record purpose. 							WBTC No. 19/2005 ETWB TC(W) No.31/2004	
S.4.68 – S.4.70	<u>Contaminated Materials – Further Contamination Investigation</u> <ul style="list-style-type: none"> Building structure of cremators, flues and chimney would likely to be contaminated by DCM ash due to long term servicing. As the cremators are still in operation, it is not possible to carry out site investigation in the areas of cremators, flues and chimney in this stage. To maintain uninterrupted cremation services, further site investigation in cremation rooms and associated equipments are proposed to undertake after decommissioning and prior to demolition of existing crematorium. 	Cremators, chimney and flues areas/ After decommissioning but prior to demolition of the existing crematorium.	FEHD, ArchSD, Contractor		√			ProPECC PN 2/97 ProPECC PN 3/94 APCO	^

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	<ul style="list-style-type: none"> According to the asbestos investigation report, asbestos gasket (woven) and insulation sheet were identified with ACM. It is also not possible to inspect all potential asbestos containing material locations due to on-going operation of cremators, concealed pipeline inside wall and covered up flange connection by metal cover. Further inspection of the inaccessible locations will be undertaken prior to demolition works. Contaminated ash and ACM potential contamination locations will be further indentified. In view of close distance between the contaminated ash and ACM, there is concern on contaminated ash wastes being embedded in ACM. Therefore, it is advisable to remove contaminated ash waste prior to any asbestos containing material on building structures. 								
S.4.72 – S 4.73	<u>Asbestos Containing Materials</u> <ul style="list-style-type: none"> Asbestos waste will be handled in accordance with the Code of practice on the Handling, Transportation and Disposal of Asbestos Waste issued by the Environment and Food Bureau. Production, collection and disposal of asbestos waste will follow the “trip-ticket” system. The registered asbestos contractor will be appointed a licensed asbestos waste collector to collect the packaged asbestos waste and deliver to the designated landfill for disposal. Notification has to be given to EPD for its, Ten working days notice of the intention to dispose of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal. 	Cremator room in existing crematorium / before demolition	Contractor		√			COP on Handling, Transportation and Disposal of Asbestos Waste under the Waste Disposal (Chemical Waste)(General) Regulation	^

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
S.4.75	<p><u>Demolition, Handling, Treatment and Disposal of Low Contaminated DCM from Demolition of Existing Crematorium</u></p> <ul style="list-style-type: none"> Where the ash waste contains low contamination levels of DCM (<1ppb TEQ), the Contractor should avoid ash waste becoming airborne during demolition. General dust suppression measures will be followed and ash waste would be directly disposed to landfill. 	Cremator room in existing crematorium / before demolition	Contractor		√			ProPECC PN 3/94 APCO	^
S.4.76	<ul style="list-style-type: none"> Demolition, Handling, Treatment and Disposal of Moderately Contaminated DCM from Demolition of Existing Crematorium Where the ash waste contains low contamination levels of DCM (>1 and <10 ppb TEQ), the following steps should be followed: <ul style="list-style-type: none"> Site Preparation - Except the cremators / flue / chimney, all removable items should be removed as far as practicable to avoid obstructing the decontamination activities; - Preliminary site decontamination of all debris should be carried out using High Efficiency Particulate Air (HEPA) vacuum cleaner; - Top portion of the chimney should be enclosed by a 3-layer chamber of polyethene sheets; - At the entrance to the cremators/ flues/chimney, a 3-chamber decontamination unit should be constructed for entry and exit from the work area. The 3-chamber decontamination unit should comprise a dirty room, a shower room and a clean room of at least 1m x 1m base with 3-layer of fire retardant polyethylene sheet; - Workers should carry out decontamination 	Cremator room in existing crematorium / before demolition	Contractor		√		ProPECC PN 3/94 APCO	^	

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	<p>procedure before leaving the work area;</p> <ul style="list-style-type: none"> • - Workers should wear full protective equipment, nitrile gloves, rubber boots and full-face positive pressure respirator; and • - Warning signs in both Chinese and English should be provided in conspicuous areas. • • Demolition and Handling • - The cremators / flue / chimney should be removed from top down. Any ash or residues attached to the cremators / flue / chimney or any other building structure should be removed by scrubbing and HEPA vacuuming; • - Waste generated from the containment or decontamination unit including the protection clothing of the workers should be disposed to landfill; and • - After removal, all surfaces should be decontaminated by HEPA vacuum. • Treatment and Disposal • - Immobilise ash waste by proper mixing with cement as determined by the pilot mixing and Toxicity Characteristic Leaching Procedure (TCLP); • - Waste material should be placed in polyethylene lined steel drums for disposal at landfill, the drums should be 16 gauge steel or thicker and fitted with double bung fixed ends adequately sealed and well labeled in new or good condition. • - Drums should be clearly marked "DANGEROUS CHEMICAL WASTE" in English and Chinese. Prior agreement of the disposal criteria must be obtain from EPD and the landfill operator. 								

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	<ul style="list-style-type: none"> - As a fall back option, if landfill disposal criteria cannot be met after immobilization of the ash waste, disposal at the Chemical Waste Treatment Center (CWTC) should be considered. 								
S.4.77	<ul style="list-style-type: none"> Demolition, Handling, Treatment and Disposal of Severely Contaminated DCM from Demolition of Existing Crematorium Where the ash waste contains severely contamination levels of DCM (>10ppb TEQ), the following steps should be followed: <ul style="list-style-type: none"> • Site Preparation • - Except the cremators / flue / chimney, all removable items should be removed as far as practicable to avoid obstructing the decontamination activities; • - Preliminary site decontamination of all debris should be carried out using High Efficiency Particulate Air (HEPA) vacuum cleaner; • - The walls, floor and ceiling of the cremator room where severely contaminated DCM should be lined with 3-layer chamber of fire retardant polyethene sheets. Top portion of the chimney above the roof should be enclosed by a 3-layer chamber of polyethene sheets; • - At the entrance to the cremators / flues / chimney, a 3-chamber decontamination unit should be constructed for entry and exit from the work area. The 3-chamber decontamination unit should comprise a dirty room, a shower room and a clean room of at least 1m x 1m base with 3-layer of fire retardant polyethylene sheet where all workers would carry out decontamination procedures 	Cremator room in existing crematorium / before demolition	Contractor		√			ProPECC PN 3/94 APCO	N/A

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	before leaving the work area; <ul style="list-style-type: none"> • - Air movers should be installed at the cremator room, and at the bottom of the chimney to exhaust air from work area. A stand-by air mover should be installed with each of air movers. Sufficient air movement should be maintained to give a minimum of 6 air changes per hour to the work area; • - New pre-filters and HEPA filters should be used on the air movers. • - Before commencement of the decommissioning work, a smoke test with non-toxic smoke should be carried out to confirm the air tightness of the containment; • - Workers should wear full protective equipment, disposable protective coverall (such as Tyvek with shoe covers and hood), nitrile gloves, rubber boots and full-face positive pressure respirator equipped with a combination cartridge that filters particulate and removes organic vapour; and • - Warning signs in both Chinese and English should be provided in conspicuous areas. • Decontamination, Demolition and Handling • - The cremators / flue / chimney should be removed from top down. Any ash or residues attached to the cremators / flue / chimney or any other building structure should be removed by scrubbing and HEPA vacuuming; • - The contaminated detached sections of the building structure where severely contaminated DCM is located should be wrapped with 2 layers of fire retardant polyethene sheets. A third layershould be wrapped and secured with duct tape. 								

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	Decontaminate the outer layer of the wrapped flue sections by wet wiping; and <ul style="list-style-type: none"> - After completion of removal and decontamination, spary the innermost layer of the fire retardant polyethene sheet with PVA. Upon drying, peel off and dispose of at landfill site. Treatment and Disposal - All contaminated ash waste with severely contaminated DCM removed and the used HEPA filters should be sent to Chemical Waste Treatment Center (CWTC) at Tsing Yi; and Other waste including the building structures and its associated panels as well as waste generated from this decommissioning works are also considered as contaminated waste and should be disposed of at designated landfill. Waste generated from this decommissioning works refer to the polyethene wrapping sheets should be placed into appropriate containers for disposal. Permit has to be obtained from the Authority. Disposal trip ticket is required to be made available as record after disposal. 								
S4.78	<ul style="list-style-type: none"> Further investigation and confirmatory test for ash waste in cremator, chimney and flues should be carried out on DCM prior to the demolition of the existing crematorium. The sampling and analysis plan should be prepared and submitted to EPD for approval. 	Cremators, Chimneys and Flues / before demolition	Contractor		√			ProPECC PN 3/94 APCO	N/A
S4.79	<ul style="list-style-type: none"> The mitigation measures stated in Section 4.75 to 4.78 of EIA report aim to address the detailed measures of avoiding cross contamination of DCM and ACM and should 	Cremator room, cremators, chimney and flues areas/	Contractor		√				N/A

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	form part of the DCM Assessment Report which will be submitted to EPD for approval before the commencement of the demolition of the existing crematorium.	before demolition							
S.4.81 – S.4.83	<ul style="list-style-type: none"> • Chemical Waste • All the chemical waste should be handle according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. The chemical waste should store and collect by an licensed contractor for disposal at licensed facility in accordance with the Waste Disposal (Chemical Waste)(General) Regulation. Containers used for the storage of chemical waste should be: <ul style="list-style-type: none"> • - Suitable for substance holding, resistant to corrosion, maintained in good condition and securely closed; • - Capacity of less than 450 liters unless the specifications have been approved by the EPD; and • - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste)(General) Regulation. • The storage area for chemical waste should: <ul style="list-style-type: none"> • - Be clearly labeled and used solely for the storage of chemical waste; • - Be enclosed on at least 3 sides; • - Have a impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • - Have adequate ventilation; • - Be covered to prevent rainfall from entering (water collection within the bund must be 	Project site / demolition	Contractor		√			Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	tested and disposal as chemical waste if necessary); and <ul style="list-style-type: none"> - Be properly arranged so that incompatible materials are adequately separated. The chemical waste should be disposed of by: <ul style="list-style-type: none"> - A licensed waste collector; - A facility licensed to receive chemical waste, such as CWTC at Tsing Yi, which offers chemical waste collection service and can supply the necessary storage containers; and - A waste recycling plant as approved by EPD. 								
S.4.84 – S.4.85	<ul style="list-style-type: none"> General Refuse General refuse should be stored in enclosed bins or compaction units separated from C&D and chemical wastes. Waste collector should be employed by the Contractor to minimize odour, pest and litter impacts. Open burning of refuse on construction site is prohibited by law. The Contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling. This should include provision of three-colour recycling bins and on site and posters and leaflets advising on the use of recycling bins. 	Project site / Construction and demolition stage	Contractor		√				^
S.4.86- S.4.101	<ul style="list-style-type: none"> Operation Phase Ash and non-combustible residues -The disposal of bone and non-combustible residues should be properly collected and handled to avoid dust emissions. In line with the current practices, the bone ash will be stored in covered containers for collection by the deceased's relatives within 2 months upon appointment while the non-combustible residues will be collected in sealed heavy-duty 	New crematorium / Operation phase	FEHD			√		Code of Practice on Packaging, Labelling and Storage of Chemical Wastes. Waste Disposal (Chemical Waste)(General)	N/A

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	polyethene bags for disposal at landfill. <ul style="list-style-type: none"> • Chemical Waste • - Chemical waste generated from the air pollution system as well as from machinery maintenance and servicing should be managed in accordance with the Code of Practice on the Packaging, Labelling and storage of Chemical Wastes under the provisions of the Waste Disposal (Chemical Waste)(General) Regulation. The chemical waste should be collected by drum-type containers and removed by licensed chemical waste contractor. • - Plant / equipment maintenance schedules should be planned in order to minimize the generation of chemical waste. • - Non-recyclable chemical wastes and lubricants should be disposed at an appropriate facility, such as EPD Chemical Waste Treatment Centre at Tsing Yi. Copies or counterfoils from collection receipts issued by the licensed waste collector should be kept for record purpose. • Fly Ash • - Collected and stored in sealed drums provided by the CWTC. • - Sealed drums are stored in a designated area and are periodically collected by CWTC (normally two to three weeks interval). • - Drums are taken to CWTC where they are incinerated and rendered harmless. • - Residues are then disposed of at landfill. • General Refuse • - Waste generated in offices should be reduced through segregation and collection of recyclable waste materials (such as paper). To 							Regulation	

EIA Ref #	Environmental Protection Measures/Mitigation Measures	Location/ Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Waste Management									
	promote recycling of waste paper, aluminum cans and plastic bottles, it is recommended to place clearly labeled recycling bins at designated locations. The recyclable waste materials should be collected by licensed collectors: <ul style="list-style-type: none"> - General refuse, other than segregated recyclable wastes, should be separated from any chemical waste and stored in covered skips. Food and Environmental Hygiene Department (FEHD) should remove general refuse from the site on daily basis to minimize odour, pest and litter impacts. Also open burning of refuse must be strictly prohibited. 								
S.10.5 – S.10.6	<ul style="list-style-type: none"> EM&A To maintain uninterrupted cremation services, further site investigations are recommended. Building structures asbestos investigation and dioxins ash waste investigation are recommended around cremators, chimney, flues and surrounding areas. 	Cremators, chimney, flues and surrounding areas / after decommissioning and prior to demolition	Contractor		√			ProPECC PN 2/97 and 3/94 AIR,AMP/AAP to be submitted under APCO Further Site Investigation Plan	^

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Table 12.3 Implementation Schedule for Land Contamination

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
5.29	Since the cremators are still in operation the proposed trial pit location, TP-1, is possessed by CEDD, it is not possible to carry out site investigation inside the cremation rooms and at TP-1 at this stage. Further site inspection of TP-1 and two cremation rooms shall be carried out after decommissioning and prior to the demolition of the existing crematorium. A supplementary CAP shall be prepared for EPD endorsement to present detailed sampling and testing plan for two cremation rooms. Further SI of TP-1 shall be conducted in accordance with the approved CAP. Findings of site investigation and appropriate remediation methods shall be presented in supplementary CAR and RAP for EPD endorsement prior to the commencement of any earthworks. The extent of contamination, if any, should be estimated	Pipeline, Cremator Rooms 1 and 2 / before demolition of the existing cremators	Contractor				√	Guidance Note for Contaminated Land Assessment and Remediation; Guidance Notes for Investigation and Remediation of Contaminated Sites of: Petrol Filling Stations, Boatyards, and Car Repair / Dismantling Workshops; Guidance Manual for Use of Risk-Based Remediation	N/A

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	based on the depth where contaminants found, the hydrogeological condition and the contaminants levels. The actual extent would be determined by confirmatory sampling and testing.							Goals for Contaminated Land Management; and	
5.40	Cement solidification / stabilization technique is considered as the most practical and cost-effective method to treat the metals contaminated soil on site.	Near underground storage tank / During soil treatment	Contractor				√	EIAO-TM	N/A
5.43 –5.44	Confirmatory soil sampling for closure assessment should be carried out to confirm the clean-up of the contaminated soil.	Near underground storage tank / During soil treatment	Contractor				√		N/A
5.46	Upon completion of cement solidification / stabilization, confirmation sampling and testing shall be undertaken to ensure the cleanup targets have been attained.	Near underground storage tank / During soil treatment	Contractor				√		N/A
5.49	If contaminated soil is found underneath the pipeline and at cremator rooms from the further SI, depending on the contamination extent, possible remediation methods for	Pipeline, Cremator Rooms 1 and 2 / before demolition of the	Contractor				√		N/A

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	organic contaminants could be excavation and biopiling as well as in-situ soil venting. If the volume of contaminated is found to be small and the aforesaid remediation methods is infeasible and impracticable, excavation and landfill disposal could be considered as last resort. Closure assessment in accordance with Sections 5.43 to 5.44 of EIA Report shall be carried out in order to confirm the clean-up of contaminated soil. The remediation method should be determined in the supplementary RAP according to the laboratory results and estimated quantity of contaminated soil.	existing cremators							
5.50	During removal of the underground storage tank, appropriate precautions should be taken to avoid contamination. All fuel tank and associated pipework should be emptied prior to any demolition work being undertaken. Any remaining sludge or sediment in the tanks or pipework should be removed and disposed of as chemical waste in accordance with the appropriate	Underground storage tank system / before demolition of the existing cremators	Contractor				√	Occupational Safety & Health Ordinance; Guidelines on Occupational Exposure	N/A

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
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Land Contamination									
	regulation for disposal of such material. After removal of the underground storage tank, confirmatory soil sample(s) underneath the tank should be collected and tested for TPH, VOCs and Pb using the same approach as mentioned in Sections 5.43 and 5.44 of EIA Report to ensure that no contamination due to fuel leakage.								
5.57 – 5.58	The following basic health and safety measures should be implemented as far as possible: <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight 	At contaminated and soil treatment areas/ During soil treatment	Contractor				√	Occupational Safety & Health Ordinance; Guidelines on Occupational Exposure	N/A

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	gloves) to site workers; and <ul style="list-style-type: none"> • Provide first aid training and materials to site workers. The Contractor for the excavation works shall take note of the following points for excavation: <ul style="list-style-type: none"> • Excavation profiles must be properly designed and executed; • In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means. The discharge of groundwater, if any, should follow the requirements under the Water Pollution Control Ordinance (WPCO); • Excavation zone should be fenced off; • Quantities of soil to be excavated must be estimated; • It may be necessary to split quantities of soil according to soil type, degree and nature of contamination; • Temporary storage of soil at intermediate 								

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
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Land Contamination									
	depot or on-site may be required. The storage site should include protection facilities for leaching into the ground e.g. a liner may be required; <ul style="list-style-type: none"> • Supply of suitable clean backfill material is needed after excavation; • Care must be taken of existing buildings and utilities; and • Precautions must be taken to control of ground settlement. • should be disposed of in accordance with the WPCO. 								
5.60	The following mitigation measures are recommended to be implemented during CS/S processes. <u>Air Quality Impact</u> <ul style="list-style-type: none"> • The loading, unloading, handling, transfer or storage of cement should be carried out in an enclosed system. • The loading, unloading, handling, transfer or storage of other materials which may generate airborne dust emissions such as untreated soil and oversize materials 	At contaminated and soil treatment areas/ During soil treatment	Contractor				√	Occupational Safety & Health Ordinance; Guidelines on Occupational Exposure	N/A

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	<p>sorted out from the screening plant and stabilized soil stockpiled in the designated handling area, should be carried out in such a manner to prevent or minimise dust emissions. These materials should be adequately wetted prior to and during the loading, unloading and handling operations.</p> <ul style="list-style-type: none"> All practicable measures should be taken to prevent or minimize the dust emission caused by vehicle movement. <p><u>Noise Impact</u></p> <ul style="list-style-type: none"> The mixing area should be sited as far as practicable to nearby noise sensitive receivers. Simultaneous operation of mixing plants and other equipment should be avoided. Mixing process and other associated material handling activities should be properly scheduled to minimise potential cumulative noise impact on nearby noise sensitive receivers. Construction Noise Permit should be 								

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	<p>applied for the operation of powered mechanical equipment, if any, during restricted hours.</p> <p><u>Water Quality Impact</u></p> <ul style="list-style-type: none"> Stockpile of untreated soil should be covered as far as practicable to prevent the contaminated material from leaching out. The leachate should be discharged following the requirements of Water Protection Control Ordinance. <p><u>Waste</u></p> <ul style="list-style-type: none"> The oversize materials such as rocks and boulders should be screened out, cleaned the soil attached and used as filling material within the site. Contaminated materials (soil or rock fragments) of size smaller than 5 cm should be collected and transferred to the mixing area for decontamination treatment. Stabilized soils should be broken into suitable size for backfilling or reuse on site. 								

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Land Contamination									
	<ul style="list-style-type: none"> A high standard of housekeeping should be maintained within the mixing area. There should be clear and separated areas for stockpiling of untreated and treated materials. 								

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EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Visual Impact									
Table 6.4	<u>Construction & Demolition Phase</u> Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where practical.	Work site / During Construction Phase	Contractor	√	√			EIAO-TM Annex 10, 18 ETWB TCW 2/2004 ETWB TCW 3/2006	^
	Existing trees to be retained on site should be carefully protected during construction.	Work site / During Construction Phase	Contractor	√	√				#
	Trees unavoidably affected by the works should be transplanted where practical.	Work site / During Construction Phase	Contractor	√	√				^
	Compensatory tree planting should be provided to compensate for felled trees.	Work site / During Construction Phase	Contractor	√	√				^
	Control of night-time lighting.	Work site / During Construction Phase	Contractor		√				^
	Erection of decorative screen hoarding compatible with the surrounding setting.	Work site / During Construction Phase	Contractor		√				^

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				Des	C	O	Dec		
Visual Impact									
Table 6.5	<u>Operation Phase</u> Aesthetic design of the façade/chimneys/noise barriers and associated structures to harmonize with the surrounding settings.	Work site / During Design Stage and Operation Phase	FEHD	√		√		EIAO-TM Annex 10, 18 ETWB TCW 2/2004 ETWB TCW 3/2006	N/A
	Aesthetic design of landscaped roof.	Work site / During Design Stage and Operation Phase	FEHD	√		√			N/A
	Tree and shrub planting to enhance amenity	Work site / During Design Stage and Operation Phase	FEHD	√		√			N/A
	Reinstated of disturbed area.	Work site / During Design Stage and Operation Phase	FEHD	√		√			N/A

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Noise									
S7.49	<u>Construction Phase</u> Use of quiet PME for excavator/loader, soil nailing drilling machine, rock dowel drilling machine, bulldozer, dump truck and crawler mounted rock drill.	Work site / During construction and demolition phase	Contractor		√			EIAO-TM, GW-TM, NCO	^
S7.52	Good Site Practice: <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program; • Mobile plant, if any, should be sited as far from NSRs as possible; • Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs; and • Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site 	Work site / During construction and demolition phase	Contractor		√			EIAO-TM, GW-TM, NCO	^

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Noise									
	construction activities.								
S7.53	<u>Operation Phase</u> Provision of 2.5m high acoustic barriers for a total of 10 radiators. The noise barrier would be lined with sound absorbing material at the surface of the barrier facing the noise source.	Upper roof of the crematorium / During operation phase	ArchSD, FEHD	√		√		EIAO-TM, NCO	N/A

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Water Quality									
S8.30 to S8.52	The measures as outlined in the ProPECC PN 1/94 should be followed where applicable.	Work site / during construction and demolition phase	Contractor		√			Technical Memorandum on the Environmental Impact Assessment Process (EIAO-TM) Water Pollution Control Ordinance (WPCO) Technical Memorandum on Standards for Effluents Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM-DSS)	^
S8.3 and S8.53	There is a need to apply to EPD for a discharge licence under the WPCO for discharging effluent from the construction site. The discharge quality is required to meet the requirements specified in the discharge licence. All the runoff, wastewater or extracted groundwater generated from the works areas should be treated as necessary so that it satisfies all the standards listed in the	Work site / during construction and demolition phase	Contractor		√			EIAO-TM, WPCO, TM-DSS	^

EIA Ref#	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Water Quality									
	TM-DSS.Monitoring of the construction site effluent quality should be carried out in accordance with the WPCO license which is under the ambit of regional office (RO) of EPD.								
S8.54	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities.	Work site / during construction and demolition phase	Contractor		√			EIAO-TM, WPCO, TM-DSS	^
S8.55	Good site practices should be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis. Stockpiles of cement and other construction materials should be kept covered when not being used.	Work site / during construction and demolition phase	Contractor		√			EIAO-TM, WPCO, TM-DSS	#
S8.56	Oils and fuels should only be used and stored in	Work site / during	Contractor		√			EIAO-TM, WPCO,	^

EIA Ref #	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stages*				Relevant Legislation and Guidelines	Status
				Des	C	O	Dec		
Water Quality									
	designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to the nearby watercourse, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event. Oil leakage or spillage should be contained and cleaned up immediately.	construction and demolition phase						TM-DSS	
S8.57	Handling and disposal of operation stage effluent should follow the practices outlined in ProPECC PN 5/93 where applicable.	Project site / during design and operation phase	FEHD	√		√		EIAO-TM, WPCO, TM-DSS	^

All recommendations and requirements resulted during the course of EIA Process, including ACE and / or accepted public comment to the proposed project.

Remarks:	^ Compliance of mitigation measure;	X Non-compliance of mitigation measure;
	N/A Not Applicable;	• Non-compliance but rectified by the contractor
	# Recommendation was made during site audit but improved/rectified by the contractor.	* D = Design, C = Construction, O = Operation

**APPENDIX N
COMPLAINT LOG**

APPENDIX N – COMPLAINT LOG

Reporting Month: January 2013

Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Remarks: No environmental complaint was received in the reporting month.

APPENDIX O
CONSTRUCTION PROGRAMME

Master Programme
Reprovision of Cape Collinson Crematorium
Contract No. SS W327

