Cheung Hing Construction Co. Ltd.

Contract No. SSW327

Reprovisioning of Cape Collinson Crematorium

Monthly Environmental and Audit Report
April 2013
(Version1.1)

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 32nd 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 April 2013.

2. The site activities undertaken in the reporting month was:
   - Erection of hoardings for Phase 2A;
   - Soil treatment for contaminated soil at Borehole BH1;
   - Reinstatement of excavated trial pit TP1;
   - Investigation for DCM and ACM; and
   - Removal of sludge at U/G Oil Tank under Section 2C.

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 April 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 March 2013	Submitted to EPD On 2nd May 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:

- Erection of hoardings for Phase 2A;
- Soil treatment for contaminated soil at Borehole BH1;
- Investigation for DCM and ACM;
- Removal of U/G Oil Tank under Section 2C; and
- Removal of existing canopy under Section 2B.

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 32nd monthly Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech for the Project on April 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**.

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. Gary Lau	Project Coordinator & Audit Team Leader	2151 2098	
		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:

- Erection of hoardings for Phase 2A;
- Soil treatment for contaminated soil at Borehole BH1;
- Reinstatement of excavated trial pit TP1;
- Investigation for DCM and ACM; and
- Removal of sludge at U/G Oil Tank under Section 2C.

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 April 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-3, LD-3B	6
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).

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 m^3/min. and 1.4 m^3/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.

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 ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±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 & 957	3
Calibrator	SV30A	3

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 5th, 12th, 19th and 25th April 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	5 April 2013	Clear the stagnant water accumulated in the construction material.	The stagnant water had been removed.
	12 April 2013	Direct discharge of wastewater to gullies should be avoided.	Sand bag bunding was provided to the gullies prevent direct discharge of waste water or surface runoff.
	19 April 2013	Provide temporary sedimentation tank and drainage system to collect surface runoff.	A sedimentation tank has been installed. A temporary drainage plan was also submitted to the Architect's for Approval.
	19 April 2013	Clear the mud and construction waste deposited in the gullies	All mud and construction waste was removed.
	25 April 2013	Provide sand bag bunding to the site boundary to prevent discharge of surface runoff.	Sand bag bunding has been provided to the site boundary.
Waste/Chemical Management	12 April 2013	Avoid direct contact of empty chemical containers to the ground.	Tarpaulin sheet and sand bag bunding was provided to the containers to avoid chemical leakage to the ground.
Air Quality	12 April 2013	Provide water spray to rock-breaking activities to avoid dust generation.	Water spray has been provided.
Landscape and Visual	--	--	--
Permits/Licenses	--	--	--

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		
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	WT00007200-2010	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 Lubrucating 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**. 117m^3 of Inert C&D waste was disposed. 4.52 tons C&D waste, including metals, paper/ cardboard packaging and plastics, were sent to recyclers and 18900kg was collected by licensed chemical waste collector. 7 m^3 of other C&D waste, e.g. general refuse, were disposed to SENT landfill in April 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 April 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.

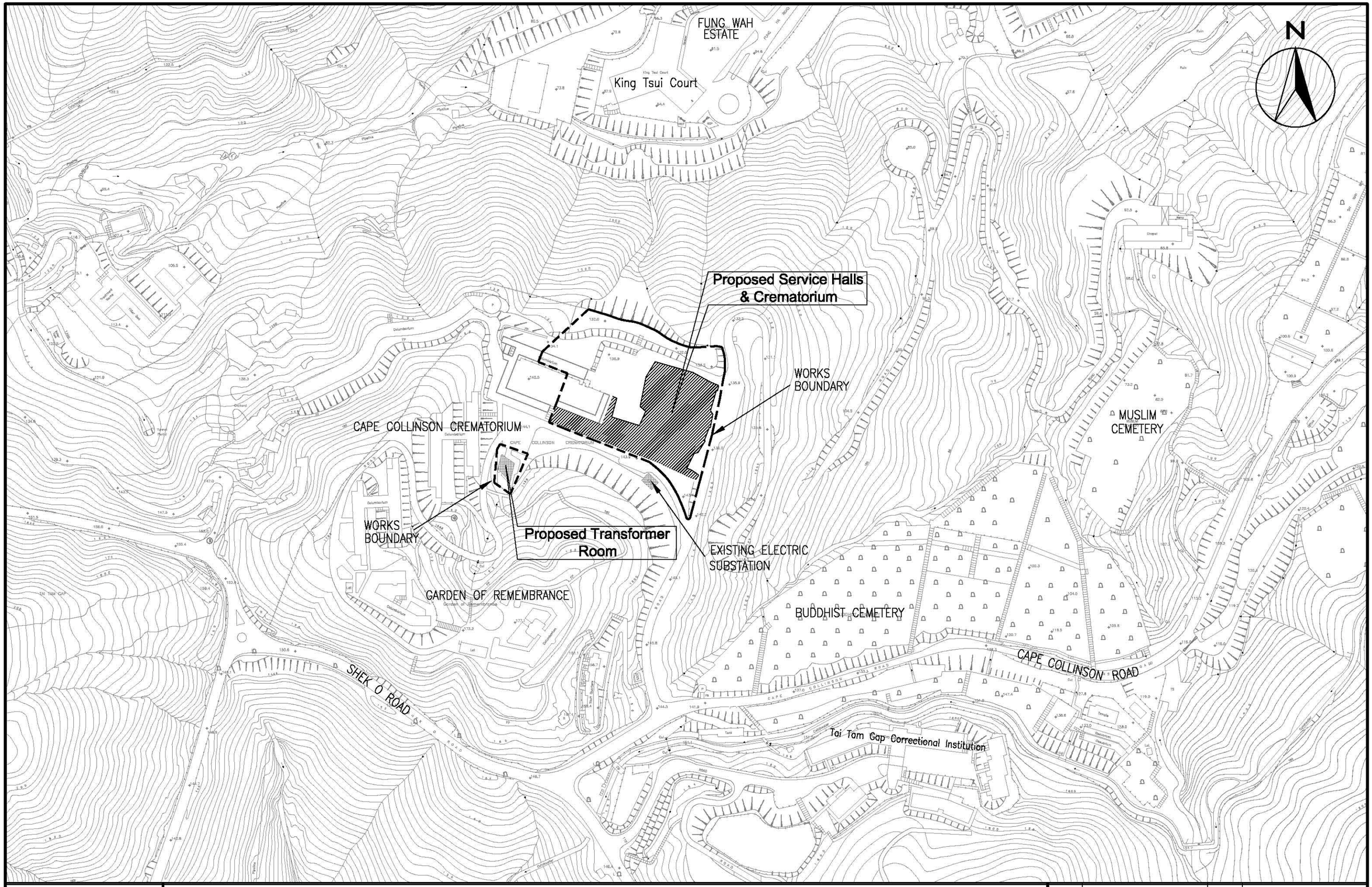
Waste/Chemical Management

- 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.

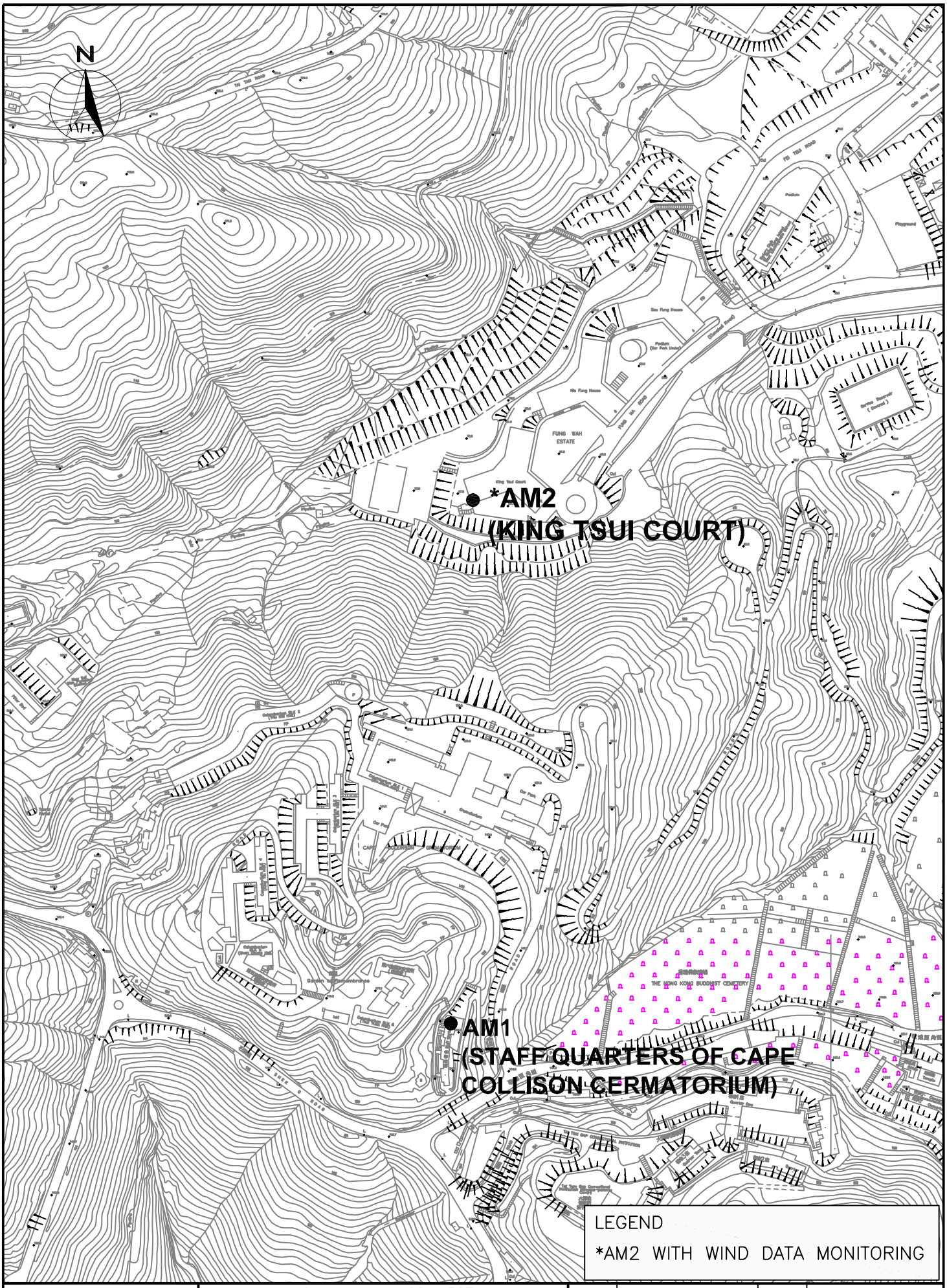
FIGURES



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 –



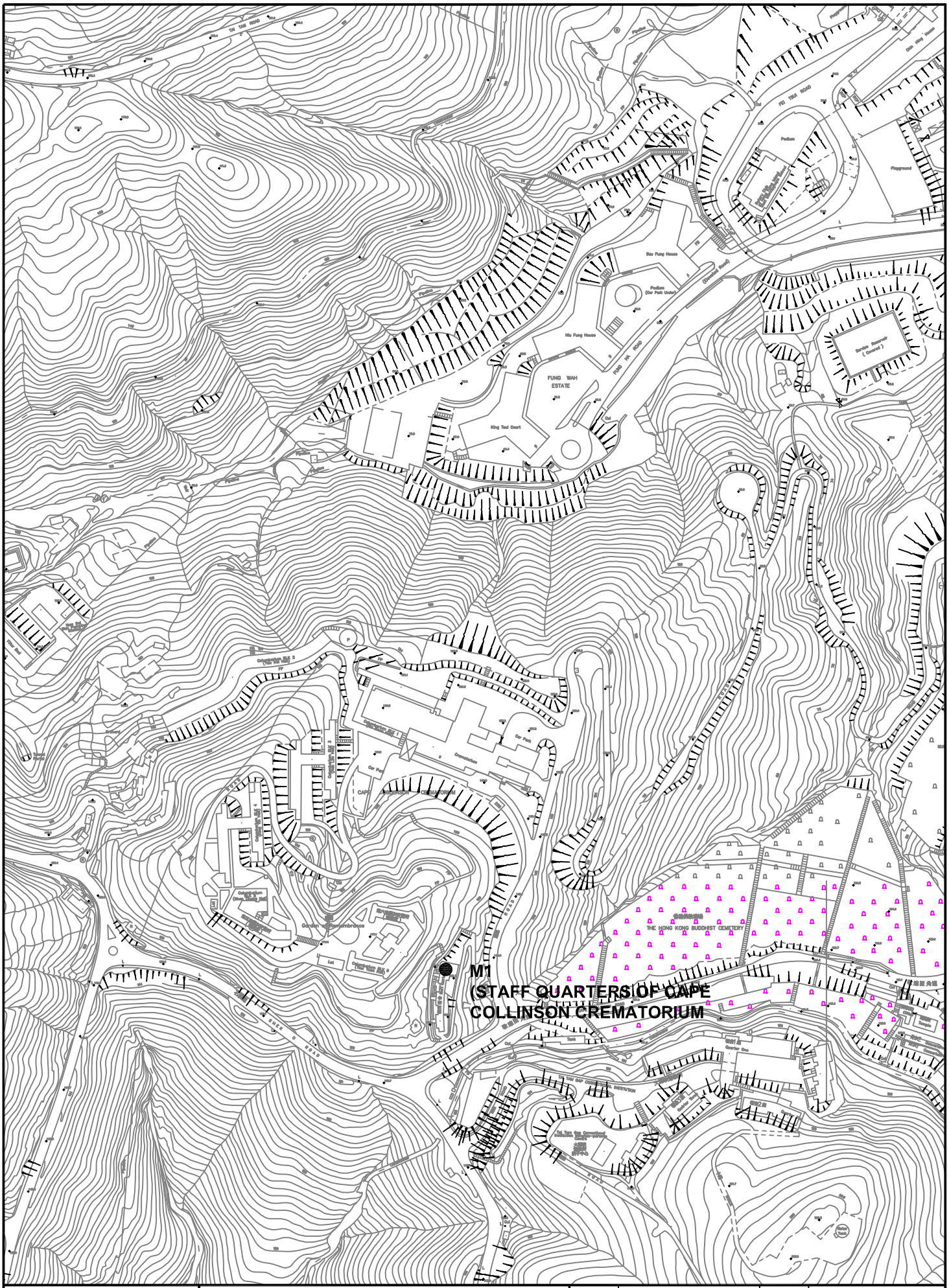
CINOTECH
Cinotech Consultants Limited

Contract No. SSW 327
Reprovisioning of Cape Collinson Crematorium

LOCATIONS OF AIR QUALITY MONITORING STATIONS

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

F:/Project_drawings



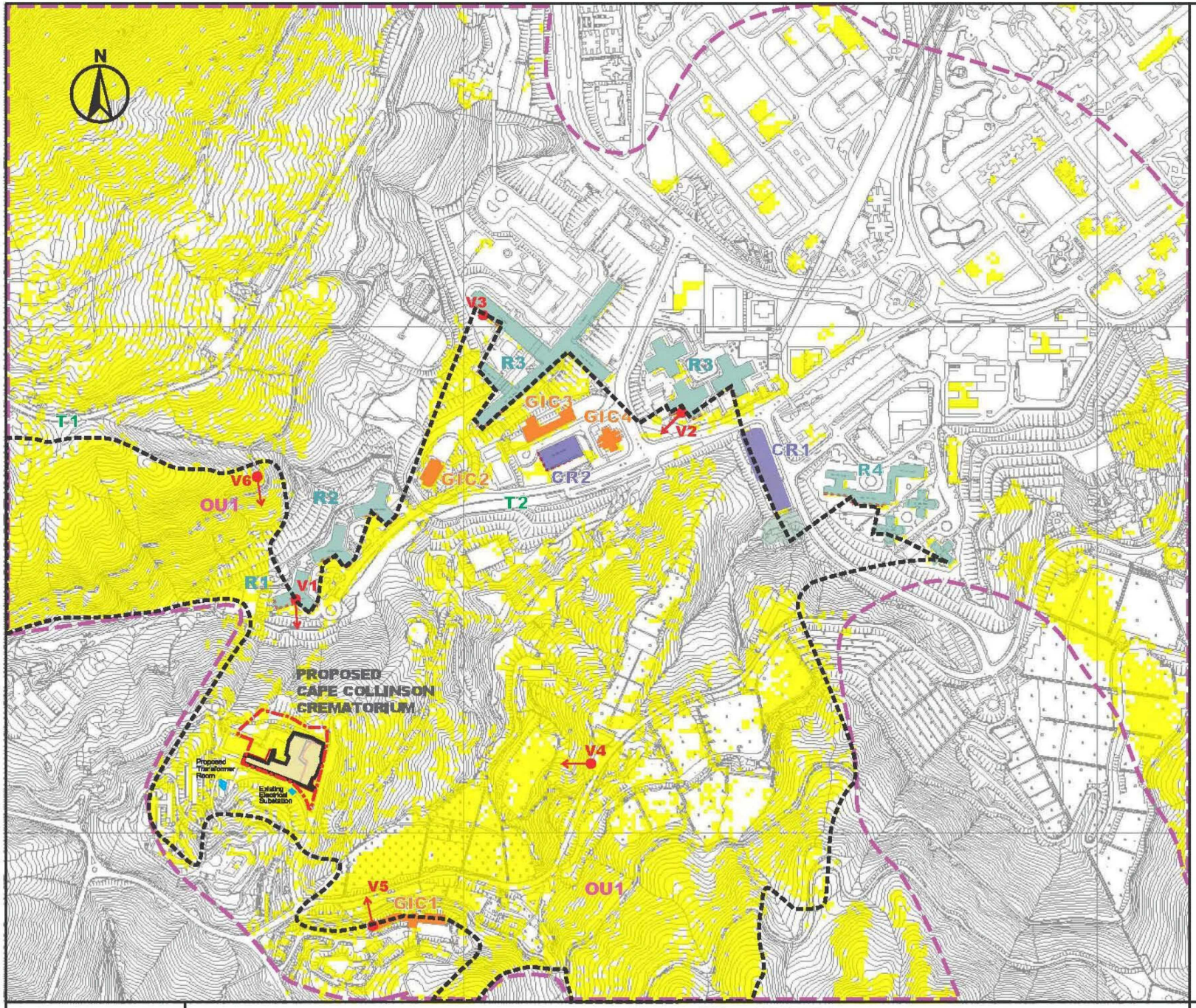
CINOTECH
Cinotech Consultants Limited

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 -

F:/Project_drawings



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**)
- V2 PHOTO TAKEN VIEW POINT

VISUAL SENSITIVE RECEIVERS:

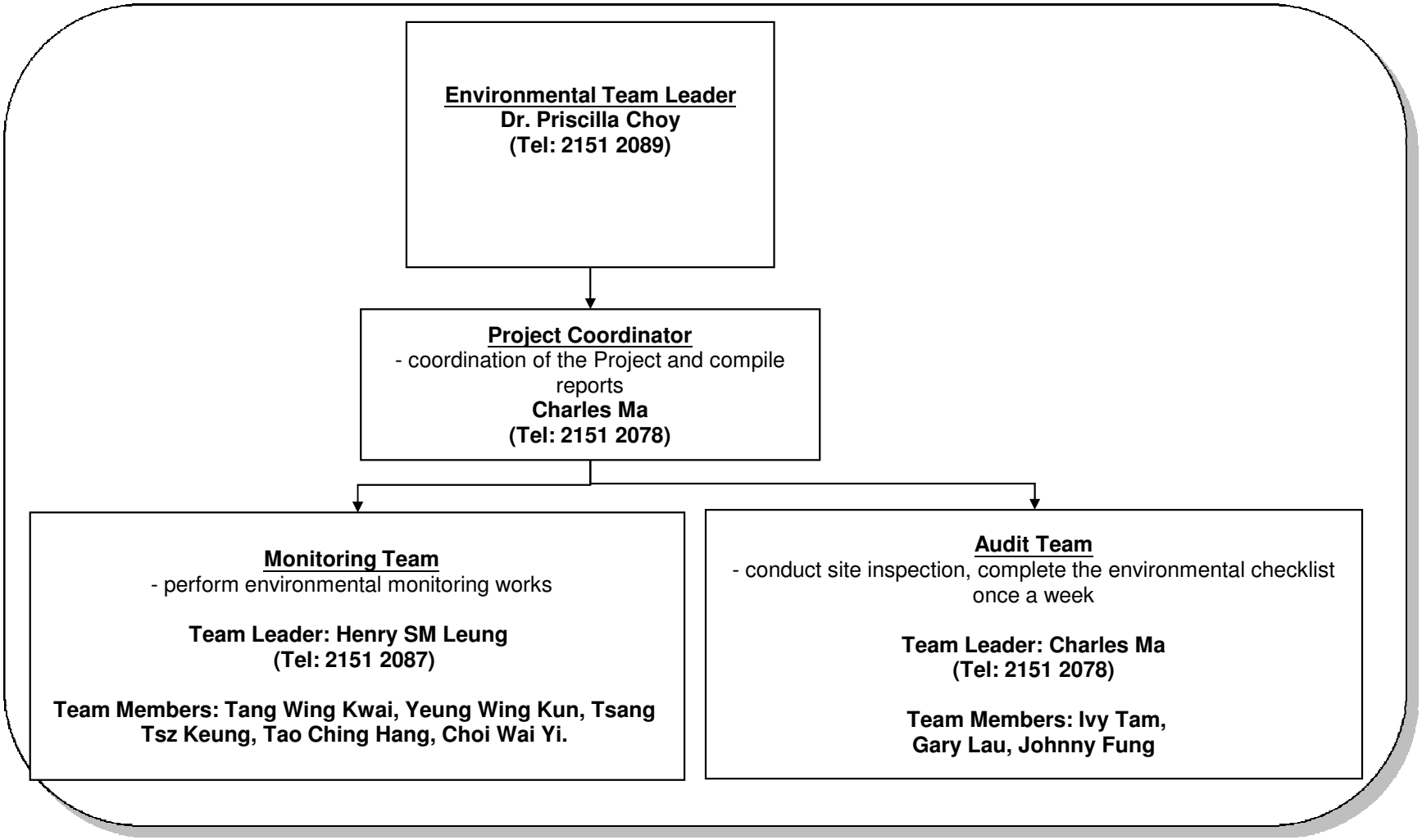
R1	King Tsui Court
R2	Fung Wah Estate
R3	Hing Wah Estate
R4	Yan Tsui Court, Yuet Chui Court and Housing Dept. Chai Wan Staff Quarters
CR1	Yen Lok & Kin Yip Building
CR2	Moon Wah & Man Wah Building
GIC1	Tai Tam Gap Correctional Institution
GIC2	Morninghope School
GIC3	Cognitio College (Hong Kong)
GIC4	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.

CINOTECH

Contract No. SSW 327
Repeovisioning of Cape Collinson Crematorium
ZVI and Location of VSR

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



Title	Scale	Project No.
Contract No. SSW 327 - Reprovisioning of Cape Collinson Crematorium	N.T.S	MA0031
Organization Chart	Date: Mar-12	Figure: 5

CINOTECH

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITYAND NOISE QUALITY

Appendix A Action and Limit Levels

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

Location	Action Level, µg/m^3	Limit Level, µg/m^3
AM1	394	500
AM2	283	500

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

Location	Action Level, µg/m^3	Limit Level, µg/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

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/13/0017

Station: AM1 - Staff Quarters of Cape Collinson Crematorium Operator: WK

Date: 1-Mar-13 Next Due Date: 30-Apr-13

Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	292.8	Pressure, Pa (mmHg)	764.2

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	Orfice			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	11.8	3.48	61.37	8.1	2.88
2	10.1	3.21	56.84	6.8	2.64
3	7.6	2.79	49.42	5.0	2.26
4	5.2	2.31	41.02	3.2	1.81
5	3.3	1.84	32.85	2.1	1.47

By Linear Regression of Y on X

Slope , mw = 0.0501 **Intercept, bw =** -0.2067

Correlation coefficient* = 0.9991

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.70**

Remarks:

Conducted by: WK, Tang Signature: Date: 1/3/13

Checked by: [illegible] Signature: Date: 6 March 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/13/0018

Station: AM1 - Staff Quarters of Cape Collinson Crematorium Operator: WK

Date: 29-Apr-13 Next Due Date: 28-Jun-13

Equipment No.: A-01-13 Serial No. 1352

Ambient Condition			
Temperature, Ta (K)	294.5	Pressure, Pa (mmHg)	763

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	Orfice			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	3.45	60.90	8.3	2.90
2	10.2	3.22	56.91	6.8	2.63
3	7.5	2.76	48.92	5.0	2.25
4	5.1	2.28	40.49	3.3	1.83
5	3.3	1.83	32.73	2.1	1.46

By Linear Regression of Y on X

Slope , mw = 0.0504 **Intercept, bw =** -0.2017

Correlation coefficient* = 0.9989

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.80**

Remarks:

Conducted by: wk.Tang Signature: Kwai Date: 29/4/13

Checked by: Ltr Signature: Date: 29 April 2013

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/45/0017

Station: AM2 - King Tsui Court Operator: WK

Date: 6-Mar-13 Next Due Date: 5-May-13

Equipment No.: A-01-45 Serial No. 1309

Ambient Condition			
Temperature, Ta (K)	292.9	Pressure, Pa (mmHg)	769.7

Orifice Transfer Standard Information					
Equipment No.:	A-04-04	Slope, mc	0.0574	Intercept, bc	-0.0478
Last Calibration Date:	3-Oct-12	**mc x 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	Orfice			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	11.8	3.49	61.58	8.3	2.92
2	10.0	3.21	56.76	6.8	2.65
3	7.7	2.82	49.90	5.1	2.29
4	5.1	2.29	40.77	3.2	1.82
5	3.2	1.82	32.47	2.0	1.44

By Linear Regression of Y on X

Slope , mw = 0.0512 **Intercept, bw =** -0.2484

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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.70**

Remarks:

Conducted by: W.K. Tang Signature: Kwai Date: 6/3/13

Checked by: [illegible] Signature: Date: 6 March 2013

High-Volume TSP Sampler
5-POINT CALIBRATION DATA SHEET

CINOTECH

File No. MA0031/45/0018

Station: AM2 - King Tsui Court Operator: WK

Date: 29-Apr-13 Next Due Date: 28-Jun-13

Equipment No.: A-01-45 Serial No. 1309

Ambient Condition			
Temperature, Ta (K)	294.7	Pressure, Pa (mmHg)	762.9

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	Orfice			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	3.45	60.87	8.0	2.85
2	10.2	3.22	56.89	6.6	2.59
3	7.8	2.81	49.85	5.2	2.30
4	5.1	2.28	40.47	3.1	1.77
5	3.3	1.83	32.72	2.0	1.42

By Linear Regression of Y on X

Slope , mw = 0.0503 **Intercept, bw =** -0.2345

Correlation coefficient* = 0.9987

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ **3.66**

Remarks:

Conducted by: Wk Tang Signature: Kwai Date: 29/4/13

Checked by: th Signature: Date: 29 April 2013

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Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

APPLICANT:	**Cinotech Consultants Limited** **Room 1710, Technology Park,** **18 On Lai Street,** **Shatin, NT, Hong Kong**	Test Report No.: Date of Issue: Date Received: Date Tested: Date Completed: Next Due Date:	C/12/120501 2012-05-02 2012-05-01 2012-05-01 2012-05-02 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

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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_2O (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= SQRT[H_2O(Pa/760)(298/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= SQRT[H_2O(Ta/Pa)]

Qa Slope (m) = 1.26959
Intercept (b) = -0.03000
Coefficient (r) = 0.99999

CALCULATIONS

Vstd=Diff. Vol[(Pa-Diff.Hg)/760](298/Ta)
Qstd=Vstd/Time
Va=Diff.Vol[(Pa-Diff.Hg)/Pa]
Qa=Va/Time

For subsequent flow rate calculations:
Qstd=I/m{[SQRT(H_2O(Pa/760)(298/Ta))]-b}
Qa=I/m{[SQRT H_2O(Ta/Pa)]-b}

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/130228/2
Date of Issue:	2013-03-04
Date Received:	2013-02-28
Date Tested:	2013-02-28
Date Completed:	2013-03-04
Next Due Date:	2013-05-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3
Serial No.	: 251634
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 550 CPM
Equipment No.	: A-02-01

Test Conditions:

Room Temperature	: 20 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)	0.0033

****

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TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/130306/1
Date of Issue:	2013-03-09
Date Received:	2013-03-06
Date Tested:	2013-03-06
Date Completed:	2013-03-09
Next Due Date:	2013-05-08
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	: 18 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

****

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TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/130306/2
Date of Issue:	2013-03-09
Date Received:	2013-03-06
Date Tested:	2013-03-06
Date Completed:	2013-03-09
Next Due Date:	2013-05-08
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	: 18 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)	0.0030

****

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Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/130228/1
Date of Issue:	2013-03-04
Date Received:	2013-02-28
Date Tested:	2013-02-28
Date Completed:	2013-03-04
Next Due Date:	2013-05-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095039
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 764 CPM
Equipment No.	: A-02-08

Test Conditions:

Room Temperature	: 20 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)	0.0032

****

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Patrick Tse
PATRICK TSE
Laboratory Manager

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Rms 816, 1516 & 1701, Technology Park,
18 On Lai Street, Shatin, N.T, Hong Kong.
Tel: 2898 7388 Fax: 2898 7076
Website: www.wellab.com.hk

TEST REPORT

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

ATTN: **Mr. W. K. Tang**

Test Report No.:	C/130301/1
Date of Issue:	2013-03-04
Date Received:	2013-03-01
Date Tested:	2013-03-01
Date Completed:	2013-03-04
Next Due Date:	2013-05-03
Page:	1 of 1

Certificate of Calibration

Item for Calibration:

Description	: Laser Dust Monitor
Manufacturer	: Sibata
Model No.	: LD-3B
Serial No.	: 095050
Sensitivity (K) 1 CPM	: 0.001 mg/m^3
Sen. Adjustment Scale Setting	: 577 CPM
Equipment No.	: A-02-09

Test Conditions:

Room Temperature	: 20 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)	0.0032

****

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

PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/130301/2
Date of Issue:	2013-03-04
Date Received:	2013-03-01
Date Tested:	2013-03-01
Date Completed:	2013-03-04
Next Due Date:	2013-05-03

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	: 20 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

****

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Laboratory Manager

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/120921/2
Date of Issue:	2012-09-22
Date Received:	2012-09-21
Date Tested:	2012-09-21
Date Completed:	2012-09-22
Next Due Date:	2013-09-21
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 955
Serial No.	: 12553
Microphone No.	: 35222
Equipment No.	: N-08-02

Test conditions:

Room Temperatre	: 24 degree Celsius
Relative Humidity	: 56%

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

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

Patrick Tse
PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/N/130104
Date of Issue:	2013-01-05
Date Received:	2013-01-04
Date Tested:	2013-01-04
Date Completed:	2013-01-05
Next Due Date:	2014-01-04

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.	: 14303
Microphone No.	: 35222
Equipment No.	: N-08-05

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 59%

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

Remark: 1)This report supersedes the one dated 2012/01/21 with certificate number C/N/120120/1.

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Laboratory Manager

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TEST REPORT

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

ATTN: **Mr. W.K. Tang**

Test Report No.:	C/N/120901/2
Date of Issue:	2012-09-02
Date Received:	2012-09-01
Date Tested:	2012-09-01
Date Completed:	2012-09-02
Next Due Date:	2013-09-01
Page:	1 of 1

Certificate of Calibration

Item for calibration:

Description	: 'SVANTEK' Integrating Sound Level Meter
Manufacturer	: SVANTEK
Model No.	: SVAN 957
Serial No.	: 21459
Microphone No.	: 43676
Equipment No.	: N-08-08

Test conditions:

Room Temperatre	: 22 degree Celsius
Relative Humidity	: 67%

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

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PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/N/120921/1
Date of Issue:	2012-09-22
Date Received:	2012-09-21
Date Tested:	2012-09-21
Date Completed:	2012-09-22
Next Due Date:	2013-09-21

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 10929
Equipment No.	: N-09-01

Test conditions:

Room Temperatre	: 24 degree Celsius
Relative Humidity	: 56%

Methodology:

The Sound Level 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

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PATRICK TSE
Laboratory Manager

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Website: www.wellab.com.hk

TEST REPORT

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

Test Report No.:	C/N/121005/1
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24803
Equipment No.	: N-09-03

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

The Sound Level 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:
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PATRICK TSE
Laboratory Manager

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TEST REPORT

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

Test Report No.:	C/N/121005/3
Date of Issue:	2012-10-07
Date Received:	2012-10-05
Date Tested:	2012-10-05
Date Completed:	2012-10-07
Next Due Date:	2013-10-06

ATTN: **Mr. W.K. Tang**

Page: 1 of 1

Item for calibration:

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

Test conditions:

Room Temperatre	: 23 degree Celsius
Relative Humidity	: 64%

Methodology:

The Sound Level 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

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PATRICK TSE
Laboratory Manager

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APPENDIX C
ENVIRONMENTAL MONITORING SCHEDULES

Contract No. SSW 327 - Reprovisioning of Cape Collinson Crematorium
Tentative Impact Air Quality and Noise Monitoring for April 2013

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

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

Contract No. SSW 327 - Reprovisioning of Cape Collinson Crematorium
Tentative Impact Air Quality and Noise Monitoring for May 2013

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

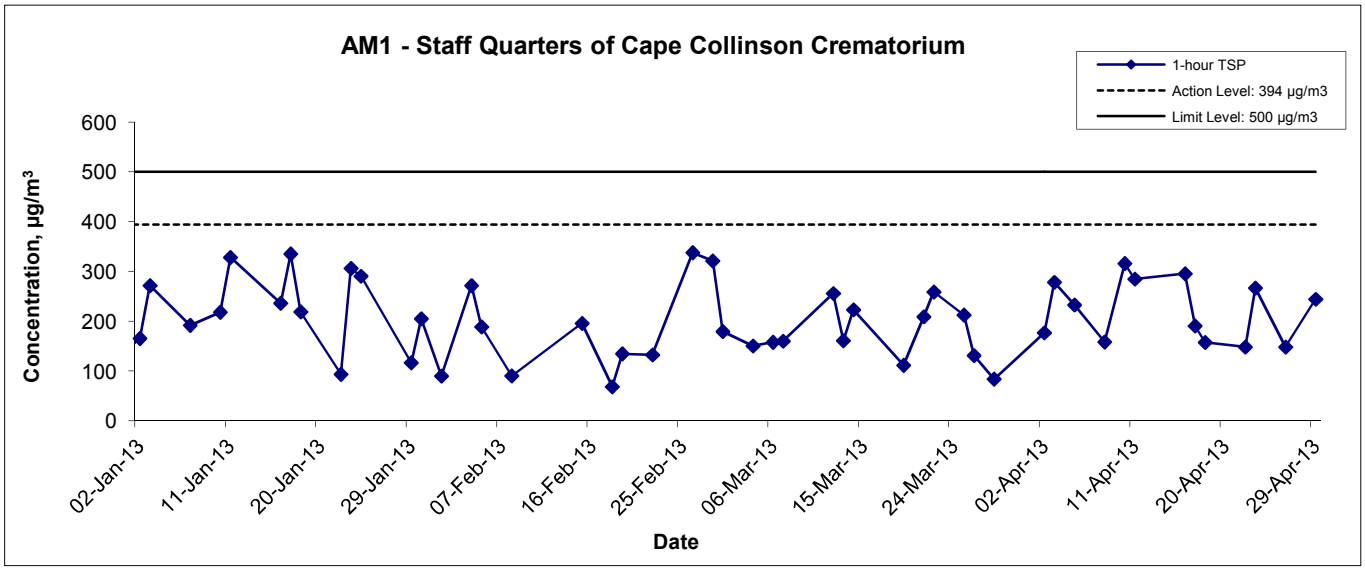
APPENDIX D
1-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

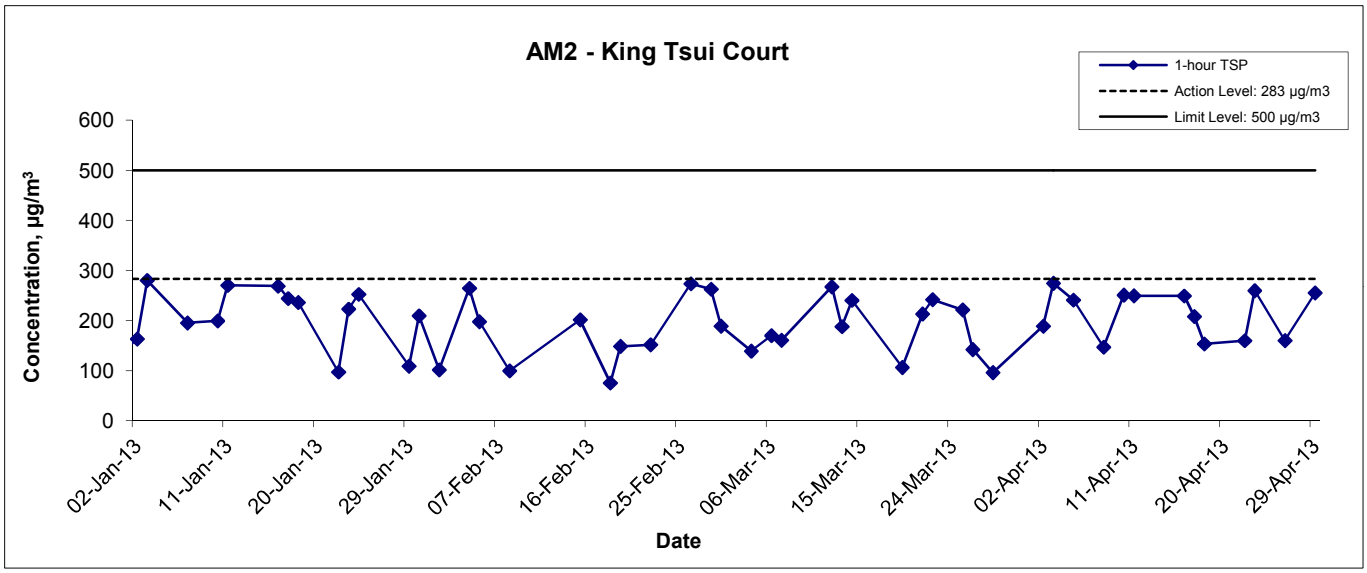
Appendix D - 1-hour TSP Monitoring Results

Location AM1 - Staff Quarters of Cape Collinson Crematorium			
Date	Time	Weather	Particulate Concentration (μg/m^3)
2-Apr-13	14:30	Rainy	176.9
3-Apr-13	14:01	Cloudy	278.4
5-Apr-13	16:10	Cloudy	232.8
8-Apr-13	9:30	Cloudy	158.3
10-Apr-13	9:45	Cloudy	315.9
11-Apr-13	9:30	Cloudy	284.9
16-Apr-13	13:10	Cloudy	295.5
17-Apr-13	11:00	Cloudy	190.5
18-Apr-13	14:30	Cloudy	157.6
22-Apr-13	15:45	Cloudy	148.4
23-Apr-13	14:15	Cloudy	266.9
26-Apr-13	14:20	Rainy	148.4
29-Apr-13	11:00	Cloudy	244.3
		Average	223.0
		Maximum	315.9
		Minimum	148.4

Location AM2 - King Tsui Court			
Date	Time	Weather	Particulate Concentration (μg/m^3)
2-Apr-13	13:00	Rainy	189.0
3-Apr-13	15:17	Cloudy	274.4
5-Apr-13	15:47	Cloudy	241.0
8-Apr-13	11:00	Cloudy	146.9
10-Apr-13	11:00	Cloudy	251.0
11-Apr-13	11:00	Cloudy	249.4
16-Apr-13	13:30	Cloudy	249.2
17-Apr-13	13:15	Cloudy	208.2
18-Apr-13	13:00	Cloudy	153.3
22-Apr-13	14:00	Cloudy	159.8
23-Apr-13	13:00	Cloudy	259.9
26-Apr-13	13:00	Rainy	160.2
29-Apr-13	9:30	Cloudy	255.1
		Average	215.2
		Maximum	274.4
		Minimum	146.9

1-hr TSP Concentration Levels





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

CINOTECH

APPENDIX E
24-HOUR TSP MONITORING RESULTS AND GRAPHICAL PRESENTATIONS

Appendix E - 24-hour TSP Monitoring Results

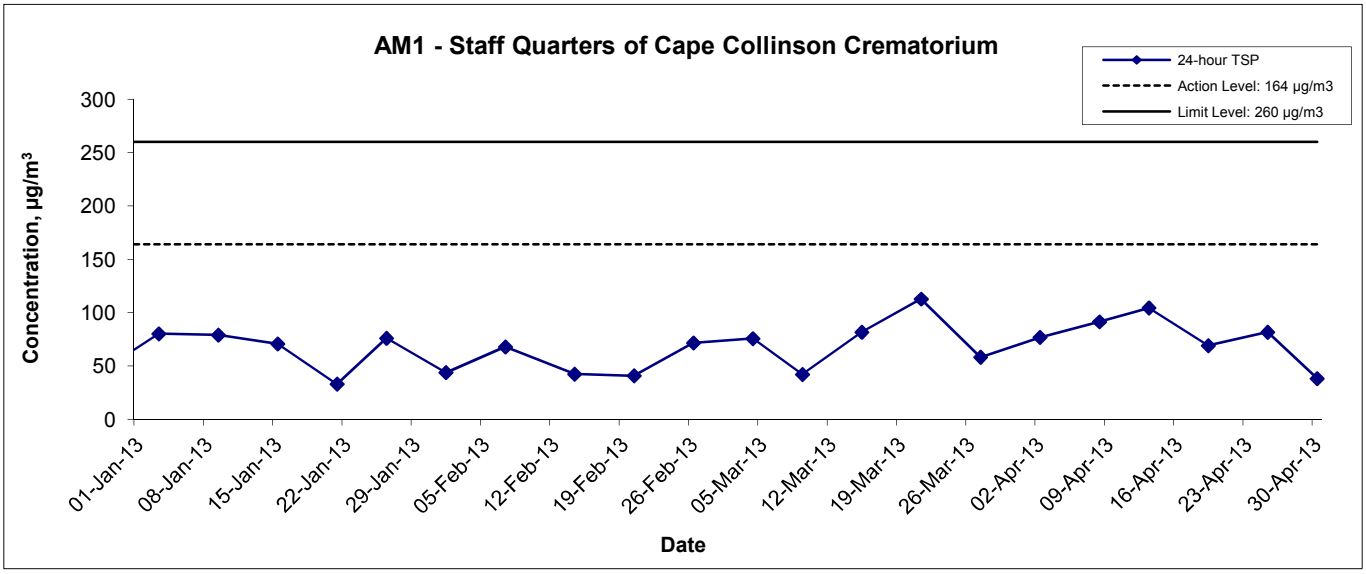
Location AM1 - Staff Quarters of Cape Collinson Crematorium

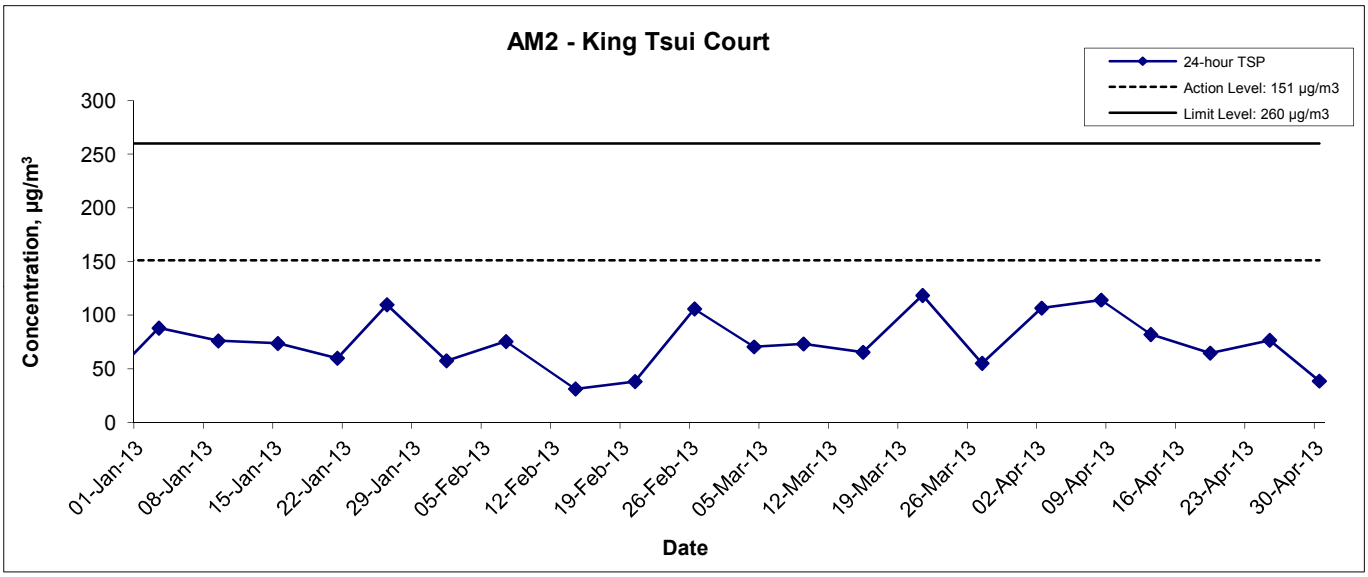
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m^3/min.)		Av. flow (m^3/min)	Total vol. (m^3)	Conc. (μg/m^3)
				Initial	Final		Initial	Final		Initial	Final			
2-Apr-13	Cloudy	293.6	763.9	3.1250	3.2592	0.1342	11968.3	11992.3	24.0	1.21	1.21	1.21	1748.4	76.8
8-Apr-13	Cloudy	291.3	763.6	3.0479	3.2083	0.1604	11992.3	12016.3	24.0	1.22	1.22	1.22	1754.3	91.4
13-Apr-13	Cloudy	292.3	767.1	3.0636	3.2469	0.1833	12016.3	12040.3	24.0	1.22	1.22	1.22	1755.3	104.4
19-Apr-13	Cloudy	297.9	769.7	3.0999	3.2203	0.1204	12040.3	12064.3	24.0	1.21	1.21	1.21	1743.0	69.1
25-Apr-13	Cloudy	297.3	762.2	3.1037	3.2456	0.1419	12064.3	12088.3	24.0	1.21	1.21	1.21	1736.9	81.7
30-Apr-13	Cloudy	300.7	769.1	3.1253	3.1917	0.0664	12088.3	12112.3	24.0	1.21	1.21	1.21	1741.6	38.1
													Min	38.1
													Max	104.4
													Average	76.9

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			
2-Apr-13	Cloudy	293.6	763.9	2.9519	3.1379	0.1860	8678.5	8702.5	24.0	1.21	1.21	1.21	1744.1	106.6
8-Apr-13	Cloudy	291.3	763.6	3.0561	3.2558	0.1997	8702.5	8726.5	24.0	1.22	1.21	1.22	1749.8	114.1
13-Apr-13	Cloudy	292.3	767.1	3.0903	3.2340	0.1437	8726.5	8750.5	24.0	1.22	1.22	1.22	1750.7	82.1
19-Apr-13	Cloudy	297.9	769.7	3.0819	3.1943	0.1124	8750.5	8774.5	24.0	1.21	1.21	1.21	1738.7	64.6
25-Apr-13	Cloudy	297.3	762.2	3.0732	3.2060	0.1328	8774.5	8798.5	24.0	1.20	1.20	1.20	1732.7	76.6
30-Apr-13	Cloudy	300.7	769.1	3.1664	3.2340	0.0676	8798.5	8822.5	24.0	1.22	1.22	1.22	1750.6	38.6
													Min	38.6
													Max	114.1
													Average	80.5

24-hr TSP Concentration Levels





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

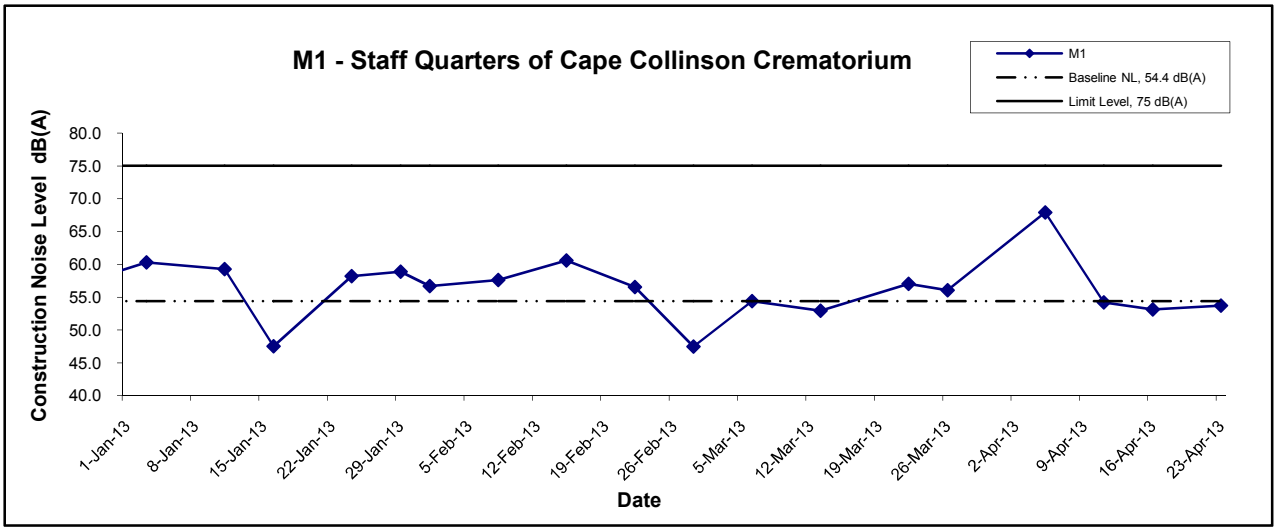
CINOTECH

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}
5-Apr-13	16:13	Cloudy	68.1	70.2	65.7	54.4	67.9
11-Apr-13	09:30	Cloudy	57.3	60.0	48.1		54.2
16-Apr-13	13:10	Cloudy	53.1	56.4	45.9		53.1 Measured ≤ Baseline
23-Apr-13	14:15	Cloudy	53.7	60.9	48.8		53.7 Measured ≤ Baseline

Noise Levels



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

APPENDIX G
VISUAL MITIGATION MEASURES
PHOTOGRAPHIC RECORD

Appendix G – Visual Mitigation Measures Photographic Record

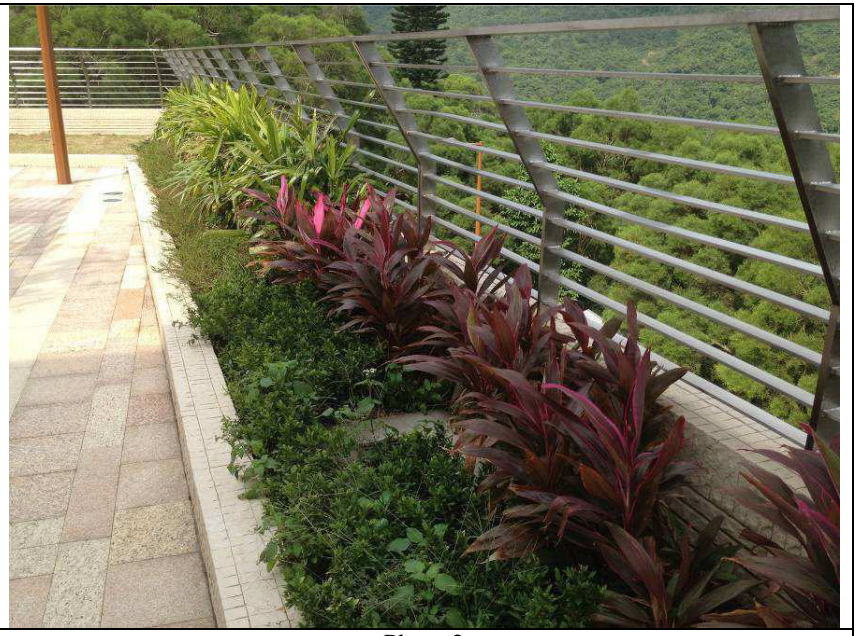
	
Photo 1	Photo 2
Photo 3	Photo 4

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 - April -2013	20.0 – 225	84 – 98
3 - April -2013	18.2 – 20.0	86 – 96
5 - April -2013	19.4 – 19.4	88 – 100
8 - April -2013	18.0 – 19.5	73 – 81
10 - April -2013	17.7 – 19.8	84 – 99
11 - April -2013	16.0 – 18.4	72 – 99
13 - April -2013	17.5 – 23.1	49 – 73
16 - April -2013	21.0 – 25.2	81 – 98
17 - April -2013	23.0 – 26.1	86 – 98
18 - April -2013	24.2 – 27.8	71 – 99
19 - April -2013	21.7 – 28.1	81 – 99
22 - April -2013	18.9 – 20.5	84 – 98
23 - April -2013	19.4. – 26.4	74 – 97
25 - April -2013	23.1 – 30.6	65 – 97
26 - April -2013	21.1 – 23.5	60 – 98
29- April -2013	22.1 – 25.6	87 – 96

* 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: April 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

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130405
Date	5 April 2013 (Friday)
Time	10:30 – 11:15

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

Ref. No.	Remarks/Observations	Related Item No.
130405-R01	***Part A - Water Quality*** • Clear the stagnant water accumulated in the construction material. ***Part B – Landscape and Visual*** • No environmental deficiency was identified during the site inspection. ***Part C - Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part D – Noise*** • No environmental deficiency was identified during the site inspection. ***Part E - Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part F - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on the previous audit session (Ref. No.130328), all environmental deficiencies were improved/ rectified by the Contractor.	A11

	Name	Signature	Date
Recorded by	Johnny Fung		5 April 2013
Checked by	Dr. Priscilla Choy		5 April 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130412
Date	12 April 2013 (Friday)
Time	10:30 – 11:30

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

Ref. No.	Remarks/Observations	Related Item No.
130412-R01	***Part A - Water Quality*** • Direct discharge of wastewater to gullies should be avoided.	A5i
	Part B – Landscape and Visual • No environmental deficiency was identified during the site inspection.	
130412-R03	***Part C - Air Quality*** • Provide water spray to rock-breaking activities to avoid dust generation.	C10
	Part D – Noise • No environmental deficiency was identified during the site inspection.	
130412-R02	***Part E - Waste / Chemical Management*** • Avoid direct contact of empty chemical containers to the ground.	E2i
	Part F - Permit / Licenses • No environmental deficiency was identified during the site inspection.	
	Others • Follow-up on the previous audit session (Ref. No.130405), all environmental deficiencies were improved/ rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		12 April 2013
Checked by	Dr. Priscilla Choy		12 April 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130419
Date	19 April 2013 (Friday)
Time	10:30 – 12:00

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

Ref. No.	Remarks/Observations	Related Item No.
	Part A - Water Quality	
130419-R01	• Provide temporary sedimentation tank and drainage system to collect surface runoff.	A1, 5i
130419-R02	• Clear the mud and construction waste deposited in the gullies.	A1
	Part B – Landscape and Visual	
	• No environmental deficiency was identified during the site inspection.	
	Part C - Air Quality	
	• No environmental deficiency was identified during the site inspection.	
	Part D – Noise	
	• No environmental deficiency was identified during the site inspection.	
	Part E - Waste / Chemical Management	
	• No environmental deficiency was identified during the site inspection.	
	Part F - Permit / Licenses	
	• No environmental deficiency was identified during the site inspection.	
	Others	
	• Follow-up on the previous audit session (Ref. No.130412), all environmental deficiencies were improved/ rectified by the Contractor.	

	Name	Signature	Date
Recorded by	Johnny Fung		19 April 2013
Checked by	Dr. Priscilla Choy		19 April 2013

Record Summary of Environmental Site Inspection

Inspection Information

Checklist Reference Number	130425
Date	25 April 2013 (Thursday)
Time	14:00 – 15:00

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

Ref. No.	Remarks/Observations	Related Item No.
130425-R01	***Part A - Water Quality*** • Provide sand bag bunding to the site boundary to prevent discharge of surface runoff. ***Part B – Landscape and Visual*** • No environmental deficiency was identified during the site inspection. ***Part C - Air Quality*** • No environmental deficiency was identified during the site inspection. ***Part D – Noise*** • No environmental deficiency was identified during the site inspection. ***Part E - Waste / Chemical Management*** • No environmental deficiency was identified during the site inspection. ***Part F - Permit / Licenses*** • No environmental deficiency was identified during the site inspection. ***Others*** • Follow-up on the previous audit session (Ref. No.130419), all environmental deficiencies were improved/ rectified by the Contractor.	A2

	Name	Signature	Date
Recorded by	Johnny Fung		25 April 2013
Checked by	Dr. Priscilla Choy		25 April 2013

APPENDIX K
SUMMARY OF AMOUNT OF WASTE GENERATED

Architectural Services Department	Form No. D/OI.03/09.002

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	0	0	0	0	0
Mar	0.039	0	0	0	0.039
Apr	0.117	0	0	0	0.117
May					
Jun					
Sub-total	0.156	0	0	0	0.156
Jul					
Aug					
Sep					
Oct					
Nov					
Dec					
Total	0.156	0	0	0	0.156

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	0	0	0	0	0.060	0.060	0.010	0.010	0	0	0	0	0
Mar	0	0	0	0	0.053	0.053	0.002	0.002	0	0	0	0	0
Apr	0	0	4.470	4.470	0.047	0.047	0.003	0.003	18.900	18.900	0	0	0.007
May													
Jun													
Sub-total	0	0	6.500	6.500	0.261	0.261	0.035	0.035	18.900	18.900	0	0	0.007
Jul													
Aug													
Sep													
Oct													
Nov													
Dec													
Total	0	0	6.500	6.500	0.261	0.261	0.035	0.035	18.900	18.900	0	0	0.007

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 m^3 by volume.

APPENDIX L
EVENT/ ACTION PLANS

Appendix L – Event Action Plan

Event	Action			
	ET	IEC	ER	Contractor
Action Level being exceeded	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.	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.	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	1. Submit noise mitigation proposals to IEC and ER; 2. Implement noise mitigation proposals.
Limit Level being exceeded	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.	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.	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.	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	Construction & Demolition Phase Implementation of dust suppression measures stipulated in Air Pollution Control (Construction Dust) Regulation: skip hoist for material transport should be totally enclosed by impervious sheeting; every vehicle should be washed to remove any dusty materials from its body and wheels before leaving a construction site; 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; 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; 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; all dusty materials should be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty materials wet; 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; the height from which excavated materials are dropped should be controlled to a minimum practical height to limit fugitive dust generation	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	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. Implementation of precautionary and mitigation measures for removal of Asbestos Containing Material stipulated in Air Pollution Control Ordinance: 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	<u>Operation Phase</u> Although the final selection of cremation technology and air pollution control system would be subject to open tendering procedure, the performance and	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
				Des	C	O	Dec		
3.77 3.108	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. 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
				Des	C	O	Dec		
Waste Management									
S.4.58	Construction & Demolition Phase Good Site Practice 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) • 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	Environmental Management Plan • 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
				Des	C	O	Dec		
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> • 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> • 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> • 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. • 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> • 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									
	• 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> • 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.	Crematorium 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	<u>Demolition, Handling, Treatment and Disposal of Low Contaminated DCM from Demolition of Existing Crematorium</u> • 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	• 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: • 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									
	procedure before leaving the work area; • - Workers should wear full protective equipment, nitrile gloves, robber 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 vaccum. • 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									
	• - 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	• 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: • • 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; • - 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 • - 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	• 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	• 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	• 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: • - 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: • - 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 • - Be properly arranged so that incompatible materials are adequately separated. • The chemical waste should be disposed of by: • - A licensed waste collector; • - A facility lisenced 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	• 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 programe 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	• **<u>Operation Phase</u>** • 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. • 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: • - General refuse, other than segregated recyclable wastes, should be separated from any chemical waste and stored in coved 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	• 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 sumitted 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	^

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				√		^
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
				Des	C	O	Dec		
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: • 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 • Provide first aid training and materials to site workers. The Contractor for the excavation works shall take note of the following points for excavation: • 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
				Des	C	O	Dec		
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; • 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> • 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									
	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. • All practicable measures should be taken to prevent or minimize the dust emission caused by vehicle movement. <u>Noise Impact</u> • 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									
	applied for the operation of powered mechanical equipment, if any, during restricted hours. Water Quality Impact • 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. Waste • 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									
	• 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.								

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		
Visual Impact									
Table 6.4	Construction & Demoliton Phase 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		√				^

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 6.5	Operation Phase 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	Construction Phase 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: • 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	Operation Phase 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: April 2013

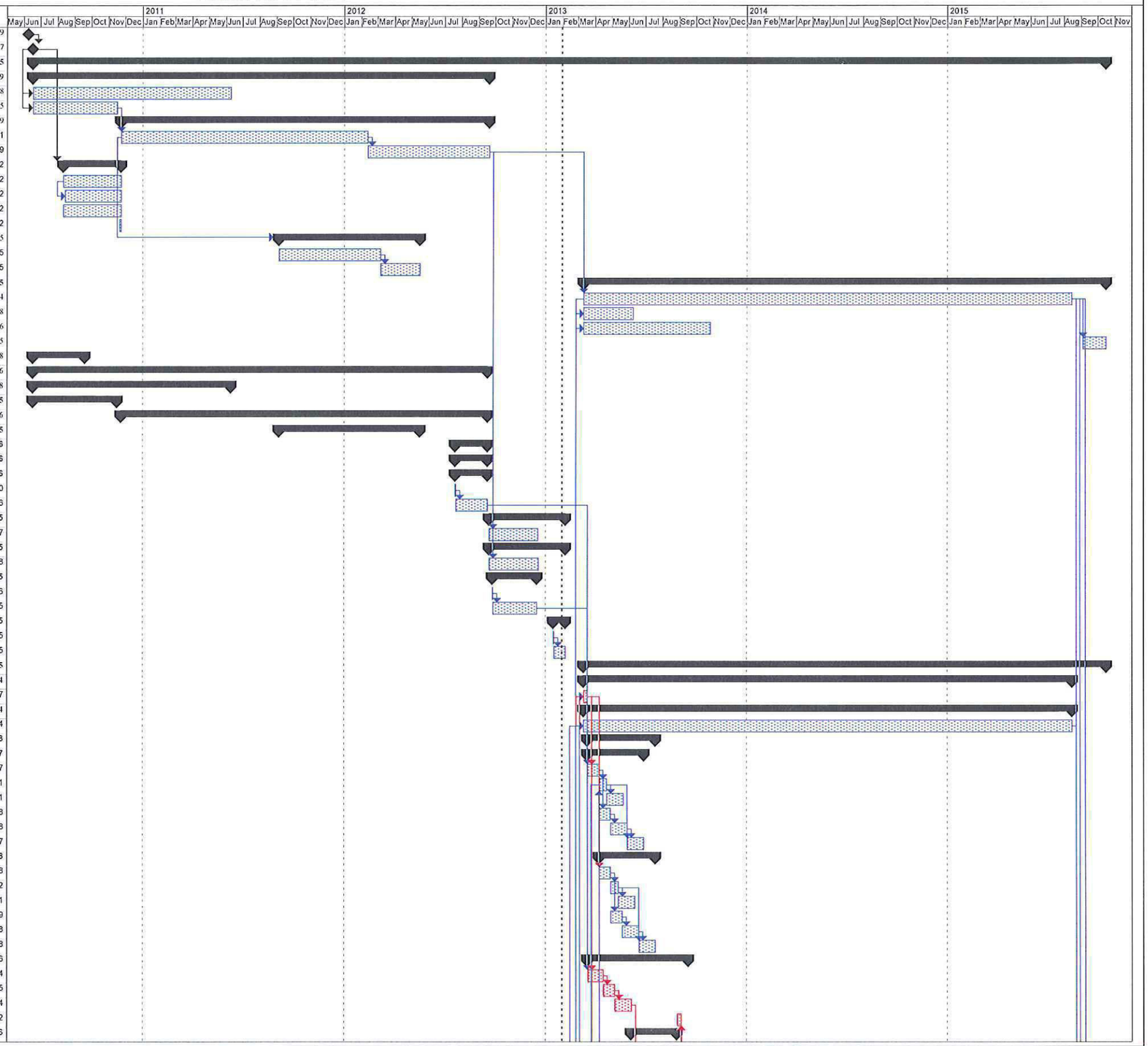
Log Ref.	Location	Received Date	Details of Complaint	Investigation/Mitigation Action	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

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

APPENDIX O
CONSTURCTION PROGRAMME

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

ID	Task Name	Duration	Start	Finish
1	**AWARD OF CONTRACT**	1 day	Wed 10/6/9	Wed 10/6/9
2	**COMMENCEMENT OF CONTRACT**	1 day	Thu 10/6/17	Thu 10/6/17
3	**SECTIONAL ARRANGEMENT**	1917 days	Thu 10/6/17	Thu 15/10/15
4	**Phase 1**	826 days	Thu 10/6/17	Wed 12/9/19
5	Section 1A - Slopework	357 days	Thu 10/6/17	Wed 11/6/8
6	Section 1B - Access Road	152 days	Thu 10/6/17	Mon 10/11/15
7	Section 1C - Part of New Crematorium	667 days	Tue 10/11/23	Wed 12/9/19
8	Original	446 days	Tue 10/11/23	Sat 12/2/11
9	EOT Claimed and Granted	221 days	Sun 12/2/12	Wed 12/9/19
10	Cremator's Preparation Works before Commencement of Section 1C	104 days	Wed 10/8/11	Mon 10/11/22
11	Shop Drawing Submission and Approval	104 days	Wed 10/8/11	Mon 10/11/22
12	Equipment/ Material Submission and Approval	101 days	Sat 10/8/14	Mon 10/11/22
13	Equipment Ordering	104 days	Wed 10/8/11	Mon 10/11/22
14	Preparation of APCP	3 days	Sat 10/11/20	Mon 10/11/22
15	Section 1D - Temporary Offices & Lavatories	254 days	Mon 11/9/5	Tue 12/5/15
16	Original	183 days	Mon 11/9/5	Mon 12/3/5
17	EOT Claimed and Granted	71 days	Tue 12/3/6	Tue 12/5/15
18	**Phase 2**	919 days	Mon 13/3/11	Thu 15/10/15
19	Phase 2A - Remaining Part of Crematorium Building and etc.	875 days	Mon 13/3/11	Fri 15/8/14
20	Phase 2B - Removal of Canopy	90 days	Mon 13/3/11	Sat 13/6/8
21	Phase 2C - Removal of Fuel Tank	230 days	Mon 13/3/11	Sat 13/10/26
22	Phase 2D - Removal of Temporary Offices and Lavatories	30 days	Fri 15/9/4	Thu 15/10/15
23	Foundation Design for Phases 1 & 2	94 days	Thu 10/6/17	Sat 10/9/18
27	**PHASE 1**	823 days	Thu 10/6/17	Sun 12/9/16
28	**SECTION 1A - Slopework**	357 days	Thu 10/6/17	Wed 11/6/8
89	**SECTION 1B - Access Road**	152 days	Thu 10/6/17	Mon 10/11/15
119	**SECTION 1C - Part of New Crematorium**	664 days	Tue 10/11/23	Sun 12/9/16
490	**SECTION 1D - Temporary Offices & Lavatories**	254 days	Mon 11/9/5	Tue 12/5/15
520	**Preparation Works between Phase 1 and Phase 2**	59 days	Fri 12/7/20	Sun 12/9/16
521	**Land Contamination Works in Cremators 1 & 2 and TP-1 under Section 2A**	59 days	Fri 12/7/20	Sun 12/9/16
522	**Submission of SCAP to EPD**	59 days	Fri 12/7/20	Sun 12/9/16
523	Submit Supplementary Contamination Assessment Plan to EPD	1 day	Fri 12/7/20	Fri 12/7/20
524	Approval from EPD for SCAP	58 days	Sat 12/7/21	Sun 12/9/16
525	**BUFFER PERIOD (between Section 1C and Section 2A)**	139 days	Thu 12/9/20	Tue 13/2/5
526	Buffer Period Allowed	89 days	Thu 12/9/20	Mon 12/12/17
527	**Preparation Works for EPD Approvals**	139 days	Thu 12/9/20	Tue 13/2/5
528	Approval from EPD for SCAP (Anticipated)	90 days	Thu 12/9/20	Tue 12/12/18
529	**Dioxin Containing Materials Investigation Plan**	81 days	Wed 12/9/26	Sat 12/12/15
530	Submit Dioxin Contamination Material Investigation Plan (DCM-IP) to EPD	1 day	Wed 12/9/26	Wed 12/9/26
531	Approval from EPD for DCM-IP (anticipated)	80 days	Thu 12/9/27	Sat 12/12/15
532	**Removal of ACM, DCM and Other Contaminants under Section 2A**	22 days	Tue 13/1/15	Tue 13/2/5
533	Architect to Issue A.I. for Removal of Contaminants	1 day	Tue 13/1/15	Tue 13/1/15
534	Employ Specialist Contractor(s) for Removing ACM, DCM and Other Contaminants	21 days	Wed 13/1/16	Tue 13/2/5
535	**PHASE 2**	919 days	Mon 13/3/11	Thu 15/10/15
536	**SECTION 2A - Remaining Part of Crematorium Building and etc.**	875 days	Mon 13/3/11	Fri 15/8/14
537	Taking Over of Site and Mobilization	7 days	Mon 13/3/11	Sun 13/3/17
538	Environmental Pollution Control Works	875 days	Mon 13/3/11	Fri 15/8/14
539	Works as per EM&A Programme	875 days	Mon 13/3/11	Fri 15/8/14
540	Land Contamination Works in Cremators 1 & 2 and TP-1	123 days	Mon 13/3/18	Thu 13/7/18
541	**At TP1**	102 days	Mon 13/3/18	Thu 13/6/27
542	Land contamination investigation works	21 days	Mon 13/3/18	Sun 13/4/7
543	Submit Supplementary Contamination Assessment Report (SCAR) to EPD	14 days	Mon 13/4/8	Sun 13/4/21
544	Approval from EPD for SCAR	30 days	Mon 13/4/22	Tue 13/5/21
545	Submit Supplementary Remedial Action Plan (SRAP) to EPD	21 days	Mon 13/4/8	Sun 13/4/28
546	Approval from EPD for SCAR	30 days	Mon 13/4/29	Tue 13/5/28
547	Remediation for contaminated soil	30 days	Wed 13/5/29	Thu 13/6/27
548	**At Cremators 1 and 2**	102 days	Mon 13/4/8	Thu 13/7/18
549	Land contamination investigation works	21 days	Mon 13/4/8	Sun 13/4/28
550	Submit Supplementary Contamination Assessment Report (SCAR) to EPD	14 days	Mon 13/4/29	Sun 13/5/12
551	Approval from EPD for SCAR	30 days	Mon 13/5/13	Tue 13/6/11
552	Submit Supplementary Remedial Action Plan (SRAP) to EPD	21 days	Mon 13/4/29	Sun 13/5/19
553	Approval from EPD for SCAR	30 days	Mon 13/5/20	Tue 13/6/18
554	Remediation for contaminated soil	30 days	Wed 13/6/19	Thu 13/7/18
555	Demolish, Handling, Treatment and Disposal of DCM and ACM	183 days	Mon 13/3/18	Mon 13/9/16
556	DCM investigation works	28 days	Mon 13/3/18	Sun 13/4/14
557	Submit DCM Assessment Report (incl a specific demolition plan) to EPD	21 days	Mon 13/4/15	Sun 13/5/5
558	Approval from EPD	30 days	Mon 13/5/6	Tue 13/6/4
559	Deposit Confirmatory Report to EPD	7 days	Tue 13/8/27	Mon 13/9/2
560	Removal of Dioxin Contaminated Materials (DCM)	83 days	Wed 13/6/5	Mon 13/8/26



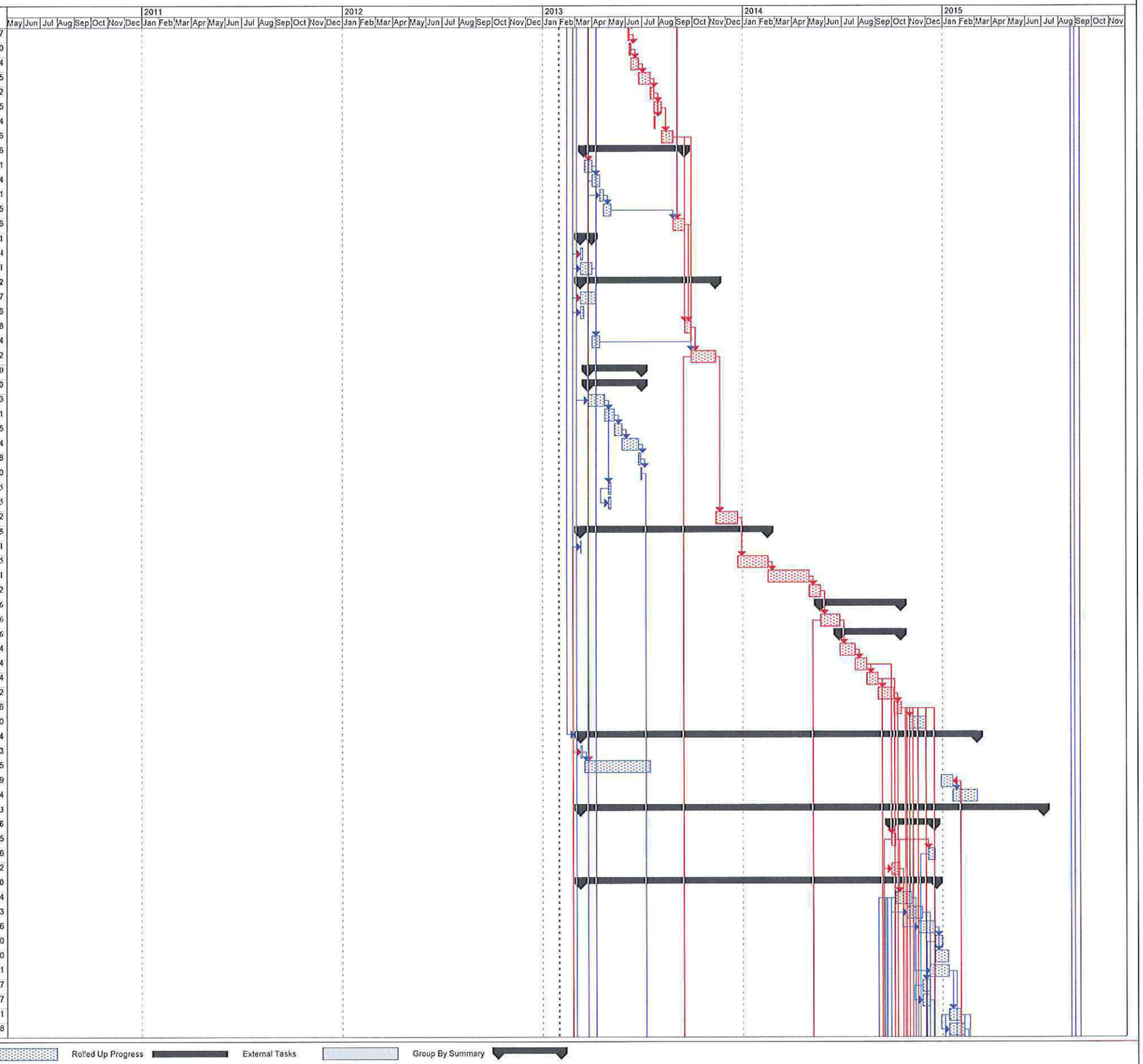
Task — Milestone — Rolled Up Task — Rolled Up Progress — External Tasks — Group By Summary
Progress — Summary — Rolled Up Milestone — Split — Project Summary

祥興建造有限公司
CHEUNG HING CONSTRUCTION CO., LTD.

Programme No.: SS W327/ MP-03C
Date: 30/01/2013

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

ID	Task Name	Duration	Start	Finish
561	Mobilization	3 days	Wed 13/6/5	Fri 13/6/7
562	Smoke test with non-toxic smoke	3 days	Sat 13/6/8	Mon 13/6/10
563	Remove removable DCM contaminated items	14 days	Tue 13/6/11	Mon 13/6/24
564	Decontamination of all debris using HEPA vacuum cleaners	21 days	Tue 13/6/25	Mon 13/7/15
565	Lining to walls & ceiling with 3-layer polyethene sheets	7 days	Tue 13/7/16	Mon 13/7/22
566	Install 3-chamber decontamination units at cremator entrances	14 days	Tue 13/7/23	Mon 13/8/5
567	Install air movers	2 days	Tue 13/7/23	Wed 13/7/24
568	Remove DCM	21 days	Tue 13/8/6	Mon 13/8/26
569	Removal of Asbestos Contaminated Materials (ACM)	183 days	Mon 13/3/18	Mon 13/9/16
570	Investigation for ACM	14 days	Mon 13/3/18	Sun 13/3/31
571	Submit Asbestos Investigation Report (AIR) to EPD	14 days	Mon 13/4/1	Sun 13/4/14
572	Submit Asbestos Abatement Plan (AAP) to EPD	7 days	Mon 13/4/15	Sun 13/4/21
573	Notify EPD to dispose of ACM	14 days	Mon 13/4/22	Sun 13/5/5
574	Removal of ACM	21 days	Tue 13/8/27	Mon 13/9/16
575	Hoarding, Chain Link Fence & Covered Walkway	21 days	Mon 13/3/11	Sun 13/3/31
576	Setting out	4 days	Mon 13/3/11	Thu 13/3/14
577	Erection	21 days	Mon 13/3/11	Sun 13/3/31
578	Demolish Existing Cremator Plant Room & Cremators etc.	247 days	Mon 13/3/11	Tue 13/11/12
579	Submit Demolition Plan for approval and re-submission	28 days	Mon 13/3/11	Sun 13/4/7
580	Detailed method and sequence of demolition propping proposed	6 days	Mon 13/3/11	Sat 13/3/16
581	Erect proppings and safety measures	12 days	Tue 13/9/17	Sat 13/9/28
582	Disconnect existing services by relevant departments/ utility companies	14 days	Mon 13/4/1	Sun 13/4/14
583	Demolition works	45 days	Sun 13/9/29	Tue 13/11/12
584	Site Formation Works	98 days	Mon 13/3/25	Sun 13/6/30
585	Unregistered Slope Feature No.1	98 days	Mon 13/3/25	Sun 13/6/30
586	Install and pull-out test for trial nails	30 days	Mon 13/3/25	Tue 13/4/23
587	Install and test for working nails	18 days	Wed 13/4/24	Sat 13/5/11
588	Repair/ reinstate existing surface channels on slope	14 days	Sun 13/5/12	Sat 13/5/25
589	Filling soil, compaction and soil tests	30 days	Sun 13/5/26	Mon 13/6/24
590	Erosion control matt and hydroseeding	4 days	Tue 13/6/25	Fri 13/6/28
591	Dismantle hoarding/ chain link fence	2 days	Sat 13/6/29	Sun 13/6/30
592	Remove emaining portion of 11SE-D/CR607	5 days	Wed 13/5/1	Sun 13/5/5
593	Remove remaining portion of Slope Feature 11SE-D/R2	5 days	Wed 13/5/1	Sun 13/5/5
594	Boring and install H-piles for soldier piling system	40 days	Wed 13/11/13	Sun 13/12/22
595	Piling Works	342 days	Mon 13/3/11	Sat 14/2/15
596	Approval from SCU received	1 day	Mon 13/3/11	Mon 13/3/11
597	Piling works	55 days	Mon 13/12/23	Sat 14/2/15
598	Excavation and lateral support works	75 days	Sun 14/2/16	Thu 14/5/1
599	Construct raft foundation/ footing	21 days	Fri 14/5/2	Thu 14/5/22
600	Substructural and Superstructural RC Works	147 days	Fri 14/5/23	Thu 14/10/16
601	Construct Basement	35 days	Fri 14/5/23	Thu 14/6/26
602	Construct Remaining Portion of Crematorium Building	112 days	Fri 14/6/27	Thu 14/10/16
603	G/F to M/F	28 days	Fri 14/6/27	Thu 14/7/24
604	M/F to 1/F	21 days	Fri 14/7/25	Thu 14/8/14
605	1/F to 2/F	21 days	Fri 14/8/15	Thu 14/9/4
606	2/F to Roof	28 days	Fri 14/9/5	Thu 14/10/2
607	Roof to Upper Roof	14 days	Fri 14/10/3	Thu 14/10/16
608	U/G manholes and drainage pipes (F1 to F4)	30 days	Sat 14/11/1	Sun 14/11/30
609	Excavation for cable trench between New Tx Room and New Crematorium	724 days	Mon 13/3/11	Wed 15/3/4
610	Excavation for trial pit(s) to reveal if roots of Retained Trees affecting cable routes	3 days	Mon 13/3/11	Wed 13/3/13
611	Rock breaking in stages with temporary backfilled	120 days	Mon 13/3/18	Mon 13/7/15
612	Re-open for excavated cable trench for cable laying	21 days	Mon 14/12/29	Mon 15/1/19
613	Reinstatement for existing EVA	45 days	Mon 15/1/19	Wed 15/3/4
614	Internal Finishing Works	845 days	Mon 13/3/11	Fri 15/7/3
615	Doors (timber & steel)	79 days	Mon 14/9/29	Tue 14/12/16
616	Frame installation	7 days	Mon 14/9/29	Sun 14/10/5
617	Doors installation	12 days	Fri 14/12/5	Tue 14/12/16
618	Windows and Louvres	14 days	Mon 14/9/29	Sun 14/10/12
619	Skylights at Level 2	650 days	Mon 13/3/11	Sat 14/12/20
623	Concrete block walls	30 days	Mon 14/10/6	Tue 14/11/4
624	Wall plastering	28 days	Mon 14/10/27	Sun 14/11/23
625	Floor screeding with dividing strips	30 days	Mon 14/11/17	Tue 14/12/16
626	Drywall partition	14 days	Wed 14/12/17	Tue 14/12/30
627	Skirting (hardwood, wash grano with coloured round pebbles)	25 days	Wed 14/12/17	Sat 15/1/10
628	Floor tiling (Homogeneous tiles with marble highlights, quarry tiles etc.)	35 days	Mon 14/12/8	Sun 15/1/11
629	Marble wall panels	14 days	Mon 14/11/24	Sun 14/12/7
630	Ceramic wall tiles	14 days	Mon 14/11/24	Sun 14/12/7
631	Gypsum board ceiling and light troughs	21 days	Mon 15/1/12	Sun 15/2/1
632	Aluminium suspended ceiling	28 days	Mon 15/1/12	Sun 15/2/8



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Master Programme
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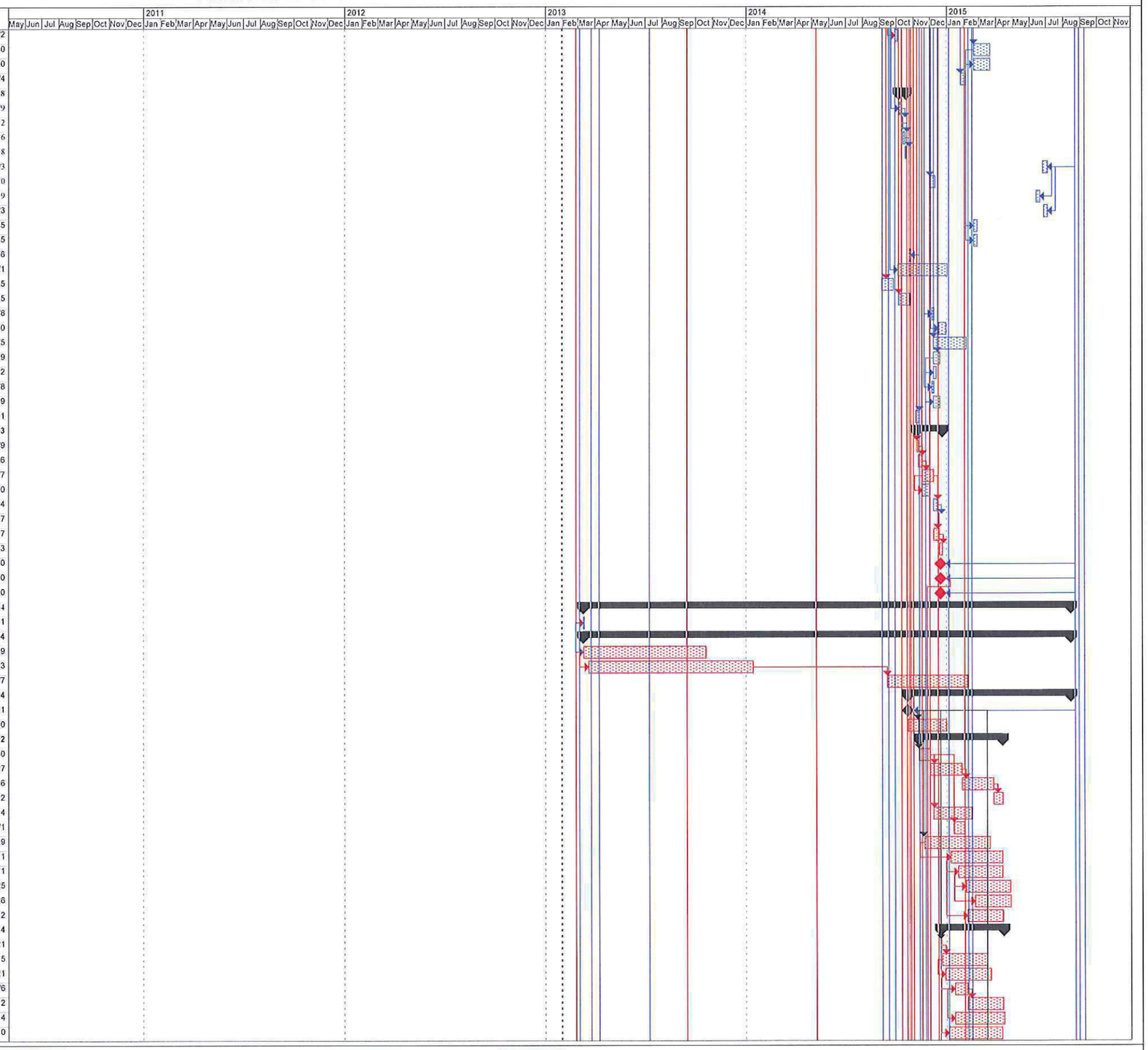
ID	Task Name	Duration	Start	Finish
633	4 hour FRP fire shutters	4 days	Mon 14/9/29	Thu 14/10/2
634	Wood veneered acoustic wall panels	30 days	Thu 15/2/19	Fri 15/3/20
635	Wood veneered wall panels and hardwood strips	30 days	Thu 15/2/19	Fri 15/3/20
636	Fixed seatings	10 days	Mon 15/1/26	Wed 15/2/4
637	Reception counter	13 days	Mon 14/10/6	Sat 14/10/18
638	Concreting works	4 days	Mon 14/10/6	Thu 14/10/9
639	s.s. panel on counter	3 days	Fri 14/10/10	Sun 14/10/12
640	Acrylic based solid surface material	4 days	Mon 14/10/13	Thu 14/10/16
641	Pomegranate wood veneer	2 days	Fri 14/10/17	Sat 14/10/18
642	Carpet tiles	9 days	Thu 15/6/25	Fri 15/7/3
643	Vinyl wall covering	10 days	Mon 14/12/1	Wed 14/12/10
644	CCTV monitors cabinet	7 days	Sat 15/6/13	Fri 15/6/19
645	Tactile warning strips	7 days	Sat 15/6/27	Fri 15/7/3
646	Catafalque at Services Halls by Cremator NSC	7 days	Thu 15/2/19	Wed 15/2/25
647	Altar at Services Halls	7 days	Thu 15/2/19	Wed 15/2/25
648	Roller shutter on M/F	3 days	Fri 14/10/24	Sun 14/10/26
649	Steel and metal works (General)	90 days	Sat 14/10/4	Thu 15/1/1
650	Installation of hoisting beams in Cremator Plant Room	21 days	Fri 14/9/5	Thu 14/9/25
651	Installation of hoisting beams in Filtration Plant Room	21 days	Sun 14/10/5	Sat 14/10/25
652	Ironmongeries	4 days	Fri 14/12/5	Mon 14/12/8
653	Cubicle partition	14 days	Wed 14/12/17	Tue 14/12/30
654	Internal wall & ceiling painting	60 days	Mon 14/12/8	Thu 15/2/5
655	Countertop basin with cabinets	12 days	Mon 14/12/8	Fri 14/12/19
656	Mirrors	5 days	Mon 14/12/8	Fri 14/12/12
657	Signages	4 days	Fri 14/12/5	Mon 14/12/8
658	Lockers on Level 1	12 days	Mon 14/12/8	Fri 14/12/19
659	Demolish temporary concrete block walls at Grid D (to agree with FEHD on site)	7 days	Wed 14/11/5	Tue 14/11/11
660	Builder's Works in Chimneys	47 days	Fri 14/11/7	Tue 14/12/23
661	Erect bamboo scaffolding	3 days	Fri 14/11/7	Sun 14/11/9
662	Internal plastering and screeding	7 days	Mon 14/11/10	Sun 14/11/16
663	Install perforated metal platforms and metal railings	21 days	Mon 14/11/17	Sun 14/12/7
664	Install catladders	14 days	Mon 14/11/17	Sun 14/11/30
665	Install fall arrest system	7 days	Mon 14/12/8	Sun 14/12/14
666	Install trap door on R/F	3 days	Mon 14/12/15	Wed 14/12/17
667	Internal wall painting	10 days	Mon 14/12/8	Wed 14/12/17
668	Modify bamboo scaffolding for chimneys installation	6 days	Thu 14/12/18	Tue 14/12/23
669	Handing over of Chimneys to Cremator NSC	1 day	Sat 14/12/20	Sat 14/12/20
670	Handing over Control Room and LV Switch Room on M/F	1 day	Sat 14/12/20	Sat 14/12/20
671	Handover Filtration Plant Room on 1/F	1 day	Sat 14/12/20	Sat 14/12/20
672	**Cremation System Installation Summary (Section 2)**	875 days	Mon 13/3/11	Fri 15/8/14
673	Main Contractor Site Procession	1 day	Mon 13/3/11	Mon 13/3/11
674	**Cremator Sub-Contract**	875 days	Mon 13/3/11	Fri 15/8/14
675	Shop Drawing Submission & Approval	223 days	Mon 13/3/11	Sat 13/10/19
676	Equipment Ordering	300 days	Wed 13/3/20	Mon 14/1/13
677	Equipment Arrival on Site	147 days	Sun 14/9/14	Sat 15/2/7
678	**Equipment Installation Summary**	285 days	Tue 14/10/21	Fri 15/8/14
679	Handed over Cremation Plant Room (Basement & G/F)	0 days	Tue 14/10/21	Tue 14/10/21
680	Underground Flue Gas Duct	70 days	Wed 14/10/22	Tue 14/12/30
681	**Cremator (Basement & Level 1)**	153 days	Tue 14/11/11	Sun 15/4/12
682	Cremator Steel Frame Work	20 days	Tue 14/11/11	Sun 14/11/30
683	Lower Refractory For Cremator	58 days	Mon 14/12/1	Tue 15/1/27
684	Upper Refractory For Cremator	58 days	Wed 15/1/28	Thu 15/3/26
685	Cremator Door, Burners, Rotray Drive & Accessories	17 days	Fri 15/3/27	Sun 15/4/12
686	Heat Exchanger	70 days	Sun 14/12/7	Sat 15/2/14
687	Air Fans	20 days	Tue 15/1/13	Sun 15/2/1
688	Maintenance Platform	120 days	Thu 14/11/20	Thu 15/3/19
689	Cooling water pump, piping and insulation installation	95 days	Wed 15/1/7	Sat 15/4/11
690	Air Compressor & piping	81 days	Wed 15/1/21	Sat 15/4/11
691	Flue Gas Interconnecting Pipe & Insulation	81 days	Wed 15/2/4	Sat 15/4/25
692	Town gas pipe insallation	65 days	Sat 15/2/21	Sun 15/4/26
693	Electircal & Control Work Installation	65 days	Sat 15/2/7	Sun 15/4/12
694	**Filtration Plant, Switch Room (Level 2 & Level 3)**	115 days	Sun 14/12/21	Tue 15/4/14
695	Handed over Filtration Plant Room, Switch Room & Control Room	1 day	Sun 14/12/21	Sun 14/12/21
696	Flat Bag Filter System	84 days	Mon 14/12/22	Sun 15/3/15
697	Additional Filter System	84 days	Sun 14/12/28	Sat 15/3/21
698	Flue Gas Fan	23 days	Thu 15/1/15	Fri 15/2/6
699	Flue Gas Interconnecting pipe & Insulation	65 days	Sat 15/2/7	Sun 15/4/12
700	Maintenance Platform	90 days	Thu 15/1/15	Tue 15/4/14
701	Electircal & Control Work Installation	97 days	Sun 15/1/4	Fri 15/4/10



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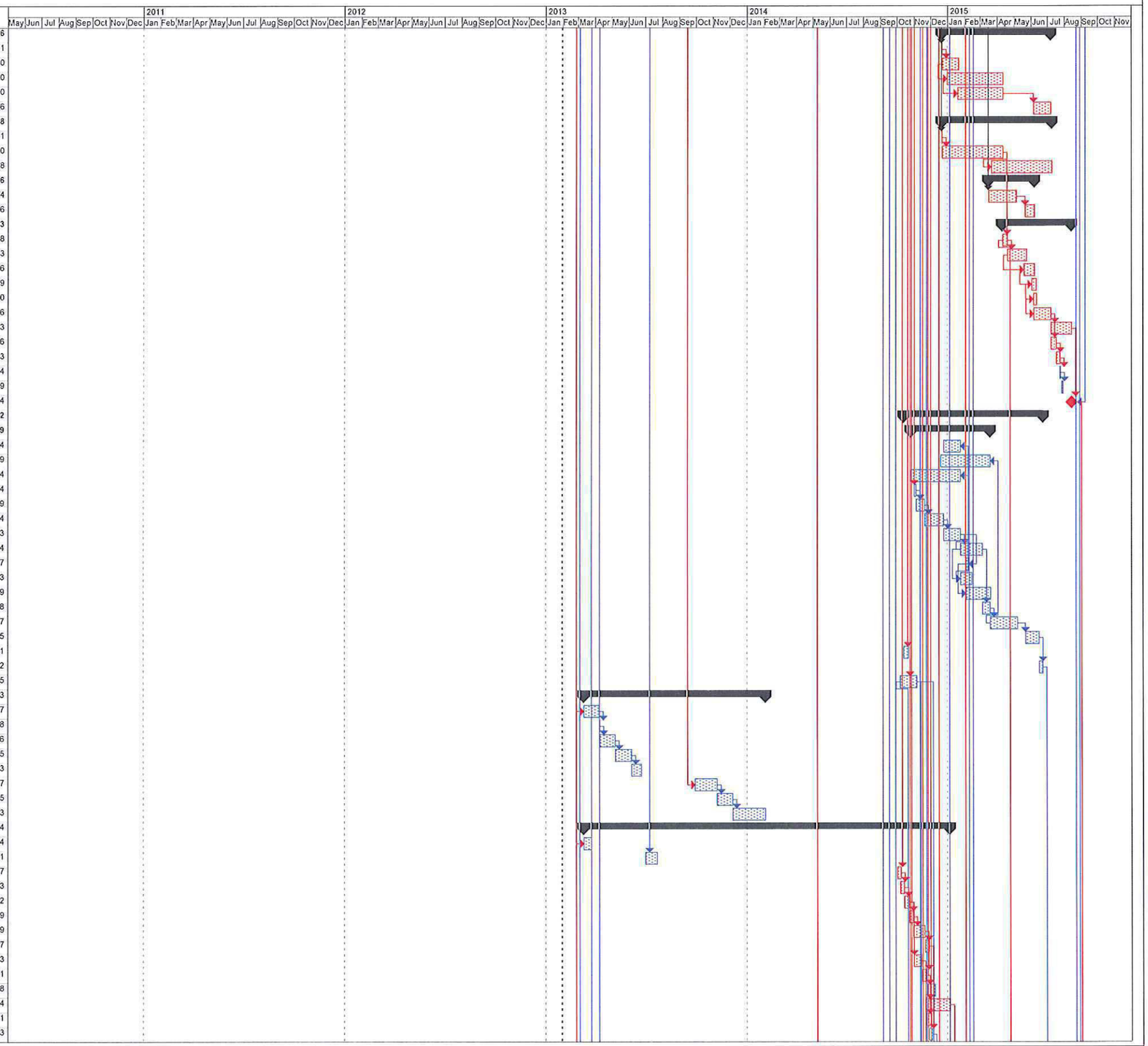
ID	Task Name	Duration	Start	Finish
702	**Flat Roof**	**196 days**	**Sun 14/12/21**	**Mon 15/7/6**
703	Handed over Flat Roof c/w Concrete Plinth	1 day	Sun 14/12/21	Sun 14/12/21
704	Air-cooled Radiator	30 days	Mon 14/12/22	Tue 15/1/20
705	Cooling water pipe insulation & cladding	101 days	Wed 14/12/31	Fri 15/4/10
706	Electircal & Control Work Installation	82 days	Mon 15/1/19	Fri 15/4/10
707	Noise Barrier Works	30 days	Fri 15/6/5	Mon 15/7/6
708	**Chimney Shaft**	**198 days**	**Sun 14/12/21**	**Wed 15/7/8**
709	Chimney Shaft handovered	1 day	Sun 14/12/21	Sun 14/12/21
710	Chimney	110 days	Mon 14/12/22	Fri 15/4/10
711	Maintenance Platform Work	108 days	Sat 15/3/21	Wed 15/7/8
712	**Service Hall & Insertion Area**	**83 days**	**Mon 15/3/16**	**Sat 15/6/6**
713	Catafalque Installation	50 days	Mon 15/3/16	Mon 15/5/4
714	Coffin Insertion Machine	17 days	Thu 15/5/21	Sat 15/6/6
715	**Testing & Commissioning**	**114 days**	**Fri 15/4/10**	**Thu 15/8/13**
716	Equipment Functional Test	9 days	Fri 15/4/10	Sat 15/4/18
717	Dry Heating	35 days	Sun 15/4/19	Sat 15/5/23
718	Cold commissioning	19 days	Tue 15/5/19	Sat 15/6/6
719	Pre-heating	8 days	Tue 15/6/2	Tue 15/6/9
720	Trial Run	6 days	Fri 15/6/5	Wed 15/6/10
721	Emission Test Manual Sampling (Saturday & Public Holiday Excluded)	29 days	Sat 15/6/6	Mon 15/7/6
722	Emission Test Report Issuance	28 days	Tue 15/7/7	Thu 15/8/13
723	Full Load Performance Test (Saturday & Public Holiday Excluded)	8 days	Tue 15/7/7	Thu 15/7/16
724	Full Load Performance Test Issuance	5 days	Fri 15/7/17	Thu 15/7/23
725	Submission of O&M Manual	1 day	Fri 15/7/24	Fri 15/7/24
726	Training	3 days	Mon 15/7/27	Wed 15/7/29
727	Handover to FEHD / EMSD	1 day	Fri 15/8/14	Fri 15/8/14
728	External Wall Finishing	**253 days**	**Mon 14/10/13**	**Mon 15/6/22**
729	Submission and approval of shop drawings	**144 days**	**Sun 14/10/26**	**Thu 15/3/19**
730	Tiles Setting Out	30 days	Thu 14/12/25	Sat 15/1/24
731	Artificial wood screen	90 days	Fri 14/12/19	Thu 15/3/19
732	Granite panels outside Service Halls	90 days	Sun 14/10/26	Sat 15/1/24
733	Setting out	4 days	Sat 14/11/1	Tue 14/11/4
734	Install external windows/ louvres	15 days	Wed 14/11/5	Wed 14/11/19
735	Install metal frames for Artificial Wood Screen	35 days	Thu 14/11/20	Wed 14/12/24
736	External wall rendering	30 days	Thu 14/12/25	Fri 15/1/23
737	Fixing artificial granite wall tiles	40 days	Sat 15/1/24	Wed 15/3/4
738	External spray paint at Towngas governor kiosk	5 days	Tue 15/2/3	Sat 15/2/7
739	Fixing granite panels on Level 1	21 days	Sat 15/1/24	Fri 15/2/13
740	Aluminium cladding to external wall on Level 2	45 days	Tue 15/2/3	Thu 15/3/19
741	External wall movement joints	14 days	Thu 15/3/5	Wed 15/3/18
742	Artificial Wood Screens	50 days	Thu 15/3/19	Thu 15/5/7
743	External painting works	25 days	Fri 15/5/22	Mon 15/6/15
744	Water test to external windows	9 days	Mon 14/10/13	Tue 14/10/21
745	Dismantle bamboo scaffolding	7 days	Tue 15/6/16	Mon 15/6/22
746	Waterproofing to Flat Roofs	30 days	Tue 14/10/7	Wed 14/11/5
747	Demolish Top Storey of Western Hall	330 days	Mon 13/3/11	Mon 14/2/3
748	Submit Demolition Plan for approval by Project Team, including re-submission	28 days	Mon 13/3/11	Sun 13/4/7
749	Submit demolition plan to SCCU for approval	1 day	Mon 13/4/8	Mon 13/4/8
750	Approval of demolition plan by SCCU	28 days	Tue 13/4/9	Mon 13/5/6
751	Install steel beams	30 days	Tue 13/5/7	Wed 13/6/5
752	Erect proppings	18 days	Thu 13/6/6	Sun 13/6/23
753	Demolish top storey including slab at level 144.63	40 days	Sun 13/9/29	Thu 13/11/7
754	Construct a new slab	28 days	Fri 13/11/8	Thu 13/12/5
755	Alteration works (tentative, scope to be advised by Architect)	60 days	Fri 13/12/6	Mon 14/2/3
756	Construct a New Transformer Room	665 days	Mon 13/3/11	Sun 15/1/4
757	Hoarding erection	14 days	Mon 13/3/11	Sun 13/3/24
758	ELS Works (pipe piles only)	21 days	Mon 13/7/1	Sun 13/7/21
759	ELS Works (remaining parts)	7 days	Wed 14/10/1	Tue 14/10/7
760	Pad Foundation	7 days	Tue 14/10/7	Mon 14/10/13
761	Columns and walls (re structure up to lower slab of double slab)	9 days	Tue 14/10/14	Wed 14/10/22
762	Waterproofing and water test for lower slab of double slab	7 days	Thu 14/10/23	Wed 14/10/29
763	R.C. structure from lower slab to roof	21 days	Thu 14/10/30	Wed 14/11/19
764	Waterproofing works and water test	8 days	Thu 14/11/20	Thu 14/11/27
765	Install metal doors and louvres	14 days	Fri 14/10/31	Thu 14/11/13
766	Wall plastering and screeding to Tx Room & cable trench	7 days	Sat 14/11/15	Fri 14/11/21
767	Wall painting	14 days	Tue 14/11/25	Mon 14/12/8
768	Electrical installation works	45 days	Fri 14/11/21	Sun 15/1/4
769	Construction of cable trench and chequer plates	10 days	Sat 14/11/22	Mon 14/12/1
770	Importation of soil to roof	6 days	Fri 14/11/28	Wed 14/12/3



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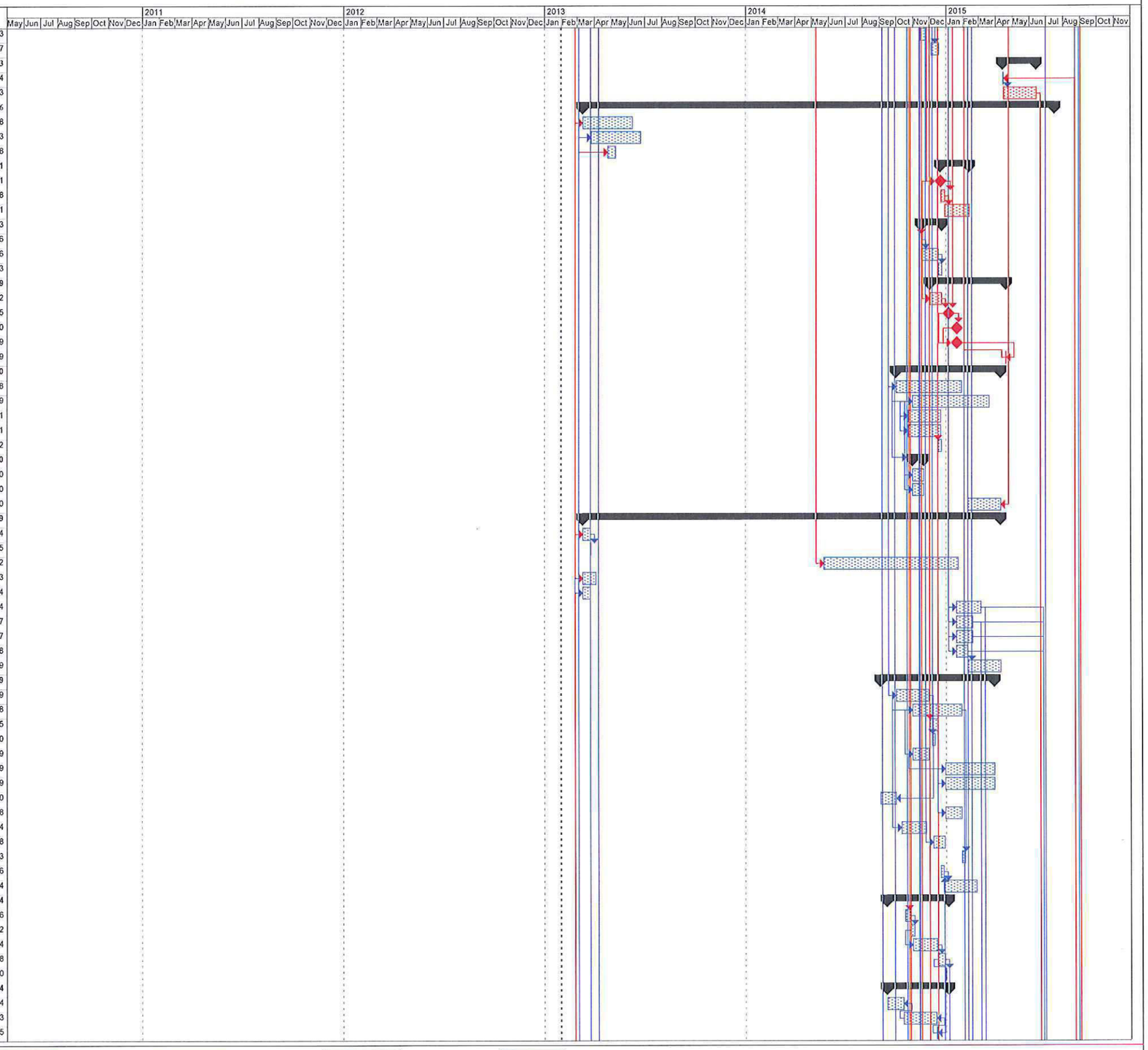
ID	Task Name	Duration	Start	Finish
771	External concrete paving block	10 days	Fri 14/11/14	Sun 14/11/23
772	Landscaping works on roof	14 days	Thu 14/12/4	Wed 14/12/17
773	Install Lift 2 by NSC	61 days	Tue 15/4/14	Sat 15/6/13
774	Hand over of lift shaft to Lift NSC	1 day	Tue 15/4/14	Tue 15/4/14
775	Installation (including T&C and interior decoration)	60 days	Wed 15/4/15	Sat 15/6/13
776	BS Installation	854 days	Mon 13/3/11	Thu 15/7/16
777	Submission and approval of CSD	90 days	Mon 13/3/11	Sat 13/6/8
778	Submission and approval of CBWD	90 days	Tue 13/3/26	Sun 13/6/23
779	Migrate existing lift supervisory panel for Blk 6 from ex. Office to temp. office	14 days	Thu 13/4/25	Wed 13/5/8
780	LV Switchboard	53 days	Sun 14/12/21	Wed 15/2/11
781	Handover of LV Switch Room at Level M/F	1 day	Sun 14/12/21	Sun 14/12/21
782	Delivery of LV Switchboard	7 days	Mon 14/12/22	Sun 14/12/28
783	Installation of LV switchboard	45 days	Mon 14/12/29	Wed 15/2/11
784	Genset (Non-FSI)	38 days	Sun 14/11/16	Tue 14/12/23
785	Delivery of Genset (non-FSI)	1 day	Sun 14/11/16	Sun 14/11/16
786	Installation of Genset (non-FSI)	30 days	Mon 14/11/17	Tue 14/12/16
787	T&C	7 days	Wed 14/12/17	Tue 14/12/23
788	New Transformer Room (B.S. Works)	139 days	Tue 14/12/2	Sun 15/4/19
789	Inspection by HEC and making good defects	21 days	Tue 14/12/2	Mon 14/12/22
790	Handover of Tx Room	1 day	Mon 15/1/5	Mon 15/1/5
791	Delivery of transformer	1 day	Tue 15/1/20	Tue 15/1/20
792	Installation by HEC	90 days	Tue 15/1/20	Sun 15/4/19
793	Power energization	1 day	Sun 15/4/19	Sun 15/4/19
794	EE Installation	191 days	Wed 14/10/1	Fri 15/4/10
795	Conduits, cable ladders, cabling works and trunking works	120 days	Wed 14/10/1	Wed 15/1/28
796	Wiring works and fixing of wiring accessories	140 days	Fri 14/10/31	Thu 15/3/19
797	Power Monitoring and Analysis System	60 days	Thu 14/10/23	Sun 14/12/21
798	Central battery system	60 days	Thu 14/10/23	Sun 14/12/21
799	Lightning protection system	7 days	Tue 14/12/16	Mon 14/12/22
800	Lighting system	21 days	Fri 14/10/31	Thu 14/11/20
801	Indoor lighting system	21 days	Fri 14/10/31	Thu 14/11/20
802	Exterior lighting system	21 days	Fri 14/10/31	Thu 14/11/20
803	Testing & Commissioning	60 days	Mon 15/2/9	Fri 15/4/10
804	FS Installation	760 days	Mon 13/3/11	Thu 15/4/9
805	Survey existing FSI including Columbarium Block 1 to 4	14 days	Mon 13/3/11	Sun 13/3/24
806	Take up maintenance responsibility of FSI for Columbarium Block 1 to 4	1 day	Mon 13/3/25	Mon 13/3/25
807	Conduits and wiring	245 days	Fri 14/5/23	Thu 15/1/22
808	Dismantle existing down feed pipe	24 days	Mon 13/3/11	Wed 13/4/3
809	Diversion of existing manual call point, visual alarm units etc	14 days	Mon 13/3/11	Sun 13/3/24
810	Sprinkler piping system	45 days	Mon 15/1/19	Wed 15/3/4
811	Sprinklers installation	30 days	Mon 15/1/19	Tue 15/2/17
812	Hose reel and fire hydrant system installation	30 days	Mon 15/1/19	Tue 15/2/17
813	Fire detection and alarm system	21 days	Mon 15/1/19	Sun 15/2/8
814	Testing & Commissioning	60 days	Mon 15/2/9	Thu 15/4/9
815	MVAC Installation	208 days	Wed 14/9/3	Sun 15/3/29
816	Conduits and wiring	60 days	Wed 14/10/1	Sat 14/11/29
817	Air ducts installation	90 days	Fri 14/10/31	Wed 15/1/28
818	Indoor unit on Level 2	15 days	Mon 14/12/1	Mon 14/12/15
819	Outdoor units on R/F	5 days	Sat 14/12/6	Wed 14/12/10
820	Ventilation fans	30 days	Fri 14/10/31	Sat 14/11/29
821	FAP units	90 days	Tue 14/12/30	Sun 15/3/29
822	Fire dampers	90 days	Tue 14/12/30	Sun 15/3/29
823	Control panels	28 days	Wed 14/9/3	Tue 14/9/30
824	Sump pumps for Sump pits	30 days	Tue 14/12/30	Wed 15/1/28
825	Refrigerant piping system for FCUs in Mortuary	45 days	Sat 14/10/11	Mon 14/11/24
826	A/C curtain for Office on Level 1	21 days	Mon 14/12/8	Sun 14/12/28
827	Air grilles	6 days	Thu 15/1/29	Tue 15/2/3
828	Installation and T&C for Joss Paper Burner	6 days	Sun 14/12/21	Fri 14/12/26
829	Testing & Commissioning	60 days	Sat 14/12/27	Tue 15/2/24
830	Mortuary Installation	113 days	Sun 14/9/14	Sun 15/1/4
831	Construction of recessed concrete slab with Injected PU Coating	10 days	Fri 14/10/17	Sun 14/10/26
832	Install refrigerant pipes	7 days	Mon 14/10/27	Sun 14/11/2
833	Install sprinkler pipes	45 days	Fri 14/10/31	Sun 14/12/14
834	Install thermal break partitions and ceiling panels	14 days	Mon 14/12/15	Sun 14/12/28
835	Install orbital/ rotatry fan & wall mounted fans	2 days	Mon 14/12/29	Tue 14/12/30
836	Proprietary sliding doors	113 days	Sun 14/9/14	Sun 15/1/4
837	Shop drawings submissions and approval	30 days	Sun 14/9/14	Tue 14/10/14
838	Delivery of materials	60 days	Tue 14/10/14	Sat 14/12/13
839	Door frames installation	2 days	Sat 14/12/13	Mon 14/12/15



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Master Programme
Reprovision of Cape Collinson Crematorium
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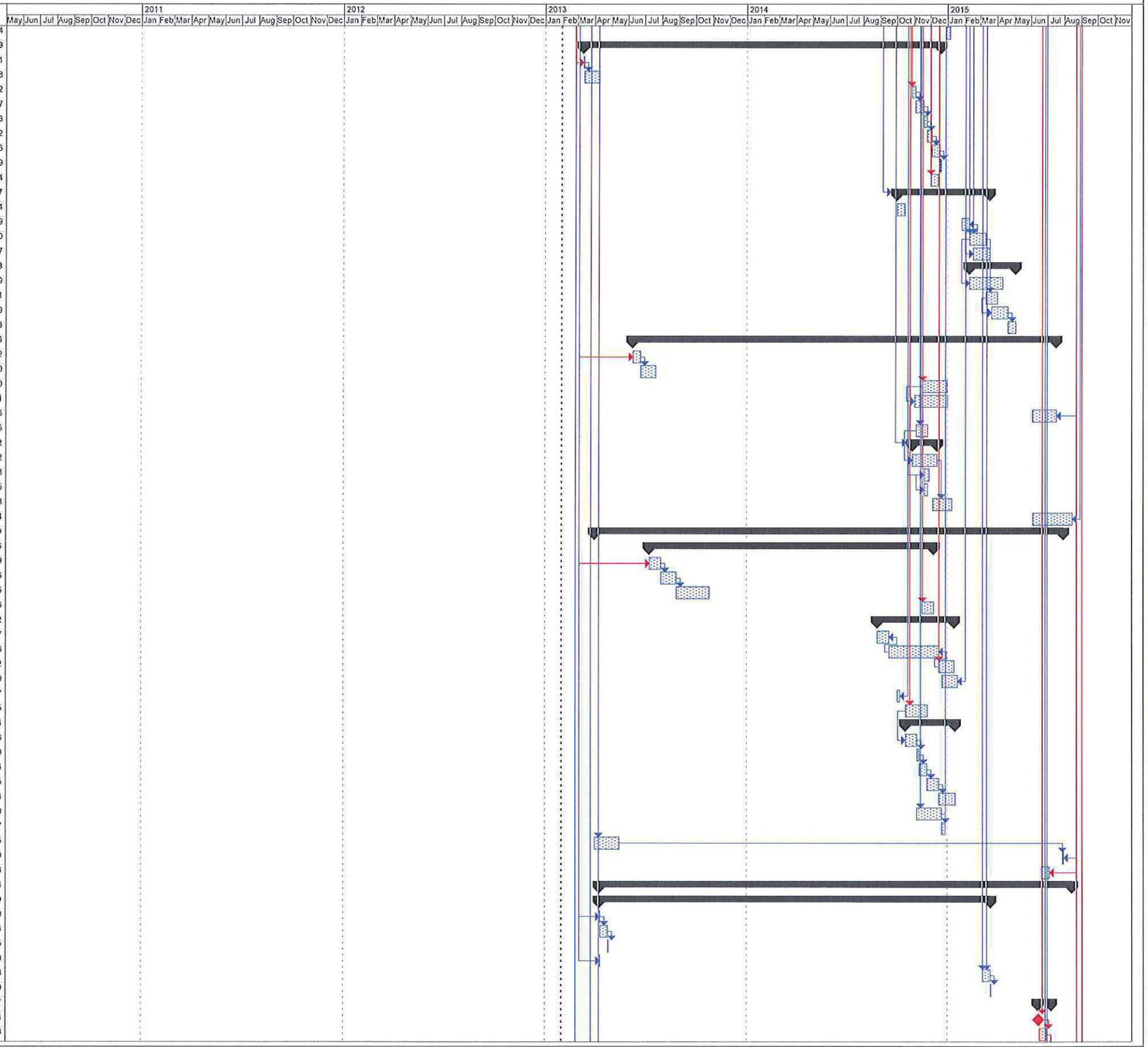
ID	Task Name	Duration	Start	Finish
840	Sliding doors installation	7 days	Mon 14/12/29	Sun 15/1/4
841	Water Fountain Installation (Level 1 & Level 2)	**649 days**	**Mon 13/3/11**	**Fri 14/12/19**
842	Design of water fountain systems	**1 day**	Mon 13/3/11	Mon 13/3/11
843	Submission of shop drawings & calculations	28 days	Tue 13/3/12	Mon 13/4/8
844	Concreting (both Level 1 & 2)	7 days	Mon 14/10/27	Sun 14/11/2
845	Screeding and waterproofing	15 days	Mon 14/11/3	Mon 14/11/17
846	Plumbing works	6 days	Tue 14/11/18	Sun 14/11/23
847	GMS frames	9 days	Mon 14/11/24	Tue 14/12/2
848	Stone cladding and glass installation	14 days	Wed 14/12/3	Tue 14/12/16
849	Testing & Commissioning	3 days	Wed 14/12/17	Fri 14/12/19
850	Noise Barriers on R/F	14 days	Mon 14/12/1	Sun 14/12/14
851	Security Services Installation	**168 days**	**Wed 14/10/1**	**Tue 15/3/17**
852	Migrate CCTV central equipment from Temporary Office to General Office	14 days	Wed 14/10/1	Tue 14/10/14
853	Diversion of existing CCTV system	14 days	Mon 15/1/26	Mon 15/2/9
854	New CCTV poles and CCTV	30 days	Mon 15/2/9	Tue 15/3/10
855	PA system	30 days	Mon 15/2/16	Tue 15/3/17
856	ELV Installation	**84 days**	**Mon 15/2/9**	**Sun 15/5/3**
857	BRI system	60 days	Mon 15/2/9	Thu 15/4/9
858	Emergency call bell system	21 days	Wed 15/3/11	Tue 15/3/31
859	Intercom system	30 days	Sat 15/3/21	Sun 15/4/19
860	Testing & Commissioning	14 days	Mon 15/4/20	Sun 15/5/3
861	P&D Installation	**764 days**	**Sun 13/6/9**	**Thu 15/7/16**
862	Diversion of 3 nos. existing flush water tanks	14 days	Sun 13/6/9	Sat 13/6/22
863	Dismantle existing U/G plumbing pipes	28 days	Sun 13/6/23	Sat 13/7/20
864	Leakage collection system for U/G water pipes at Level 1	45 days	Sun 14/11/16	Tue 14/12/30
865	Above ground drainage pipe installation (foul water and storm water)	60 days	Sun 14/11/2	Wed 14/12/31
866	U-channels with matching covers	40 days	Wed 15/6/3	Thu 15/7/16
867	Gutters installation	21 days	Wed 14/11/5	Tue 14/11/25
868	Plumbing pipes installation	**45 days**	**Wed 14/10/29**	**Fri 14/12/12**
869	Fresh/ flushing water	45 days	Wed 14/10/29	Fri 14/12/12
870	Cleansing water	10 days	Wed 14/11/19	Fri 14/11/28
871	Irrigation	7 days	Wed 14/11/19	Tue 14/11/25
872	Sanitary fitments installation	35 days	Fri 14/12/5	Thu 15/1/8
873	Full Commissioning of the Project	60 days	Thu 15/6/4	Fri 15/8/14
874	External Works	842 days	Mon 13/4/1	Wed 15/7/29
875	Glass balustrades	**516 days**	**Tue 13/7/9**	**Sat 14/12/6**
876	Submission of shop drawings and calculation for approval	21 days	Tue 13/7/9	Mon 13/7/29
877	Submission to SCCU for approval	28 days	Tue 13/7/30	Mon 13/8/26
878	Delivery of materials	60 days	Tue 13/8/27	Fri 13/10/25
879	Installation	21 days	Sun 14/11/16	Sat 14/12/6
880	External Canopy and Covered Walkway	**139 days**	**Wed 14/8/27**	**Mon 15/1/12**
881	Submission of shop drawings and calculation for approval	21 days	Wed 14/8/27	Wed 14/9/17
882	Delivery of materials	90 days	Wed 14/9/17	Tue 14/12/16
883	Installation	28 days	Tue 14/12/16	Mon 15/1/12
884	Construct draw pits and cable duct laying	28 days	Mon 14/12/22	Mon 15/1/19
885	Concrete plinths on R/F for radiators	5 days	Thu 14/10/2	Tue 14/10/7
886	External metal railing	40 days	Fri 14/10/17	Tue 14/11/25
887	Planter Boxes	**90 days**	**Fri 14/10/17**	**Wed 15/1/14**
888	Install s.s. RHS handrail	21 days	Fri 14/10/17	Thu 14/11/6
889	Install drainage layer	4 days	Fri 14/11/7	Mon 14/11/10
890	External wall finishes on planter walls	14 days	Tue 14/11/11	Mon 14/11/24
891	Importation of soil materials to planter boxes	21 days	Tue 14/11/25	Mon 14/12/15
892	Planting works	30 days	Tue 14/12/16	Wed 15/1/14
893	External paving on Levels 1 & 2	45 days	Thu 14/11/6	Sat 14/12/20
894	s.s. tactile studs on natural granites on Levels 1 & 2	7 days	Sun 14/12/21	Sat 14/12/27
895	600 screen wall next to existing retaining wall	45 days	Mon 13/4/1	Wed 13/5/15
896	Road signs and corner guards	2 days	Tue 15/7/28	Wed 15/7/29
897	Re-painting to existing substation	14 days	Sat 15/6/20	Fri 15/7/3
898	Statutory Submissions	845 days	Wed 13/4/10	Fri 15/8/14
899	WSD Inspection	**709 days**	**Wed 13/4/10**	**Thu 15/3/19**
900	WWO 46 Part I & II (Plumbing)	1 day	Wed 13/4/10	Wed 13/4/10
901	WWO Part IV (Plumbing)	14 days	Thu 13/4/11	Wed 13/4/24
902	WWO Part V (Plumbing)	1 day	Thu 13/4/25	Thu 13/4/25
903	WWO 46 Part I & II (FS)	1 day	Wed 13/4/10	Wed 13/4/10
904	WWO Part IV (FS)	14 days	Thu 15/3/5	Wed 15/3/18
905	WWO Part V (FS)	1 day	Thu 15/3/19	Thu 15/3/19
906	Lift Inspection	**22 days**	**Sun 15/6/14**	**Tue 15/7/7**
907	Submit Form 5	1 day	Sun 15/6/14	Sun 15/6/14
908	EMSD Inspection	14 days	Mon 15/6/15	Sun 15/6/28



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Master Programme
Reprovision of Cape Collinson Crematorium
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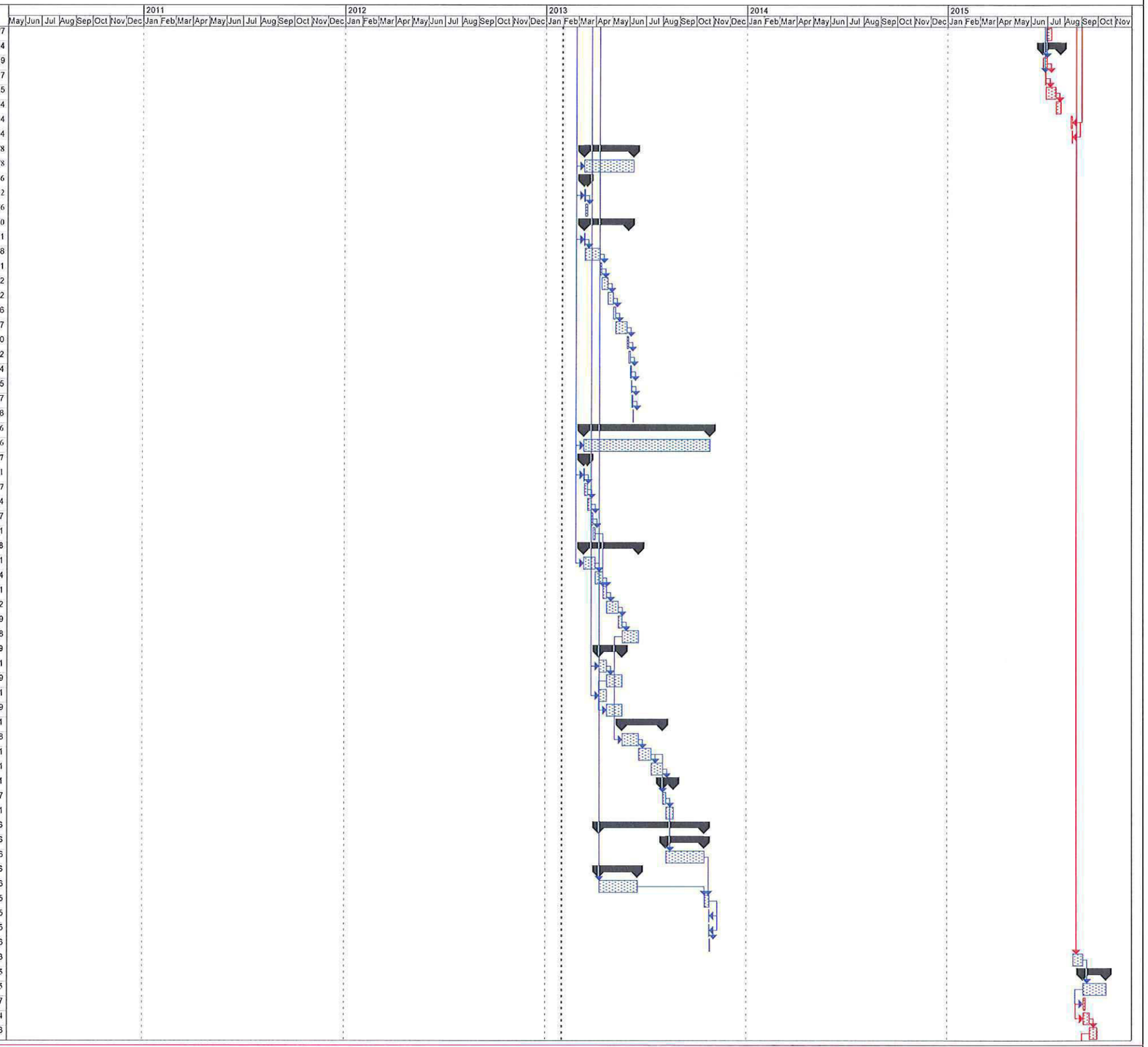
ID	Task Name	Duration	Start	Finish
909	Issuance of Form 6	7 days	Mon 15/6/29	Tue 15/7/7
910	FS Inspection	26 days	Tue 15/6/23	Fri 15/7/24
911	Dismantle hoarding/ covered walkway	7 days	Tue 15/6/23	Mon 15/6/29
912	Submit Form 501 for Phase 2A	1 day	Sat 15/6/27	Sat 15/6/27
913	FS Inspection	14 days	Sun 15/6/28	Wed 15/7/15
914	Issuance of Fire Certificate	7 days	Thu 15/7/16	Fri 15/7/24
915	General cleaning	3 days	Wed 15/8/12	Fri 15/8/14
916	Handing over Section 2A	1 day	Fri 15/8/14	Fri 15/8/14
917	**SECTION 2B - Removal of Canopy**	90 days	Mon 13/3/11	Sat 13/6/8
918	Works as per EM&A Programme	90 days	Mon 13/3/11	Sat 13/6/8
919	Hoarding erection	6 days	Mon 13/3/11	Sat 13/3/16
920	Setting out	2 days	Mon 13/3/11	Tue 13/3/12
921	Erection	4 days	Wed 13/3/13	Sat 13/3/16
922	Demolish Canopy at Western Hall	81 days	Mon 13/3/11	Thu 13/5/30
923	Submission of demolition proposal for Consultants' approval	1 day	Mon 13/3/11	Mon 13/3/11
924	Approval on demolition proposal by Consultants	28 days	Tue 13/3/12	Mon 13/4/8
925	Mobilization on propping materials	3 days	Tue 13/4/9	Thu 13/4/11
926	Erect proppings	11 days	Fri 13/4/12	Mon 13/4/22
927	Dismantle roofing glass panels	10 days	Tue 13/4/23	Thu 13/5/2
928	Dismantle ceiling panels	4 days	Fri 13/5/3	Mon 13/5/6
929	Cutting existing steel beams	21 days	Tue 13/5/7	Mon 13/5/27
930	Removal of existing stone support	3 days	Tue 13/5/28	Thu 13/5/30
931	Reinstate the works area	3 days	Fri 13/5/31	Sun 13/6/2
932	Dismantle the hoarding	2 days	Mon 13/6/3	Tue 13/6/4
933	General cleaning	1 day	Wed 13/6/5	Wed 13/6/5
934	Handover Inspection	2 days	Thu 13/6/6	Fri 13/6/7
935	Handing over Section 2B	1 day	Sat 13/6/8	Sat 13/6/8
936	**SECTION 2C - Removal of Fuel Tank**	230 days	Mon 13/3/11	Sat 13/10/26
937	Works as per EM&A Programme	230 days	Mon 13/3/11	Sat 13/10/26
938	Hoarding Erection	7 days	Mon 13/3/11	Sun 13/3/17
939	Setting out	1 day	Mon 13/3/11	Mon 13/3/11
940	Erection	6 days	Tue 13/3/12	Sun 13/3/17
941	Remove existing oil residue before demolishing the U/G Oil Tank	7 days	Mon 13/3/18	Sun 13/3/24
942	Remove U/G Oil Tank	3 days	Mon 13/3/25	Wed 13/3/27
943	Drilling for taking sample for submission to EPD	4 days	Thu 13/3/28	Sun 13/3/31
944	Excavation Works (in case contaminants found underneath the r.c. tank)	100 days	Mon 13/3/11	Tue 13/6/18
945	Design for temporary shoring for approval	21 days	Mon 13/3/11	Sun 13/3/31
946	Approval on temporary shoring design	14 days	Mon 13/4/1	Sun 13/4/14
947	Mobilize for temporary shoring materials	7 days	Mon 13/4/15	Sun 13/4/21
948	Installation of ELS Works	21 days	Mon 13/4/22	Sun 13/5/12
949	Demolishing U/G Water Tank	7 days	Mon 13/5/13	Sun 13/5/19
950	Excavation and treatment for contaminated soil	30 days	Mon 13/5/20	Tue 13/6/18
951	Further Site Investigation for the U/G Fuel Tank	42 days	Mon 13/4/8	Sun 13/5/19
952	Submit Supplementary Contamination Assessment Report (SCAR) to EPD	14 days	Mon 13/4/8	Sun 13/4/21
953	Approval from EPD for SCAR	28 days	Mon 13/4/22	Sun 13/5/19
954	Submit Supplementary Remedial Plan (SRAP) to EPD	14 days	Mon 13/4/8	Sun 13/4/21
955	Approval from EPD for SRAP	28 days	Mon 13/4/22	Sun 13/5/19
956	Treatment for Contaminated Soil at Borehole BH1	74 days	Mon 13/5/20	Thu 13/8/1
957	Excavation for Lead Contaminated Soil	30 days	Mon 13/5/20	Tue 13/6/18
958	Treat contaminated soil by cement solidification/ stabilization	23 days	Wed 13/6/19	Thu 13/7/11
959	Disposal of contaminated soil	21 days	Fri 13/7/12	Thu 13/8/1
960	Remediation Report	20 days	Fri 13/8/2	Wed 13/8/21
961	Submit Remediation Report to EPD	6 days	Fri 13/8/2	Wed 13/8/7
962	Approval from EPD	14 days	Thu 13/8/8	Wed 13/8/21
963	Backfilling to excavated U/G Water Tank	192 days	Mon 13/4/8	Wed 13/10/16
964	In Case of Contaminants Found underneath the Oil Tank	70 days	Thu 13/8/8	Wed 13/10/16
965	Backfill and compaction in layers to excavated trench	70 days	Thu 13/8/8	Wed 13/10/16
966	In Case of Contaminants Not Found underneath the Oil Tank	70 days	Mon 13/4/8	Sun 13/6/16
967	Backfill and compaction in layers to retained r.c. oil tank	70 days	Mon 13/4/8	Sun 13/6/16
968	Reinstatement of carpark paving	9 days	Thu 13/10/17	Fri 13/10/25
969	Dismantle the hoarding	1 day	Fri 13/10/25	Fri 13/10/25
970	General cleaning	1 day	Fri 13/10/25	Fri 13/10/25
971	Handing over Section 2C	1 day	Sat 13/10/26	Sat 13/10/26
972	**BUFFER PERIOD (between Section 2A and Section 2D)**	14 days	Mon 15/8/17	Thu 15/9/3
973	**SECTION 2D - Removal of Temporary Offices & Lavatories**	30 days	Fri 15/9/4	Thu 15/10/15
974	Works as per EM&A Programme	30 days	Fri 15/9/4	Thu 15/10/15
975	Modification of hoarding	2 days	Fri 15/9/4	Mon 15/9/7
976	Demolish Temporary Offices, Changing Rooms & Lavatories	7 days	Fri 15/9/4	Mon 15/9/14
977	External paving works	10 days	Tue 15/9/15	Mon 15/9/28



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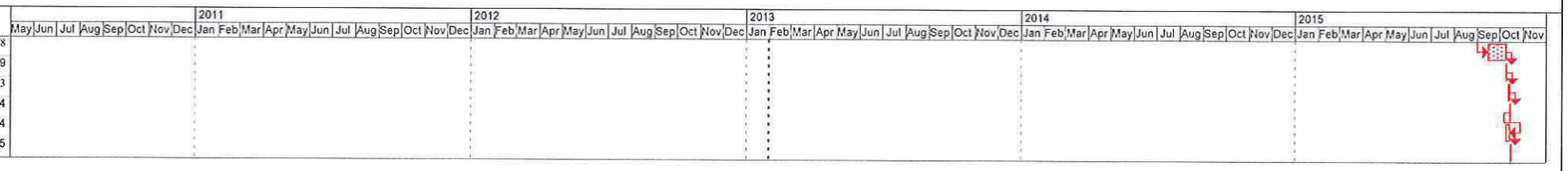
ID	Task Name	Duration	Start	Finish
978	Landscaping Works	18 days	Tue 15/9/15	Thu 15/10/8
979	SCCU Inspection	1 day	Fri 15/10/9	Fri 15/10/9
980	Dismantle hoarding	2 days	Mon 15/10/12	Tue 15/10/13
981	General cleaning	1 day	Wed 15/10/14	Wed 15/10/14
982	Handover inspection	3 days	Fri 15/10/9	Wed 15/10/14
983	Handing over Section 2D	1 day	Thu 15/10/15	Thu 15/10/15



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