





Website: www.acuityhk.com



Unit C, 11/F, Ford Glory Plaza, Nos. 37-39 Wing Hong Street, Cheung Sha Wan, Kowloon.

C

Tel. : (852) 2698 6833 Fax.: (852) 2698 9383

Contract No. AL G513

Expansion of Wo Hop Shek Crematorium

Quarterly EM&A Report No.4 (Period from 1 January to 31 March 2021)

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	Prepared by:	Reviewed by:	Certified by:
Name	Philip CHAN	Nelson TSUI	Kevin LI
Position	Environmental Team	Environmental Team	Environmental Team
Position	Member	Member	Leader
Signature	Philip	The state of the s	X.
Date:	09/04/2021	09/04/2021	09/04/2021



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EXECUTIVE SUMMARY

INTRODUCTION

- A1. The Project, Expansion of Wo Hop Shek Crematorium, is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 499) (EIAO) and is currently governed by a Environmental Permit (EP No. EP 329/2009) for the construction and operation of the Project.
- A2. In accordance with the Environmental Monitoring and Audit (EM&A) Manual for the Project, EM&A works for air quality monitoring and waste management should be carried out by Environmental Team (ET), Acuity Sustainability Consulting Limited (ASCL), during the construction phase of the Project.
- A3. This is the 4th Quarterly EM&A Report, prepared by ASCL, for the Project summarizing the monitoring results and audit findings of the EM&A programme at and around Wo Hop Shek Crematorium during the reporting period from 1 January 2021 to 31 March 2021.
- A4. The EM&A programme for this contract has covered environmental monitoring on construction dust level at selected NSRs and Contractor's environmental performance auditing in the aspects of construction dust, construction noise, water quality, waste management, Landscape and Visual and Ecology.

SUMMARY OF MAIN WORKS UNDERTAKEN & KEY MITIGATION MEASURES IMPLEMENTED

- A5. Key activities carried out in this reporting period for the Project included the following:
 - Superstructure: formwork, fixing & concreting
- A6. The major environmental impacts brought by the above construction works include:
 - Construction noise generation from construction works to superstructure
 - Wastewater generation from superstructure
 - Waste generation from construction activities
- A7. The key environmental mitigation measures implemented for the Project in this reporting period associated with the above construction works include:
 - Reduction of noise from equipment and machinery on-site
 - Treatment of wastewater from superstructure through sedimentation tank
 - Sorting and storage of general refuse and construction waste



SUMMARY OF EXCEEDANCE & INVESTIGATION & FOLLOW-UP

- A8. No project-related exceedance in air quality monitoring, including 24-hour TSP and 1-hour TSP of the Action Level was recorded during the reporting period.
- A9. Weekly site inspections of the construction work by ET were carried out to audit the mitigation measures implementation status. Observations were recorded in the site inspection checklists and provided to the contractors together with the appropriate follow-up actions where necessary.

COMPLAINT HANDLING AND PROSECUTION

- A10.No project-related environmental complaint was received during the reporting period.
- A11. Neither notifications of summons nor prosecution was received for the Project.

REPORTING CHANGE

A12. There was no change to be reported that may affect the on-going EM&A programme.

SUMMARY OF UPCOMING KEY ISSUES AND KEY MITIGATION MEASURES

- A13.Key activities anticipated in the next reporting period for the Project will include the following:
 - Brick work and block work; internal partition wall
 - External wall plastering, tiling & cladding
 - Doors, gates, shutters, grilles, hatches and windows
 - Structural steel works
- A14. The major environmental impacts brought by the above construction works will include:
 - Construction noise generation from brick work and block work to structural steel works
 - Wastewater generation from brick work and block work to structural works
 - Waste generation from construction activities
- A15. The key environmental mitigation measures for the Project in the coming reporting period associated with the above construction works will include:
 - Reduction of noise from equipment and machinery on-site
 - Treatment of wastewater from brick work and block work through sedimentation tank
 - Sorting and storage of general refuse and construction waste



1. Basic Project Information

1.1. BACKGROUND

The Food and Environmental Hygiene Department (FEHD) is responsible for the operation of public crematorium in Hong Kong including the Cremators at Wo Hop Shek Crematorium pursuant to Environmental Permit No. EP-329/2009. The existing Wo Hop Shek Crematorium (WHSC) was re-provisioned in February 2013. It comprises six body cremators, one bone cremator and three service halls. At the design stage, areas had already been reserved for the addition of two body cremators and one service hall. In order to cope with increasing demand for cremation sessions, Expansion of Wo Hop Shek Crematorium (the Project) is being taken forward in this juncture. This Project shall provide two new cremators at WHSC and one service hall for commissioning. Architectural Services Department (ArchSD) acts as the works agent for FEHD, is responsible for the project management of the project.

The Project consists of three construction phases. Phase I of the project was substantially completed in October 2012 while Phase II of the project was substantially completed in November 2013. The Project has been re-initiated as Phase III and Shing Hing Construction Co. Ltd. (the Contractor) has been awarded the construction contract for the Project with contract no. AL G513.

The scope of the Project comprises provision of:

- Two new body cremators;
- One new multi-purpose service hall;
- A full range of ancillary facilities; and
- Addition, alteration and modification works that are necessary for the additional cremators and service hall.

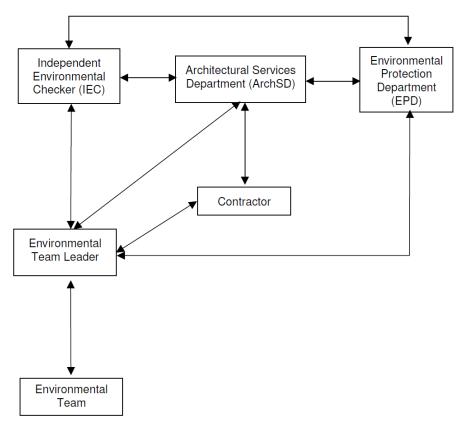
1.2. THE REPORTING SCOPE

This is the 4th Quarterly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 January to 31 March 2021.

1.3. PROJECT ORGANIZATION

The Project Organization structure for Construction Phase is presented in Figure 1.1.





← ► Line of Communication

Figure 1.1 Project Organization Chart Contact details of the key personnel are presented in Table 1.1 below:

Table 1.1 Contact Details of Key Personnel

Party	Position	Name	Telephone no.
Shing Hing Construction Co Ltd	Site Agent	M.Y. Wong	2807-4665
Acuity Sustainability Consulting Limited	Environmental Team Leader	Kevin Li	2698-6833
Ove Arup & Partners Hong Kong Ltd	Independent Environmental Checker (IEC)	Sam Tsoi	2528-3031



1.4. SUMMARY OF CONSTRUCTION WORKS

Details of the major construction activities undertaken in this reporting period are shown in Table 1.2 below. The construction programme is presented in **Appendix A**.

Table 1.2 Summary of the Construction Activities Undertaken during the Reporting Period

T CHOU			
Reporting Period	Construction Activities		
January 2021	1. Superstructure: formwork, fixing & concreting		
February 2021	2. Superstructure: formwork, fixing & concreting		
March 2021	3. Superstructure: formwork, fixing & concreting		



1.5. SUMMARY OF ENVIRONMENTAL STATUS

Environmental permit (EP) conditions under the EIAO, submission status under the EP and implementation status of mitigation measures had been reviewed and implemented on schedule. The status of required submissions under the EP (EP-329/2009) as of the reporting period for the Project are summarised in Table 1.3.

Table 1.3 Summary of Status of Required Submission for EP-329/2009 for the Project

EP/FEP Condition (EP-457/2013/C)	Submission	Submission date
Condition 1.12	Notification of Commencement Date of Construction of the Project	14 Mar 2020
Condition 2.3	Inception Report	13 Mar 2019
Condition 2.4	Tree Transplant Proposal	12 Apr 2019
Condition 2.5	Landscape Plan with Tree Preservation Proposal	14 Feb 2018
Condition 5.2a	Baseline Monitoring Report	21 Jan 2020
Condition 5.2b	Alternative Air Quality Monitoring Station	05 Oct 2019
Condition 5.4	Quarterly EM&A Report (January 2021 -March 2021)	14 Apr 2021

A summary of the valid permits, licences, and /or notifications on environmental protection for this Project is presented in Table 1.4.

Table 1.4 Summary of the Status of Valid Environmental Licence, Notification, Permit and Documentations

Permit/Licences/ Notification	Reference	Validity Period	Remarks
Environmental Permit	EP-329/2009	Throughout the Contract	-
Notification of Construction Works under the Air Pollution Control (Construction Dust) Regulation (Form NA)	Ref. Number: 455614	Throughout the Contract	-



Wastewater Discharge Licence	WT00034798-2019	10 Oct 2020 – 31 Oct 2024	-
Chemical Waste Producer Registration	5213-632-S4245-01	Throughout the Contract	-
Construction Noise Permit (24 hours)	GW-RN0434-20	13 July 2020 – 12 Jan 2021	-
Construction Noise Permit (24 hours) (Renewal)	GW-RN0888-20	13 Jan 2021 – 12 July 2021	-
Billing Account for Disposal of Construction Waste	7032841	Throughout the Contract	-

The status for all environmental aspects is presented in Table 1.5.

Table 1.5 Summary of Status for Key Environmental Aspects under the Updated EM&A Manual

Parameters	Status
Dust	
Baseline Monitoring	The baseline dust monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 5.2a.
Impact Monitoring	On-going
Waste Management	
Mitigation Measures in Waste Monitoring Plan	On-going
Environmental Audit	
Site Inspection covering Measures of Air Quality, Noise Impact, Water Quality, Waste, Ecological Quality, Landscape and Visual	On-going

Other than the EM&A work by ET, environmental briefings, trainings and regular environmental management meetings were conducted, in order to enhance environmental awareness and closely monitor the environmental performance of the contractors.



The EM&A programme has been implemented in accordance with the recommendations presented in the approved EIA Report and the Updated EM&A Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix C**.



2. Monitoring Results

2.1. MONITORING PARAMETERS

The impact monitoring had been carried out in accordance with section 2.6 of the approved EM&A Manual to determine the 1-hour and 24-hour total suspended particulates (TSP) levels at the monitoring locations in the reporting period.

The sampling frequency of at least once in every 6 days, shall be strictly observed at the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least 3 times in every 6 days should be undertaken when the highest dust impact occurs.

General meteorological conditions (wind speed, direction and precipitation) and notes regarding any significant adjacent dust producing sources had also been recorded throughout the impact monitoring period.

2.2. Monitoring Locations

Due to the disagreement of occupants in establishment of air quality monitoring station at their private permits, both of the original proposed dust monitoring locations were rejected. Two alternative air monitoring stations Fung Kai Liu Yun Sum Memorial School and Fanling Government School had been proposed by ET and approved by IEC. Two designated air monitoring locations were identified and agreed with IEC and EPD. Details of air monitoring stations are described in Table 2.2. The location plan of air quality monitoring stations is shown in **Appendix F**.

Table 2.2 Location of the Dust Monitoring Stations

Air Quality Monitoring Station	Dust Monitoring Station	
A10	Fung Kai Liu Yun Sum Memorial School	
A20	Fanling Government School	

2.3. MONITORING DATE, TIME, FREQUENCY AND DURATION

A summary of impact monitoring duration, sampling parameter and frequency is presented in Table 2.3.



Table 2.3 Summary of Impact Monitoring Programme

Impact Monitoring	Duration	Sampling Parameter	Frequency
Dust	1-hour continuous measurement	1-hour TSP	3 times per six days
Dust	24-hour continuous sampling	24-hour TSP	Once per six days

2.4. RESULT SUMMARY

According to our field observations, the major dust source identified at the designated air quality monitoring station in the reporting period are summarised in Table 2.4.

Table 2.4 Observation at Dust Monitoring Station

Monitoring Station	Major Dust Source
A10	Nearby traffic
A20	Nearby traffic

Air quality impact monitoring for the reporting period was carried out on the dates below:

Reporting Month	Measurement Date
January 2021	04, 08, 14, 20 and 26 January 2021
February 2021	01, 06, 11, 17, 20 and 26 February 2021
March 2021	04, 10, 16, 22 and 27 March 2021

The results for 1-hour TSP and 24-hour TSP are summarized in Table 2.5 and Table 2.6. The measurement data and details of influencing factors such as weather conditions and site observation are presented in **Appendix G**.

Table 2.5 Summary of 1-hour TSP Monitoring Results

Monitoring Location	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)	
A10	35 - 64	290	500	
A20	39 - 63	291	500	



Table 2.6 Summary of 24-hour TSP Monitoring Results

Monitoring Location	e Ranoa I II o/mai		Limit Level (μg/m³)		
A10	23 - 134	169	260		
A20	20 - 111	167	260		



3. Waste

3.1. WASTE RECORD OF REPORTING PERIOD

The waste generated from this Project includes inert construction and demolition (C&D) materials, and non-inert C&D materials. Non-inert C&D materials are made up of general refuse, vegetative wastes and recyclable wastes such as plastics and paper/cardboard packaging waste. Steel materials generated from the project are also grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials. With reference to relevant handling records and trip tickets of this Project, the quantities of different types of waste generated in the reporting period are summarised in Table 3.1. Details of cumulative waste management data are presented as a waste flow table in **Appendix H**.

Table 3.1 Quantities of Waste Generated from the Project from January to March 2021

	Actual Quantities of Inert C&D Materials Generated Monthly				Actual Quantities of C&D Wastes Generated Monthly						
Reporting Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (see Note)	Chemical Waste	Others, e.g. general refuse
	(in ,000kg)	(in,000kg)	(in,000kg)	(in ,000kg)	(in ,000kg)	(in,000kg)	(in,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)
January 2021	25.87	0	0	0	22.12	0	0	0	0	0	3.75
February 2021	2.00	0	0	0	0	0	0	0	0	0	2.00
March 2021	3.79	0	0	0	0	0	0	0	0	0	3.79

Notes:

(1) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material



3.2. MITIGATION MEASURES TO WASTE PRODUCTION

Mitigation measures adopted for reducing waste production are summarized in Table 3.2.

Table 3.2 Mitigation measures adopted for waste reduction



Types of Waste Mitigation Measures Skip for non-inert C&D waste 2. Careful design and planning with good site management to minimize over ordering and generation of waste materials. 3. Reuse non-inert C&D materials when possible to reduce the amount of C&D waste. The timber for formwork was reused onsite. Timber for formwork was reused on-site 1. Excavated inert C&D materials were separately stored for subsequent backfilling, approximately 614 tonnes of excavated Inert C&D Wastes inert materials were stored in construction material storage area with coverage of impervious sheeting for on-site backfilling.



Types of Waste	Mitigation Measures					
	No excavated material was stored at material storage area in the reporting period. 2. Surplus excavated materials were delivered to public fill reception facilities.					
Chemical Wastes	1. Unused chemicals or chemicals with remaining functional capacity were reused as far as practicable. Chemical with remaining functional capacity was stored in a designated area and reused on-site.					



4. Summary of Monitoring Exceedance, Complaints, Notification of Summons and Prosecutions

The Environmental Complaint Handling Procedure is shown in below Figure 4.1:

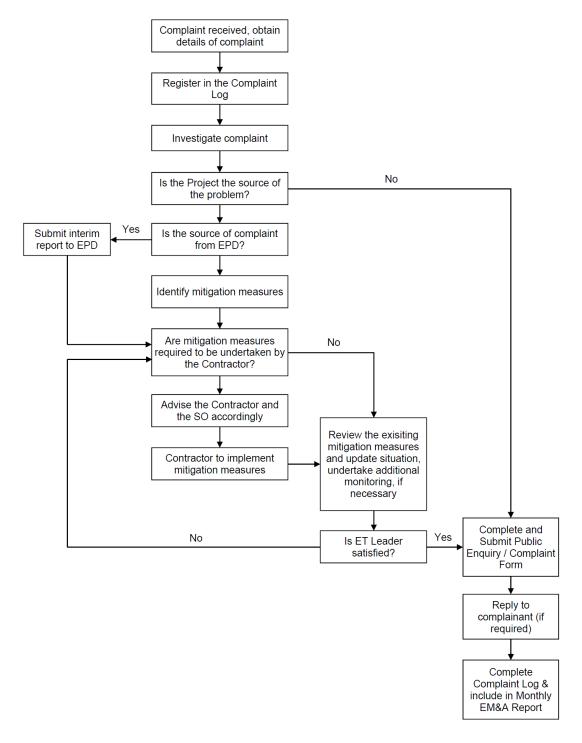


Figure 4.1 Environmental Complaint Handling Procedures



Air quality monitoring was conducted in the reporting period and no project-related exceedance of the Action Level was recorded during the reporting period.

No notification of summons and prosecution was received in the reporting period.

Statistics on complaints and regulatory compliance are summarized in Appendix J.



5. EM&A SITE INSPECTION

Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures under the Contract. In the reporting period, site inspections were carried out at the site portions list in Table 5.1 below.

Table 5.1 Summaries of Site Inspection Record

Date	Inspected Site Portion	Time
06 January 2021	Wo Hop Shek Crematorium	10:00 – 10:15 AM
12 January 2021	Wo Hop Shek Crematorium	10:00 - 10:15 AM
21 January 2021	Wo Hop Shek Crematorium	10:30 - 10:45 AM
27 January 2021	Wo Hop Shek Crematorium	10:00 - 10:15 AM
03 February 2021	Wo Hop Shek Crematorium	10:15 - 10:30 AM
09 February 2021	Wo Hop Shek Crematorium	10:00 – 10:15 AM
19 February 2021	Wo Hop Shek Crematorium	10:15 - 10:30 AM
24 February 2021	Wo Hop Shek Crematorium	10:15 - 10:30 AM
04 March 2021	Wo Hop Shek Crematorium	10:00 – 10:15 AM
10 March 2021	Wo Hop Shek Crematorium	10:00 – 10:15 AM
17 March 2021	Wo Hop Shek Crematorium	10:15 - 10:30 AM
23 March 2021	Wo Hop Shek Crematorium	10:15 - 10:30 AM
31 March 2021	Wo Hop Shek Crematorium	10:00 – 10:15 AM

Environmental deficiencies were observed during weekly site inspection. Key observations during the site inspections and during the reporting period are summarized in **Table 5.2**.

According to the EIA Study Report, Environmental Permit, contract documents and EM&A Manual, the mitigation measures detailed in the documents are implemented as much as practical during the reporting period. An updated Implementation Status of Environmental Mitigation Measures (EMIS) is provided in **Appendix C**.

According to the Environmental Permit (EP) clause 3.6, route 2 and route 5 shall not be used as transportation routes during construction, which was attached in **Appendix I**. The measures implemented to comply with the EP's requirement are listed as follows:

- 1. Induction training including the proper transportation routes use
- 2. Posting extracts of the transportation route to/from the site outside the entrance
- 3. Toolbox training provided to the drivers entering the site

Measure no.2 of the above was observed during the site inspections.

In order to comply with the requirement of the EP clause 3.5, the implementation of all landscaping and visual mitigation measures in accordance with the landscape plan approved was audited in the reporting period.

Bi-weekly checking for the transplanted tree was conducted during the site inspections. No major observation was found related to the landscaping and visual.



Table 5.2 Site Observations

Date	Environmental Observations	Follow-up Status
06 Jan 2021	Observation(s)	Nil.
(Site inspection)	1. No major observation was observed.	INII.
12 Jan 2021	Observation(s)	Nil.
(Site inspection)	1. No major observation was observed.	IVII.
	Observation(s)	
	1. No major observation was observed.	
21 Jan 2021		Nil.
(Site inspection)	Reminder(s)	
	1. Empty chemical container should be placed in chemical	
27 Ion 2021	waste cabinet.	
27 Jan 2021	Observation(s)	Nil.
(Site inspection) 03 February 2021	No major observation was observed. Observation(s)	
(Site inspection)	1. No major observation was observed.	Nil.
(Site inspection)	Observation(s)	
	1. No major observation was observed.	
09 February 2021	1. Ito major observation was observed	
(Site inspection)	Reminder(s)	Nil.
	1. Empty chemical container should be placed in chemical	
	waste cabinet.	
19 February 2021	Observation(s)	Nil.
(Site inspection)	1. No major observation was observed.	IVII.
24 February 2021	Observation(s)	Nil.
(Site inspection)	1. No major observation was observed.	1411.
04 March 2021	Observation(s)	Nil.
(Site inspection)	1. No major observation was observed.	1111.
10 March 2021 (Site inspection)	Observation(s)	Nil.



Date	Environmental Observations	Follow-up Status
	1. No major observation was observed.	
	Reminder(s) 1. Construction waste should be removed regularly.	
17 March 2021	Observation(s) 1. No major observation was observed.	Nil.
(Site inspection)	Reminder(s) 1. Chemicals in-use should be placed on the drip tray.	
23 March 2021 (Site inspection)	Observation(s) 1. No major observation was observed.	Nil.
31 March 2021	Observation(s) 1. No major observation was observed.	Nil.
(Site inspection)	Reminder(s) 1. Construction waste should be removed regularly.	



6. CONCLUSIONS AND RECOMMENDATIONS

This is the 4^{th} Quarterly EM&A Report for the Project which summarizes the key findings of the EM&A programme during the reporting period from 1 January to 31 March 2021., in accordance with the EM&A Manual and the requirement under EP – 329/2009.

Air quality monitoring was conducted in the reporting period and no project-related exceedance of the Action Level was recorded during the reporting period.

Weekly environmental site inspection was conducted during the reporting period. Some observations were observed during site inspection and rectifications had been accomplished by contractor within a week after site inspection. The environmental performance of the project was therefore considered satisfactory. Contractor was reminded to maintain the tidiness of the project site.

No environmental complaint was received in the reporting period.

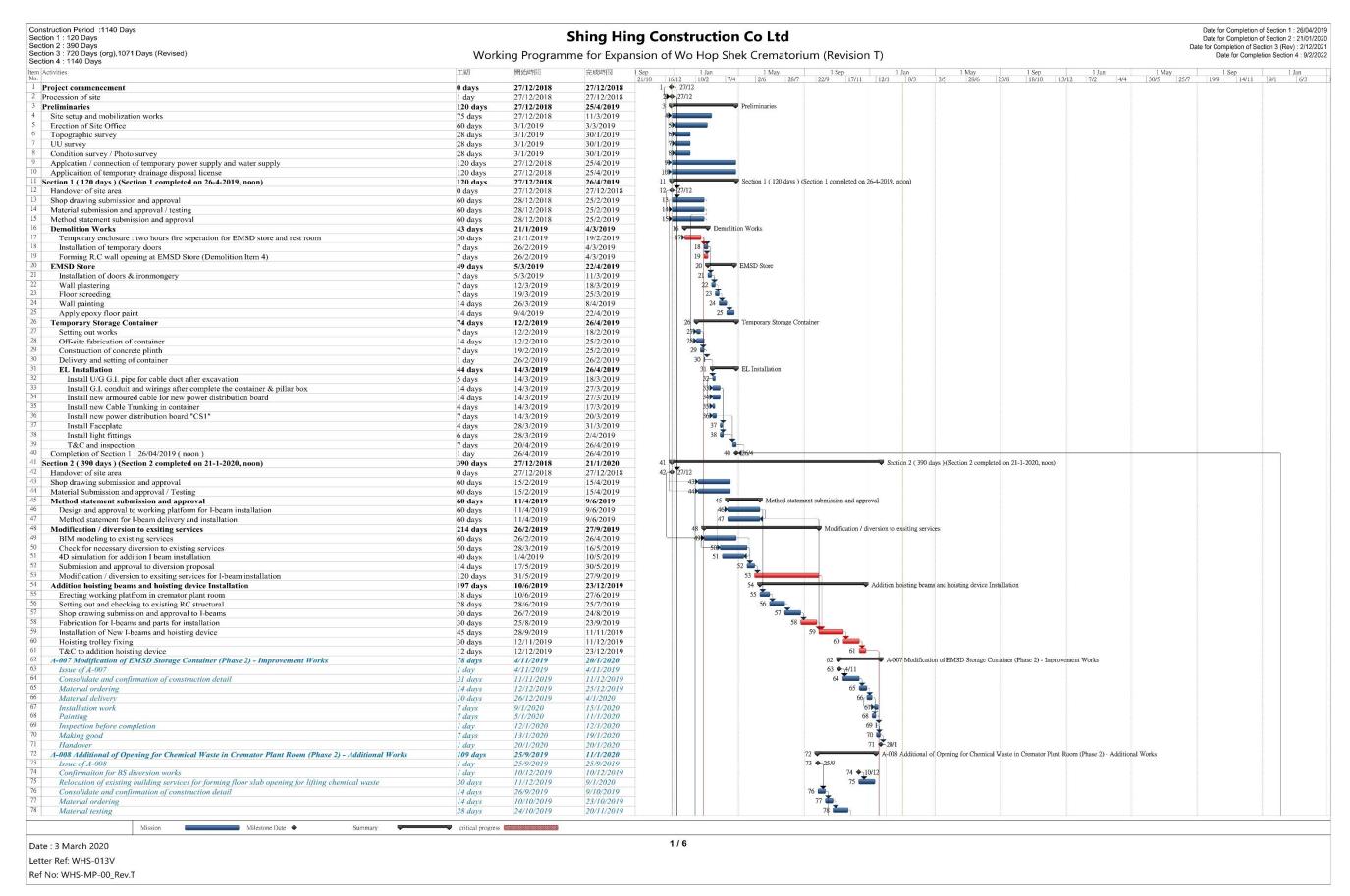
No notification of summons or prosecution was received since commencement of the Contract.

The ET will keep track on the construction works to confirm compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

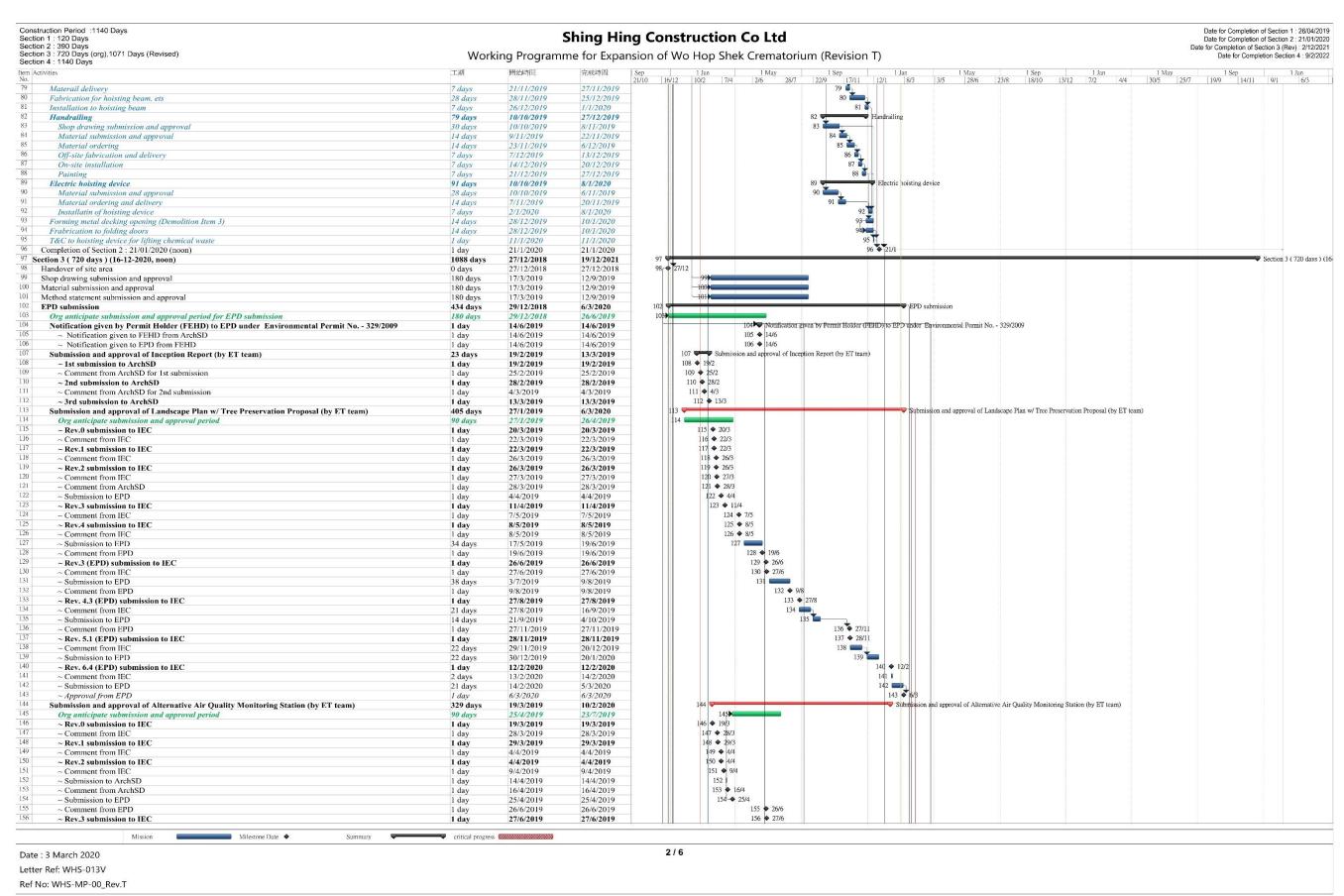


APPENDIX A: MASTER PROGRAMME

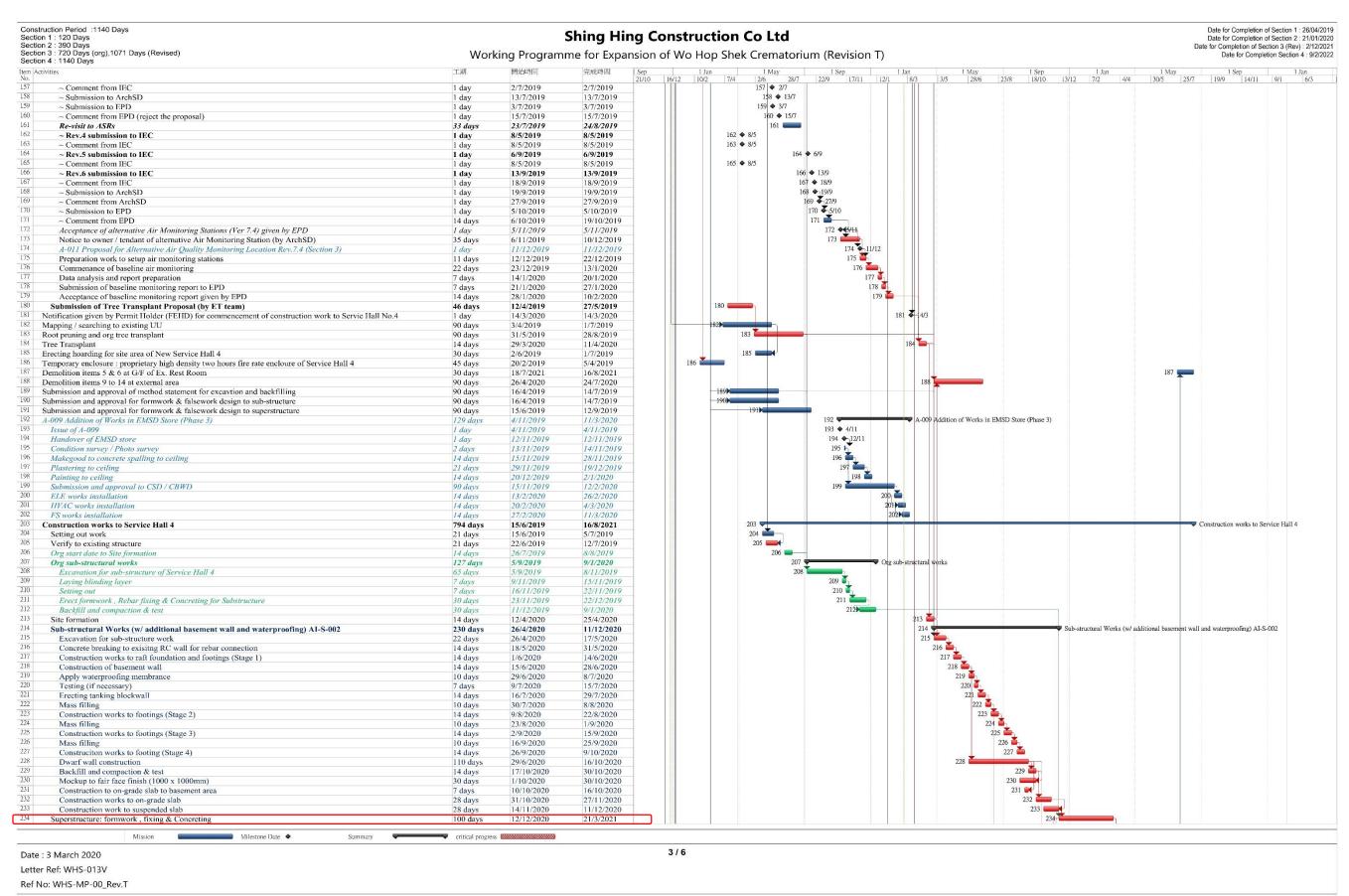




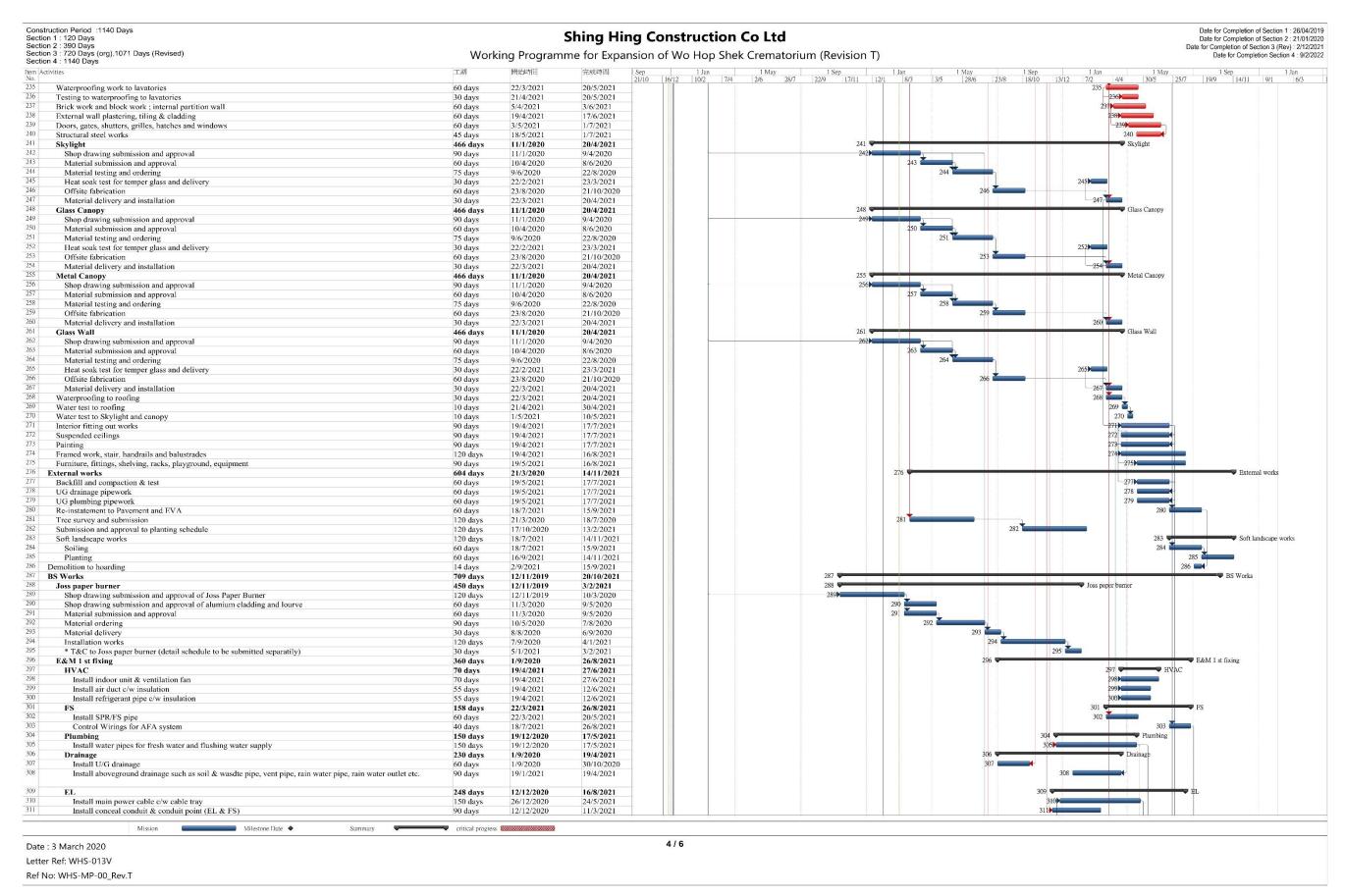




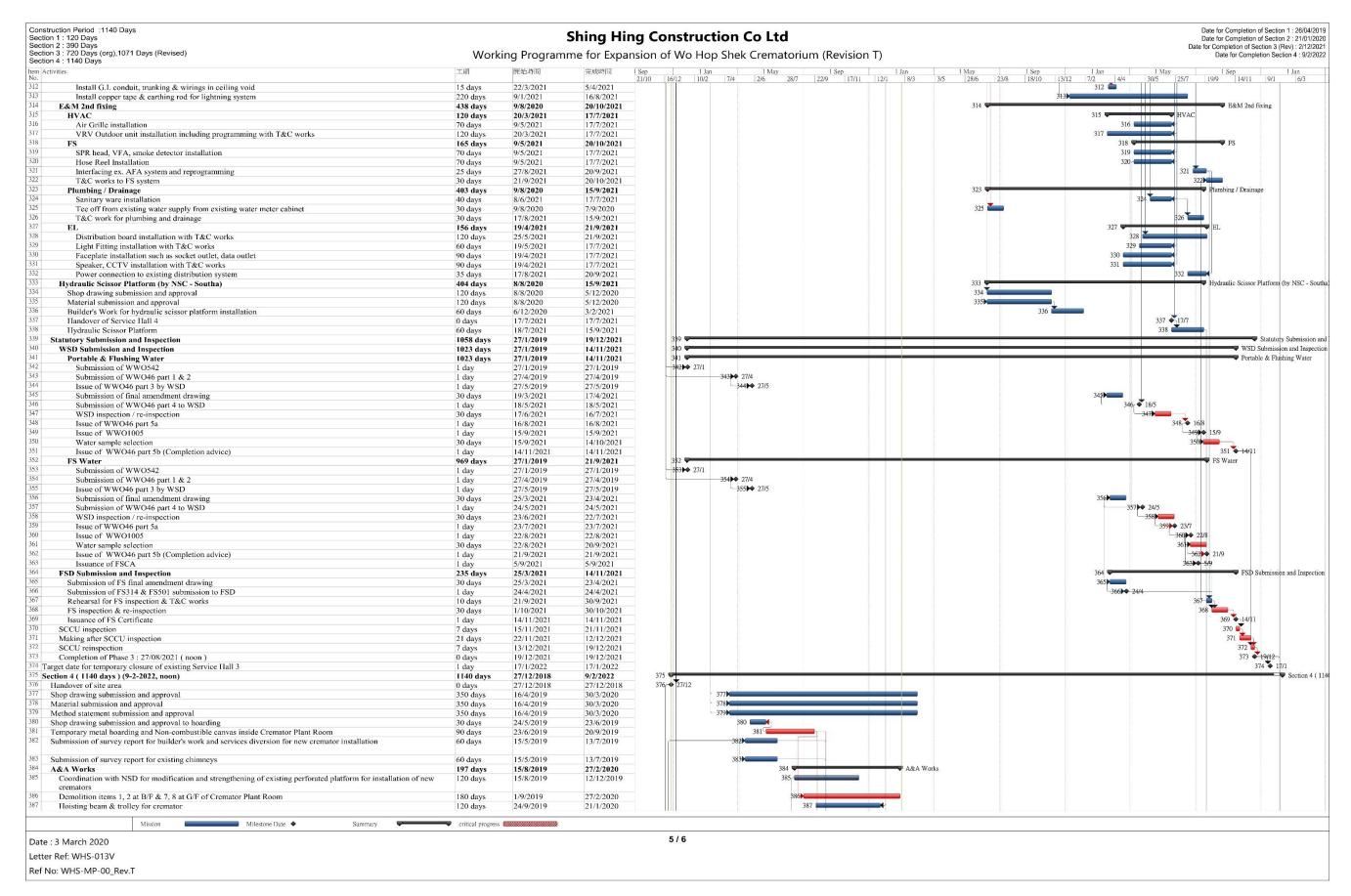




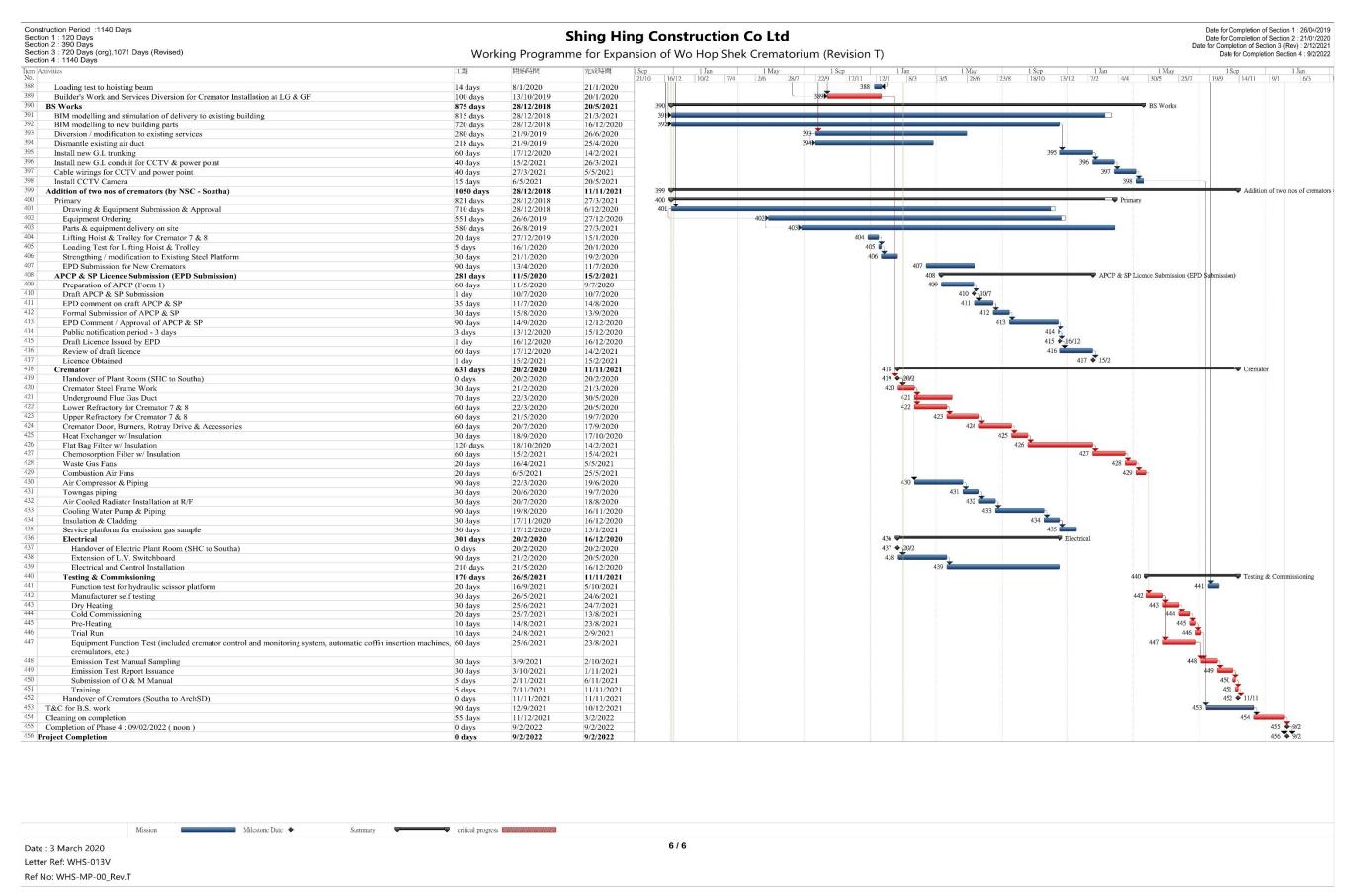








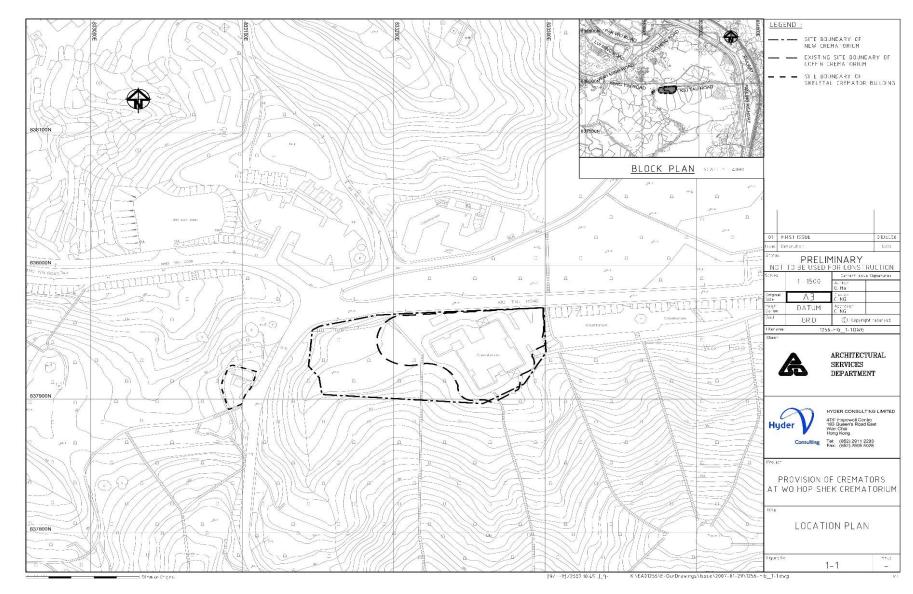






APPENDIX B: WORK AREA FOR THE CONTRACT NO. AL G513







APPENDIX C: SUMMARY OF IMPLEMENTATION STATUS OF Environmental Mitigation



	C	orly Estatricipate troof				0.5,903																
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status															
Air (Cons	truction	Phase)																				
S.3.3.5		Under the Air Pollution Control (Specified Process) Regulation, an incinerator (including cremator) with an installed capacity exceeding 0.5 tonnes per hour, is classified as a specified process, and requires a Specified Process license to operate. FEHD shall apply for a specified licence under the APCO.	New Cremators in the New Crematorium / prior to operation	FEHD	Construction Phase	APCO	NA															
S.3.9		Asbestos Investigation:	Incense burner,	Arch SD,	Construction Phase	APCO	NA															
S.3.9.2		■ The incense burner, coffin and skeletal crematorium shall be thoroughly investigated prior to any demolition work commencing to ascertain the presence of any ACM. A registered asbestos consultant shall carry outan asbestos investigation report (AIR).	coffin and skeletal crematorium / Prior to any demolition work commencing	Registered Asbestos Consultant, Registered Asbestos		AIR and AAP																
S.3.9.3		If any ACM are identified in the existing crematorium, an asbestos abatement plan shall be submitted to EPD prior to any asbestos abatement works.		-		-		-		-	_	-	_	-	-	-	_	-	Contractor			
S.3.9.4		The following precautionary and mitigation measures shall be implemented during the removal of ACM:																				
		Enclosure of the work area.																				
		■ Containment and sealing for the asbestos containing waste.																				
		■ Provision of personal decontamination facility.																				
	 Use of personal respiratory/protection equipment. Use of vacuum cleaner equipped with high-efficiency air particulate (HEPA) filter for cleaning up the work area. 																					
		■ Carrying out air quality monitoring during the asbestos abatement works.																				



	Quart	THY EMAA REPORT NO.4					ALIEN ALLEY
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.3.9.5		The following qualified personnel shall be appointed to carry out the asbestos abatement works:					NA
		■ Registered asbestos contractor for carrying out the asbestos removal works.					
		Registered asbestos supervisor for supervising the asbestos abatement works.					
		Registered asbestos laboratory for monitoring the air quality during the asbestos abatement works.					
		Registered asbestos consultant for supervising and certifying theasbestos abatement works.					
S.3.9.7 -		Other Site Management:					NA
S.3.9.9							
S.3.9.7		The asbestos materials in each building/premises must be abated before other contractors/trades are allowed to work in the building/premises.					NA
S.3.9.8		Tight security measures shall be taken at the asbestos abatement works site to prevent any disturbance to ACM that may result from the stealing of valuable items on site such as electrical cable and copper pipes. It is recommended that priority shall be given for the abatement of all friable ACM.					NA
S.3.9.9		As different contractors may be working on-site at the same time, the following measures should be considered:					NA
		■ If there is a sensitive receptor around the area, conduct environmentalair monitoring at this off-site receptor.					
		■ Submit to EPD a completion report, including photos and air monitoring results, immediately after completion of asbestos abatement work for every work zone.					
S.3.9.9		As different contractors may be working on-site at the same time, the following measures should be considered:					NA
		■ If there is a sensitive receptor around the area, conduct environmentalair monitoring at this off-site receptor.					
		■ Submit to EPD a completion report, including photos and air monitoring results, immediately after completion of asbestos abatement work for every work zone.					

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	<u> </u>	ony Entanticport No. 1					
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.3.10.1 - S.3.10.2		The contractor has a responsibility to notify EPD for undertaking any 'notifiable' works prior to the commencement of such works. In addition, the contractor is also required to fulfil specific dust control requirements given in the APCO Regulation's Schedule for specific jobs.	Prior to 'notifiable' works including Construction of the foundation of a building and construction of the superstructure of a building	Contractor	Construction Phase	Air Pollution Control (Construction Dust) Regulation APCO	Implemented
S.3.10.3 - S.3.10.4	S.2.9.1 - S.2.9.3	Good site management / practices to avoid / minimise incidences of dust emissions: Site Boundary and Entrance Vehicle washing facilities including a high pressure water jet shall be provided at every discernible or designated vehicle exit point. The area at which vehicle washing takes place and the section of the road between the washing facilities and the exit point shall be paved with concrete, bituminous or hardcore material. Access Haul Roads and Unpaved Areas Each and every main haul road shall be paved with concrete, bituminous hardcore materials or metal plates, and kept clear of dusty materials. Or Unpaved haul roads and areas shall be sprayed with water so as to keep the entire road surface wet.	Project Site / Construction and Demolition	Contractor	Construction Phase	Air Pollution Control (Construction Dust) Regulation APCO	Implemented



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EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
		Excavated Materials					
		■ Any stockpile of dusty material shall be either: (a) covered entirely by impervious sheeting. (b) placed in an area sheltered on the top and the three sides. or (c) sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.					
		Exposed Earth					
		■ Exposed earth shall be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six monthsafter the last construction activity on the site or part of the site where the exposed earth lies.					
		Loading, Unloading or Transfer of Dusty Materials					
		All dusty materials shall be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.					
		Debris Handling					
		Any debris shall be covered entirely by impervious sheeting or stored ina debris collection area sheltered on the top and the three sides.					
		■ Before debris is dumped into a chute, water shall be sprayed so that itremains wet when it is dumped.					
		Transport of Dusty Materials					
		■ Vehicles used for transporting dusty materials/spoils shall be covered with tarpaulin or similar material. The cover shall extend over the edges of the sides and tailboards.					
		Site Clearance					
		■ The working area for the uprooting of trees, shrubs, or vegetation or the removal of boulders, pole, pillars shall be sprayed with water immediately before, during and immediately after the operation so as to maintain the entire surface wet.					
		■ All demolished items shall be covered by impervious sheeting or placed in a spot with shelters on top and three sides within a day of the demolition.					
		■ Workers at all levels should be co-operative to avoid dust generation and dispersion to the surrounding environment.					



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
Air (EM&	A for Co	nstruction Phase					
S.11.2.4 S.11.2.5	S.2.5 - S.2.6	Conduct baseline and regular 1-hr and 24-hr TSP monitoring at 2 measurement locations at a 6-day frequency	A22a and A22b / Baseline monitoring prior to construction works / Regular monitoring throughout construction period	Contractor	Construction Phase	EIAO	Implemented
		ion Phase)	T	1	T		1
S.4.4.9 - S.4.4.10	S.3.2.1 - S.3.2.2	Good Site Practice and Noise Management: Only well-maintained plant shall be operated on site and the plant shall be regularly serviced during the construction works.	Work site / Construction phase	Contractor	Construction Phase	GW-TM & NCO	Implemented
		■ Plant used intermittently shall be turned off or throttled down when notin active use.					
		■ Plant that is known to emit noise strongly in one direction shall be oriented to face away from NSRs.					
		■ Silencers, mufflers and enclosures for plant shall be used where possible and maintained adequately throughout the works.					
		■ Mobile plant shall be sited away from NSRs.					
		■ Stockpiles of excavated materials and other structures such as site buildings shall be used effectively to screen noise from the works.					
		■ PME shall be well maintained and use properly on site to minimise the any excessive noise generated.					
Land Con	taminat	ion (Construction Phase)	T	1	T		1
		Remedial Action Plan:	All areas	Contractor	Construction Phase	Waste Disposal	



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.5.7.2		If large amounts of contaminated soil (say 500m³) are found following further site investigation after the decommissioning of the crematorium, remediation options such as bioremediation for organics should be considered. Although disposal of smallamount of contaminated soil to landfills might be considered as an economic and acceptable option for remediation, it should be considered as the last resort if all remediation options including reuse are considered to be inappropriate or infeasible.	requiring remedial works in Project site			Ordinance (Cap.354) Waste Disposal (Chemical Waste) Regulations Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes CAP	NA
S.5.7.3		■ If disposal to landfills is chosen as the remediation measure, the criteria set primarily of Toxicity Characteristic Leaching Procedure (TCLP) limits, as stated in Annex E in the GN) should be met.				ProPECC Note PN3/94 Dutch A, B, C	NA
		■ At least three soil samples should be taken from the most contaminated area(s) and tested for TCLP for a full suite of parameters (16 metals) asstated in Table E1 in Annex E in the GN.				Classificati-on system	
		■ If the testing result shows that any of the TCLP limits cannot be met, the soil shall be treated by cement stabilization and further tested for TCLP prior to landfill disposal or treated as chemical waste and disposed of at the Chemical Waste Treatment Centre (CWTC).				WPCO Technical Memorandum on Standards for Effluents	
S.5.7.4		All soil treated as a chemical waste, shall be collected by a registered chemical waste contractor and the Waste Disposal (Chemical Waste) Regulations under the Waste Disposal Ordinance (Cap.354) shall be observed. Reference shall be made to the Registration of Chemical Waste Producers and Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes, issued by EPD.				Discharged into Drainage and Sewerage Systems, Inland and Coastal Waters (TM)	NA



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.5.7.6		Confirmatory Soil Sampling					NA
		 In order to confirm the extent of the soil contamination and if the contaminated soil should be removed or treated, confirmatory soil sampling shall be carried out during the remediation works. This shall consist of five to six samples in each location where soil contamination is identified from SI works. The locations will be to the north, south, east and west of the location where contaminated soil is found. Two locations should also be above and below the location (in terms of elevation) where contaminated soil is found. If analytical results exceed the Dutch B Levels or other agreed remedialtarget suggested in a supplementary CAR, the 					
		contaminated area shall be extended and further confirmatory sampling shall be carried out until no further contamination is encountered.					
S.5.8	S.4	Further Site Investigation	Areas that are currently in use	Contractor	Construction Phase	Interim CAR and RAP	NA
S.5.8.1	S.4.1 - S.4.7	Further site investigations in areas that are currently in use and cannot be accessed are required. These areas include the transformer room, dangerous goods stores, day tank room, fuel pump room, sunken fuel pipe and cremator.	and cannot be accessed, including the transformer room, dangerous			ProPECC Note PN3/94 Guidance Notes for Investigation and Remediation of	
S.5.8.2		The demolition contractor shall carry out further site investigations, after the decommissioning of the existing crematorium and skeletal cremator building.	goods stores, day tank room, fuel pump			Contaminated Sites of Petrol Filling Stations, Boatyards	
S.5.8.3		Potential contaminants in the soils have been identified in CAP and the parameters to be analysed for soils at different locations are summarised in Table 5-3 in S.5.8.3.	room, sunken fuel pipe and cremator.			and Car	



	<u> </u>	erry Ewert Report No. 1				05,000	
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.5.8.4		Sampling and analysis plans for these investigations shall be prepared and submitted to EPD for approval prior to any of these investigation works. Supplementary CAR and RAP shall be prepared to describe the results and findings of these site investigations and, if necessary, any remedial works.	After the decommissioni ng of the existing crematorium and skeletal cremator building.			Repair / DismantlingWorkshop s	
Land Cor	ıtaminat	ion (EM&A)					
S.11.2.9 -	S.4.1 -	Further Site Investigation: Conduct further site investigation for Petroleum hydrocarbons	After decommissioni	Contractor	Construction Phase	Interim CAR & RAP	NA
S.11.2.15	S.4.7	and PAH in soil samples. ■ Conduct further site investigation for PCBs in soil samples. ■ Conduct further site investigation for PAH, Dioxins and Metals (Cr, Co, Ni, Cu, Zn, As, Mo, Cd, Sn, Ba, Hg, Pb) in soil samples.	ng, prior to construction: Existing crematorium: Dangerous goods store, Daily tank room, fuel pump room and sunken fuel pipe Skeletal Cremator Building: Dangerous goods store Existing crematorium: Transformer room Cremators (residual inside				
			the cremator, flue and				



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EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
			chimneys				
Waste Mai	nagemen	at (Construction Phase)					
S.6.7.24	nagemen	Good Site Practice: I Obtain the necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Chemical Waste) (General) Regulation and the Land (Miscellaneous Provision) Ordinance (Cap. 28). I Obtain a billing account with EPD for disposal of construction waste. I A Waste Management Plan (WMP), incorporated in an Environmental Management Plan (EMP) shall be prepared and submitted to the Engineer/Supervising Officer for approval. Reference shall be made to Environment, Transport and Works Bureau Technical Circular (Works) (ETWB TCW) 19/2005. I Nomination of an approved person to be responsible for good site practice, arrangements for collection and effective disposal to an appropriate facility of all wastes generated at the site. I Use of a waste haulier, authorised or licensed to collect specific category of waste. I A trip-ticket system shall be included as one of the contractual requirements and implemented by the Environmental Team to monitor the disposal of C&D and solid wastes at public filling facilities and landfills, and to control fly tipping. Reference shall be made to ETWB TCW No. 31/2004. I Training of site personnel in proper waste management and chemical waste handling procedures. I Separation of chemical wastes for special handling and appropriate treatment at a licensed facility. I Routine cleaning and maintenance programme for drainage systems, sumps and oil interceptors. I Provision of sufficient waste disposal points and regular collection for disposal. I Adoption of appropriate measures to minimise windblown litter and dustduring transportation of waste, such as covering trucks or transporting wastes in enclosed containers. I Implementation of a recording system for the amount of wastes	Project site/design, construction and demolition stages	Contractor	Construction Phase	Waste Disposal Ordinance (Cap. 354) Waste Disposal (Chemical Waste) (General) Regulation Waste Disposal (Charges for Disposal of Construction Waste) Regulation	Implemented



	Quart	erry EM&A Report No.4				CONSULTING	LIMITED
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
		generated, recycled and disposed of (including the disposal sites).					
S.6.7.25		 Waste Reduction Measures: Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal. Encourage collection of aluminium cans, plastic bottles and packaging material (e.g. carton boxes) and office paper by individual collectors. Separate labelled bins shall be provided to help segregate this waste from other general refuse generated by the work force. Any unused chemicals or those with remaining functional capacity shallbe recycled as far as practicable. Reuse C&D materials when possible to reduce the amount of C&D material/waste. Wood, steel and other metals shall be separated for reuse and / or recycling Prior to disposal of C&D waste to minimise the quantity of waste to be disposed of to landfill. Minimise the potential for damage or contamination of construction material by having proper storage and site practices. Plan and stock construction materials carefully to minimise the 	Project site / construction and demolition stages	Contractor	Construction Phase	WBTC No. 32/1992 WBTC No. 19/2005	Implemented
		Plan and stock construction materials carefully to minimise the amount of waste generated.					



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EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.6.7.4		Excavated Material Rock and soil generated from excavation shall be reused for site formation and excavated material from foundation work reused for landscaping as far as practicable to avoid disposal off-site.	Project site / construction and demolition stages	Contractor	Construction Phase	WBTC No. 12/2000	Implemented
S.6.7.5	S.5.3.5	Construction and Demolition Material	Project site /	ArchSD /	Construction Phase	WBTC No. 2/93	Implemented
S.6.7.7	S.5.3.9	 Reuse of the public fill and C&D waste shall be practiced on site as faras practicable. The handling of C&D materials is governed by WBTC No. 2/93. Inert C&D material (public fill) shall be directed to an approved public filling area or reclamation site, where it has the benefit of offsetting the need for removal of materials from borrow areas for reclamation purposes and helps to reduce the pressure on landfill sites. Individuals or companies who deliver public fill to public filling areas require dumping licences. Careful design, planning and good site management can minimise over- ordering and generation of waste materials such as concrete, mortar and cement grouts. The design of formwork shall maximise the use of standard wooden or metal panels so that high reuse levels can be achieved. Alternatives such as steel formwork, plastic fencing and reusable site office structures shall be considered to increase the potential for reuse and minimise C&D waste generation. The contractor shall use as much as possible of the C&D material onsite. Proper segregation of waste types on site will increase the feasibility of certain components of the waste stream by recycling contractors. 	construction and demolition stages	Contractor		The Land (Miscellaneous Provision) Ordinance WBTC No. 19/2005	



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EIA Ref	EM&A Ref.	Environmental	Protection Me	asures / Mitigati	on Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.6.11.1 S.6.11.5	S.5.3.1 0 - S.5.3.1 4	■ After decommis Crematorium, the shall be carried	sioning but prior ne following furth out to confirm the	ontamination Invest to demolition of the er contamination in e quality and quanti g treatment and disp	Existing vestigations ty of ash waste	Cremators, Flues Chimneys and surrounding areas / After decommissioni ng but prior to demolition of	FEHD, ArchSD, Contractor	Construction Phase	ProPECC PN 2/97 ProPECC PN 3/94 APCO	NA
		Cremators / flue / chimney and surround ing areas Cremators / flue / chimney and surrounding areas	Investigatio n Parameter Asbestos (building structures) Dioxins, heavy metals, PAH (ash waste)	Investigatio n Period After decommissionin g but prior to demolition of the Existing Crematorium	Responsible Party The Contractor	the existing crematorium.				
		 Prior to any demolition work commencing, these areas suspected to contain asbestos containing material (ACM) shall be further inspected by aregistered asbestos consultant to determine the presence of any ACM. These areas shall be thoroughly investigated and the additional findings submitted as supplementary information to the Asbestos Investigation Report. Samples shall be analysed for the presence and type of asbestos according to the Laboratory's HOKLAS accredited testing procedures. If the findings of the investigation indicate ACM materials present on the premises an Asbestos Abatement Plan must be prepared prior to commencement of demolition works. 								



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
		■ It is not currently possible to conduct inspection and sampling within the cremators, chimney and flues to assess the levels of contamination due to the operation of the crematorium. It is recommended that samples shall be collected from the potential areas of contamination for testing of dioxin, heavy metal and PAH after decommissioning and prior to the demolition of the Existing Crematorium.					
S.6.9.6 - S.6.9.7	S.5.3.1 5 - S.5.3.1 7	 Asbestos Containing Material Asbestos wastes shall 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 shall appoint a licensed asbestos waste collector to collect the packaged asbestos waste and deliver it to the designated landfill for disposal. Notification has to be given to EPD for its disposal. EPD will normally require ten working days notice of the intention to dispose of any quantity of asbestos waste. After processing the notification, EPD will issue specific instructions and directions for disposal of the waste. The waste producer or agent must strictly follow these directions. 	Cremator room in Existing Crematorium / before demolition and after decommission	Contractor	Construction Phase	COP on Handling, Transportation and Disposal of Asbestos Waste under the Waste Disposal (Chemical Waste) (General) Regulation.	NA
		Dioxin Contaminated Materials (DCM) / Heavy Metal Contaminated Materials (HMCM) / Polyaromatic Hydrocarbon Contaminated Materials (PAHCM) from Demolition of the Existing Crematorium Proposed Contamination Classifications for Ash Waste with DCM / HMCM / PAHCM.	Cremator room in Existing Crematorium / before demolition and after decommission	Contractor	Construction Phase	ProPECC PN 3/94 APCO	NA



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EIA Ref	EM&A Ref.	Environmental Protection M	Measures / Mi	itigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
			ı waste	Heavy Metal Level / Polyaromatic Hydrocarbon in Ash Waste					
		Low Contaminated <1 p	ppb TEQ	< Dutch "B" List					
		Moderately/Severely <1 p Contaminated HMCM/PAHCM	ppb TEQ	> Dutch "B" List					
		Contaminated ppb	1 and < 10 b TEQ	Any Level					
		Severely >10 contaminated DCM	0 ppbTEQ	Any Level					
S.6.9.9	S.5.3.1 9	Demolition, Handling, Treatment DCM / HMCM / PAHCM from Den			Cremator room in Existing Crematorium / demolition	Contractor	Construction Phase	ProPECC PN 3/94 APCO	NA
		■ Where the ash waste contains I PAHCM, the contractor shall av during demolition. General dus followed. The ash waste can be	void ash waste b st suppression n	ecoming airborne neasures shall be					
S.6.9.10 - S.6.9.14	S.5.3.2 0 - S.5.3.2 4	Demolition, Handling, Treatment Severely Contaminated DCM and Contaminated HMCM / PAHCM fr Crematorium Site preparation procedures:	Moderately / Se	everely	Cremator room in Existing Crematorium / demolition	Contractor	Construction Phase	Waste Disposal (Chemical Waste) (General) Regulation ProPECC PN 3/94	NA
		Except the cremators/flue/chir items shallbe removed as far as decontamination activities.						APCO	
		Preliminary site decontaminati using High Efficiency Particulat							
		■ A chamber with three layers of	f polythene shee	ts shall enclose the					



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EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
		top portion of the chimney above the roof.					
		■ A 3-chamber decontamination unit shall be constructed at the entrance to the cremators/flues/chimney for entry and exit from the work area. It shall comprise a dirty room, a shower room and a clean room of at least 1m x 1m base with 3 layers of fire retardant polythene sheet.					
		■ Workers shall carry out decontamination procedures before leaving thework area.					
		All workers shall wear full protective equipment, disposable protective overall, nitrile gloves, rubber boots, and full-face positive pressure respirator.					
		■ Warning signs in both Chinese and English shall be put up in conspicuous areas.					
		Site preparation procedures specific to severely contaminated DCM:					
		■ The walls, floor and ceiling of the cremator room shall be lined with 3-layers of fire retardant polythene sheets.					
		■ Air movers shall be installed at the cremator room, and at the bottom of the chimney to exhaust air from the work area. A stand by air mover shall also be installed with each of the air movers. Sufficient air movement shall be maintained to give a minimum of 6 air changes per hour to the work area.					
		New pre-filters and HEPA filters shall be used on the air movers.					
		■ Before commencement of the decommissioning work a smoke test with non-toxic smoke shall be carried out to ensure the air tightness of the containment.					
		Demolition and handling procedures:					
		■ The cremators/flue/chimney shall be removed from top down.					
		Scrubbing and HEPA vacuuming shall be used to remove any ash or residues attached to the cremators, flue, chimney and other building structures.					
		■ Wastes generated from the contaminant or decontamination unit including the workers protection clothing shall be disposed of at landfill site.					
		After completion of removal, all surfaces shall be decontaminated by HEPA vacuum.					
		■ If any contaminated wastewater needs to be discharged out of the					



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		site, it shall be properly treated to WPCO requirements with prior agreements with EPDon discharge standards.					
		Demolition and handling procedures specific to severely contaminated DCM:					
		■ The contaminated detached sections of the building structures shall be wrapped with 2 layers of fire retardant polythene sheets. A third layer shallbe wrapped and secured with duct tape. Wet wiping shall be used to decontaminate the outer layer.					
		After completion of removal and decontamination, spray the innermost layer of the fire retardant polythene sheet with PVA. Upon drying, peel off and dispose of at landfill site. Repeat for the other 2 layers disposing the final layer as contaminated wastes.					
		Treatment and disposal procedures:					
		■ Immobilise the ash waste by mixing with cement in the correct ratio as determined by pilot mixing and TCLP test.					
		■ Place material in polythene lined steel drums for disposal at landfill. The drums should clearly be marked with "DANGEROUS CHEMICAL WASTE" in English and Chinese. Prior agreement of the disposal criteria must be obtained from EPD and the landfill operator.					
		■ If the landfill disposal criteria cannot be met, disposal at the CWTC in TsingYi shall be considered.					
S.6.9.1	S.5.3.2	Chemical Waste	Project site /	Contractor	Construction Phase	Code of Practice on the	Implemented
S.6.9.2	5	■ Should any chemical waste be generated, the Contractor must registerwith the EPD as chemical waste producer.	demolition			Packaging, Labelling and Storage of	
	S.5.3.7	■ All the chemical waste shall be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. The chemical waste shall be stored and collected by an approved contractor for disposalat a licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.				Chemical Wastes Waste Disposal (Chemical Waste)	
		■ Principles of reuse and recycle chemical waste on site as far as practicable shall be adopted by the Contractor.				(General) Regulation.	



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S.6.9.3	S.5.3.2	Containers used for the storage of chemical waste shall:					
	8	■ Be suitable for the substance they are holding, resistant to corrosion, maintained in good condition, and securely closed.					
		■ Have a capacity of less than 450 litres unless the specifications have been approved by the EPD.					
		■ Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.					
S.6.9.4	S.5.3.2	The storage area for chemical waste shall:					
	9	■ Be clearly labelled and used solely for the storage of chemical waste.					
		■ Be enclosed on at least 3 sides.					
		■ Have an 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 entering (water collected within the bundmust be tested and disposed as chemical waste if necessary).					
		■ Be properly arranged so that incompatible materials are adequately separated.					
S.6.9.25	S.5.3.3	Disposal of chemical waste shall be:					
	0	■ Via a licensed waste collector.					
		■ A facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility at Tsing Yi, which offers a chemical waste collection service and can supply the necessary storage containers. or					
		■ A waste recycling plant approved by EPD.					



	Quarterly EMAA Report No.4						
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.6.7.27 - S.6.7.28	S.5.3.3 1 - S5.3.3 2	 ■ General Refuse ■ General refuse shall be stored in enclosed bins or compaction units separate from C&D and chemical wastes. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D and chemical wastes, on a daily or every second day basis to minimise odour, pest and litter impacts. ■ Individual collectors often recover aluminium cans from the waste stream if they are segregated or easily accessible. Therefore, separately labelled bins for their deposit shall be provided if feasible. Similarly, plastic bottles and carton package material generated on site shall be separated for recycling as far as possible. Site office waste shall be reduced through recycling of paper if volumes are large enough to warrant collection. Participation in a local collection scheme shall be considered if one is available. 	Project site / construction and demolition stages	Contractor	Construction Phase		Implemented
Waste Ma	anageme	ent (EM&A)					
		Supplementary site investigations shall be conducted for asbestos in building structures and for dioxins, heavy metals and PAH in ash/particular matter samples.	Cremators / flue / chimney and surrounding area. After decommissioni ng but prior to demolition	Contractor	Construction Phase	ProPECC PN 2/97 and 3/94 AIR, AMP/AAP to be submitted under APCO Future Supplementary Investigation Site Plan	NA
		isual (Construction Phase)					
S.7.9.2 MC 1	S.6.3.1	 Site offices and construction yards: Site offices shall have olive green roof and façade coating or colour matches with existing environment. Site offices and the construction yard shall be decommissioned after construction. 	All site offices / Design and construction phases	ArchSD's Contractor	Construction Phase		Implemented
S.7.9.2 MC 2	S.6.3.1	 Height of site offices: The height of site offices, including the rooftop shall not exceed 10m. Building services equipment such as antennas may exceed 10m and shall be coated in black. 	All site offices / Design and construction phases	ArchSD's Contractor	Construction Phase		Implemented



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.7.9.2 MC 3	S.6.3.1 Hoarding and screening: Where practical the site offices areas, construction yards and storage areas shall be screened using colour in harmony with the surrounding environment around the peripheries of the works area until the completion of relevant construction phases.		All site offices and construction yard areas / Design and construction phases	ArchSD's Contractor	Construction Phase		Implemented
S.7.9.2 MC 4	S.6.3.1	 Construction plant and building material: Shall be orderly and carefully stored in order to appear neat and avoid visibility from outside where practical. Excess materials shall be removed from site as soon as practical. All construction plants shall be removed from site upon completion of construction works. 	Works site / Design and construction phases	ArchSD's Contractor	Construction Phase		Implemented
S.7.9.2 MC 5	S.6.3.1	Construction light: To be oriented away from the viewing location of VSRs. All lighting facing sensitive receiver shall have frosted diffusers and reflective covers.	All construction lights / Design and construction phases	ArchSD's Contractor	Construction Phase		Implemented
S.7.9.2 MC 6	S.6.3.1	Silting trap: ■ Silting traps shall be installed to minimise silting to streams.	Streams / Construction phase	Contractor	Construction Phase		NA
S.7.9.3 MT 1	S.6.3.1	Compensation for losses: The tree compensation to tree loss ratio shall be at least 1:1 in term of quantity.	Within the Wo Hop Shek Crematorium	ArchSD's Contractor	Construction Phase	ETWB TCW No. 2/2004 ETWB TCW No. 3/2006	NA
S.7.9.3 MT 2	S.6.3.1	Where practical, trees that require removal shall be transplanted on Site.	Work site / Design and construction phases	ArchSD's Contractor	Construction Phase	ETWB TCW No. 2/2004 ETWB TCW No. 3/2006	Implemented



	Quarterly Liviagri Report No. 1						
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.7.9.3 MT 3	S.6.3.1	 Amenity planting: Planting works shall be carried out under the supervision of a specialist landscape sub-contractor. The rooftop of the cremation plant room shall be planted with lawn. Open spaces shall be included Project. Screen planting such as planting a roll of trees along the site boundary butting Kiu Tau Road shall be carried out. New trees, shrubs and groundcover shall be carefully selected and designed to homogenize with the environment. 	As shown on mitigation measure plans / All phases	ArchSD's & FEHD's Contractor	Construction Phase	ETWB 2/2004	NA
S.7.9.3 MT 4	S.6.3.1	Woodland mix planting: Woodland mix, comprising of tree seedlings and shrubs, shall be planted within the Wo Hop Shek Cemetery to enhance the ecological value and compensatory of tree loss.	Within the Wo Hop Shek Cemetery / All phases	ArchSD's Contractor	Construction Phase	ETWB TCW No. 2/2004ETWB TCW No. 3/2006	NA
S.7.9.3 MT 5	S.6.3.1	Preservation: No tree shall be transplanted or felled without prior approval by relevant Government departments. All trees that are marked for retention shall be fenced off with a 1.2mhigh fence around the dripline of trees or larger area as far as feasible. Transplant preparation works shall be carried as soon as possible after commencement of construction. Over-pruning such as hard pruning of tree crown, pollarding or topping shall be avoided. Rootball and crown pruning shall be carried out over at least 3 months. Existing shrub and ground cover planting areas that will not be removed shall be maintained in good condition and enhanced where practical.	Work site / All phases	ArchSD's Contractor	Construction Phase	ETWB TCW No. 2/2004 ETWB TCW No.	Implemented
S.7.9.4 MB 1	S.6.3.1	The 10m height headroom cremation plant room shall be half sunken to reduce the visual impact to pedestrians.	Cremation plant room / Design phase	ArchSD's Contractor	Construction Phase		NA
MB 2	S.6.3.1	The chimney shall be designed to have sculptural outlook and articulated.	Chimney / Design phase	ArchSD's Contractor	Construction Phase		NA
MB 3:	S.6.3.1	The chimney stacks shall be designed to locate at the least conspicuous location of the site to VSRs.	Chimney / Design phase	ArchSD's Contractor	Construction Phase		NA
Landscap	e and Vi	isual (EM&A)					



	Quarterly Eviden Report No. 1						
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.11.2.23 - S.11.2.24	S.6.2	Details of the inspection frequency and parameters will be outlined in the EM&A Manual.	Work site / Construction	Contractor	Construction Phase		NA
	ality (C	onstruction Phase)					
	S.7.2.2	Construction Runoff and Drainage	Work site /	Contractor	Construction Phase	ProPECC PN 1-	Implemented
S.8.7.4		■ Wastewater shall be properly treated to meet the discharge standards set out in the relevant Water Pollution Control Ordinance (WPCO) discharge licence. No direct discharge of site runoff into the two streams shall be allowed.	Construction			94 & WPCO	
		Provision of perimeter channels to intercept storm runoff from outside the Site. These shall be constructed in advance of site formation works and earthworks.					
		■ Sand/silt removal facilities such as sand traps, silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the Technical Memorandum standard under the WPCO.					
		■ Works shall be carefully programmed to minimise soil excavation works during rainy seasons.Exposed soil surface shall be protected by paving as soon as possible to					
		reduce the potential of soil erosion. Temporary access roads shall be protected by crushed gravel and exposed slope surfaces shall be protected when rainstorms are likely to occur.					
		■ Trench excavation shall be avoided in the wet season as far as practicable, and if necessary, these trenches shall be excavated and backfilled in short sections.					
		Open stockpiles of construction materials on Site shall be covered with tarpaulin or similar fabric during rainstorms.					
		■ Sand and silt in the wash water from the wheel from the wheel washing facility shall be settled out and removed before discharging into the storm drain.					
		Oil receptor shall be provided in the drainage system and regularly emptied to prevent the release of oil and grease into the storm drainage system after accidental spillage.					



	Quarterly Elizabeth Percent						
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
S.8.7.5	S.7.2.3	General Construction Activities	Work site /	Contractor	Construction Phase	ProPECC PN 1-	Implemented
		Debris and rubbish generated on Site shall be collected, handled and disposed of properly to avoid them entering the two streams.	Construction phase			94 & WPCO	
		■ All fuel tanks and storage areas shall 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.					
		■ Open storm water drains and culverts near the works area shall be covered to block the entrance of large debris and refuse.					
S.8.7.6	S.7.2.4	Sewage from On-site Workforce:	Work site /	Contractor	Construction Phase	WPCO	Implemented
		■ Portable chemical toilets shall handle the sewage from construction work force if the existing toilets in the Site are not adequate. Licensed contractors who shall be responsible for appropriate disposal and maintenance of these facilities shall provide appropriate and adequate portable toilets.	Construction phase				
		■ Sheet piling shall be provided at suitable location around the basement excavation to reduce the effect of lowering the water table from any dewatering process. Any discharge of groundwater pumped out from any dewatering process of the construction works shall be treated to comply with the standards set in the relevant discharge licence prior discharge. No discharge of the groundwater shall be allowed into the two streams.					
Ecology (Constru	ction Phase)					
S.9.8.3 -	S.8.3.1	 Mitigation to minimise impacts on habitat and vegetation loss: Layout of the Project shall be carefully designed to avoid or minimise thearea of habitat loss and the numbers to trees to be felled. All trees shall be preserved as far as possible, especially species of conservation concern. Recommendations to be provided in the Tree Survey Report to mitigate impacts on trees shall be followed. Disturbance of individuals of the shrub / tree Transplantation of the two shrub / tree species of conservation concern, namely Aquilaria sinensis and Cibotium barometz, shall be avoided. Where loss of these species would be unavoidable, it is recommended to transplant them to same habitats with similar conditions. Following transplantation, regular monitoring of these trees shall be conducted by a suitable qualified botanist / horticulturist over a 12- 	Work site particularly semi- natural woodland / Design and construction phases.	Arch SD / Contractor	Construction Phase	ETWB Technical Circular No. 3/2006	Implemented



	Qualitative Entern Report No. 1						
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
20045	0.001	month period. Transplantation of any affected trees to grassland / scrubland within theWo Hop Shek Cemetery. Compensatory planting of the felled trees shall follow the Technical Circular No. 3/2006 issued by ETWB.			Construction Phone		
S.9.8.15 - S.9.8.16	S.8.3.1	Mitigation to construction runoff through general good site practice:	Work site / Construction phase	Contractor	Construction Phase	ETWB Technical Circular (Works) No. 5/2005.	Implemented
		■ Temporary access to the work sites shall be carefully planned and located to minimise disturbance caused to the streams and nearby habitats.					
		Use of less or smaller construction plant may be specified toreduce disturbance to the streams and nearby habitats.					
		■ Temporary sewage system shall be designed and installed to collect wastewater and prevent it from entering the streams and nearbyhabitats.					
		■ The Site inside or in the proximity of the streams and nearby habitats shall be temporarily isolated, such as by placing of sandbags or silt curtains with lead edge at bottom and properly supported props, to prevent adverse impacts on these areas.					
		■ Natural bottom and existing flow in the streams shall be preserved as muchas possible to avoid disturbance to the stream habitats.					
		■ Proper locations well away from the streams and nearby habitats for temporary storage of materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction debris and spoil shall be identified before commencement of the works.					
		■ Stockpiling of construction materials, if necessary, shall be properly covered and located away from the streams and nearby habitats.					
		■ Construction debris and spoil shall be covered up and/or properly disposed of as soon as possible to avoid being washed into the streams and nearby habitats by rain.					
		■ Construction effluent, site runoff and sewage shall be properly collected and/or treated.					



	Quarterly Elivery Report No. 1					VARIABLE HAVE		
EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status	
		■ Proper locations for discharge outlets of wastewater treatment facilities well away from the streams and nearby habitats shall be identified.						
		■ Vehicles and other plant shall be carefully maintained and properly used to minimise the chance for accidental spillage.						
		Any spillages that do occur shall be quickly identified and appropriately cleaned up before they can contaminate streams or groundwater.						
		■ Temporary geo-textile silt fences around earth moving works shall beerected to trap any sediments being washed away and prevent them from entering surrounding areas.						
		■ Silt traps shall be installed at points where drainage from the Site enters temporary sewage system.						
		■ Exposed soil or other loose materials shall be covered with tarpaulins to prevent erosion, and then seeded and covered with a biodegradable geo- textile blanket for erosion control purposes.						
S.9.8.18		Mitigation to protect the groundwater:	Work site /	Contractor	Construction Phase		NA	
		■ Basement formation or any construction activities likely to pump out a large quantity of groundwater shall be protected with sheet-piling at suitable locations around the basement footprint, or by any like method.	Construction phase					
		■ No groundwater shall be pumped back to the two stream courses to protect the natural integrity of the stream habitat and the associated organism.						
S.9.8.20	S.8.3.1	Mitigation for noise and other disturbance on ecological integrity:	Work site /	Contractor	Construction Phase		Implemented	
		■ Use of sturdy 1.8 metres protective fencing shall be located at the edge of the tree canopy but not around the trunk.	Construction phase					
		■ Works beneath the tree canopy shall be avoided: If encroachment under the canopy area is unavoidable, adequate protections shall be provided to ensure no damage of any part of the tree would occur due to the encroachment.						
		■ An approved Landscape Contractor shall implement any tree transplanting and planting works. Quality control of the work shall be undertaken by a qualified Landscape Architect through site inspections and approval of works.						



EIA Ref	EM&A Ref.	Environmental Protection Measures / Mitigation Measures	Location / Timing	Implementation Agent	Implementation Stage	Relevant Legislation and Guidelines	Implementation Status
	 Construction works shall be restricted to works area which are clearly defined. Woodland or other habitats that would be affected by the construction works shall be well-defined and minimised. 						
		Human inference to habitats beyond the site boundary and habitats proposed to be retained shall be avoided by providing temporary barricades.					
		Works area shall be reinstated immediately after completion of the construction.					
		■ Waste and other garbage generated during the construction of the proposed development shall be dumped properly.					
		■ Uncontrolled fire shall be strictly prohibited. Appropriate fire control measures shall be provided in order to protect nearby habitats.					
Ecology (EM&A)						
S.9.11	S.8.2.1	Audit/Inspection:	Work site /	Contractor	Construction Phase		Implemented
& S.11.2.29		Regular site audit / inspection shall be conducted at least once a week to inspect the implementation of the recommended mitigation measures (details to be outlined in the EM&A Manual).	Construction phase				
S.11.2.32	S.8.2.2	Monitoring on Transplantation:	Work site /	Contractor	Construction Phase		Implemented
S.11.2.33	- S.8.2.4	■ Trees requiring transplantation or protection shall be identified based on the information illustrated in the Tree Survey Report.	Construction phase				
		Regular monitoring after transplantation of Aquilaria sinensis and Cibotium barometz individuals shall be conducted to check on the health and conditions of the plants. Monitoring shall cover the 12-month period following transplantation. The monitoring shall be conducted by a suitably qualified botanist / horticulturist at least twice a month for the first four months after transplantation, and once a month for the remaining eight months.					



APPENDIX D: IMPACT MONITORING SCHEDULE OF THE REPORTING PERIOD



	Impact Monitoring Schedule for Expansion of Wo Hop Shek Crematorium								
				Jan-21					
Sun		Mon	Tue	Wed	Thur	Fri	Sat		
						1	2		
_		4	5	6	7	8	9		
3		4	5	ь	/	8	9		
		Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630		Weekly ET site inspection and audit		Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630			
10		11	12	13	14	15	16		
			Weekly ET site inspection and audit		Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630				
17		18	19	20	21	22	23		
			Weekly ET site inspection and audit	Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630					
24		25	26	27	28				
			Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	Weekly ET site inspection and audit					
31									

^{*}Remarks: 1. This impact monitoring schedule is subject to change due to adverse weather conditions or other rationales.

^{2.} Advance notification of the changes will be given to all relevant parties at lease 48 hours prior to implementation.



Impact Monitoring Schedule for Expansion of Wo Hop Shek Crematorium							
Feb-21							
Sun	Mon				Fri	Sat	
	1	2	3	4	5	6	
	Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630		Weekly ET site inspection and audit			Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	
7	8	9	10	11	12	13	
			Weekly ET site inspection and audit	Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630			
14	15	16	17	18	19	20	
			Weekly ET site inspection and audit Air monitoring for A10, A20 for 1-hr TSP and 24-hr TSP Monitoring Time: 0900-1630			Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	
21	22	23	24	25	26	27	
			Weekly ET site inspection and audit		Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630		
28							

^{*}Remarks: 1. This impact monitoring schedule is subject to change due to adverse weather conditions or other rationales.

^{2.} Advance notification of the changes will be given to all relevant parties at lease 48 hours prior to implementation.



Impact Monitoring Schedule for Expansion of Wo Hop Shek Crematorium							
Mar-21							
Sun	Mon					Sat	
	1	2	3	Weekly ET site inspection and audit Air monitoring for A10, A20 for 1-hr TSP and 24-hr TSP Monitoring Time: 0900-1630	5	6	
7	8	9	10	11	12	13	
			Weekly ET site inspection and audit Air monitoring for A10, A20 for 1-hr TSP and 24-hr TSP Monitoring Time: 0900-1630				
14	15	16	17	18	19	20	
		Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	Weekly ET site inspection and audit				
21	22	23	24	25	26	27	
	Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	Weekly ET site inspection and audit				Air monitoring for A10, A20 for 1- hr TSP and 24-hr TSP Monitoring Time: 0900-1630	
28	29	30	31				
			Weekly ET site inspection and audit				

^{*}Remarks: 1. This impact monitoring schedule is subject to change due to adverse weather conditions or other rationales.

^{2.} Advance notification of the changes will be given to all relevant parties at lease 48 hours prior to implementation.



APPENDIX E: EVENT/ACTION PLAN FOR DUST EXCEEDANCE



Event				
Event	ET	IEC	AR	Contractor
Action Level				
Exceedance for one sample Exceedance for two or more consecutive samples	 Identify source, investigate the causes of complaint and propose remedial measures; Inform IEC and AR; Repeat measurement to confirm finding; Increase monitoring frequency to daily. Identify source; Inform IEC and AR; Advise the AR on the effectiveness of the proposed remedial measures; Repeat measurements to confirm findings; 	 Check monitoring data submitted by ET; Check Contractor's working method. Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the ET on the effectiveness of the proposed remedial measures; Supervise Implementation of remedial measures. 	 Notify Contractor. Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Rectify any unacceptable practice; Amend working methods if appropriate. Submit proposals for remedial to AR within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate.
	 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and AR; 			



Event	Action						
Event	ET	IEC	AR	Contractor			
	If exceedance stops, cease additional monitoring.						
Limit Level							
1. Exceedance for one sample	 Identify source, investigate the causes of exceedance and propose remedial measures; Inform IEC, AR, Contractor and EPD; Repeat measurement to confirm finding; Increase monitoring frequency to daily; Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and AR informed of the results. 	 Check monitoring data submitted by ET; Check Contractor's working method; Discuss with ET and Contractor on possible remedial measures; Advise the AR on the effectiveness of the proposed remedial measures; Supervise implementation of remedial measures. 	 Confirm receipt of notification of exceedance in writing; Notify Contractor; Ensure remedial measures properly implemented. 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; Amend proposal if appropriate. 			
2. Exceedance for two or more consecutive samples	 Notify IEC, AR, Contractor and EPD; Identify source; Repeat measurement to confirm findings; Increase monitoring frequency to daily; Carry out analysis of Contractor's working 	 Discuss amongst AR, ET, and Contractor on the potential remedial actions; Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the AR accordingly; 	 Confirm receipt of notification of exceedance in writing; Notify Contractor; In consultation with the IEC, agree with the Contractor on the remedial measures to be implemented; 	 Take immediate action to avoid further exceedance; Submit proposals for remedial actions to IEC within three working days of notification; Implement the agreed proposals; 			

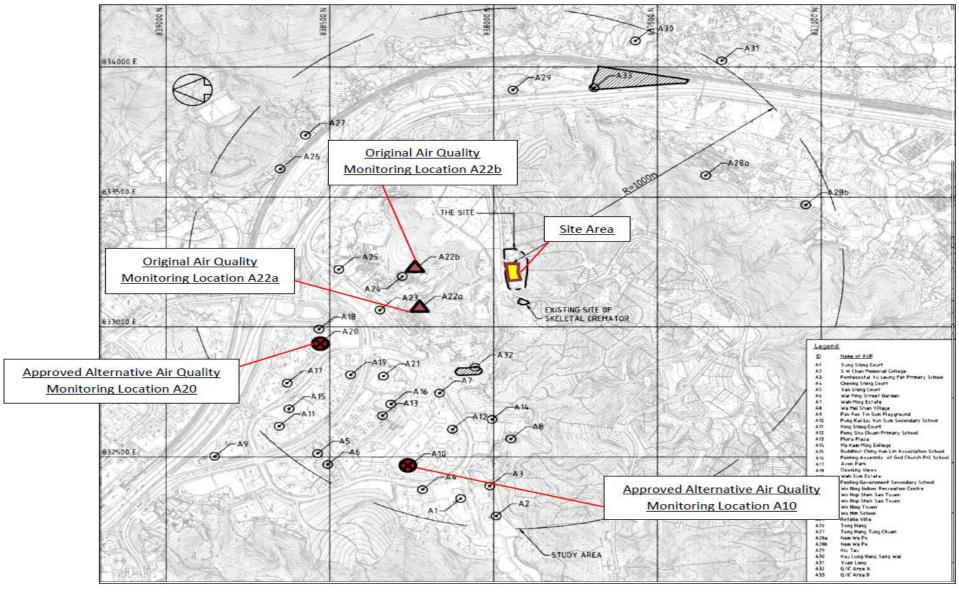


Event	Action						
ET	IEC	AR	Contractor				
procedures to determ possible mitigation to implemented; 6. Arrange meeting with and AR to discuss the remedial actions to b taken; 7. Assess effectiveness Contractor's remedial actions and keep IEC, and AR informed of the results; 8. If exceedance stops, additional monitoring and the possible of the contractor's remedial actions and the possible of the results;	implementation of remedial measures. IEC of IEPD ne ease	 4. Ensure remedial measures properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated. 	 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of works as determined by the AR until the exceedance is abated. 				



APPENDIX F: LOCATION PLAN OF AIR QUALITY MONITORING STATION







APPENDIX G: AIR QUALITY MONITORING DATA



The Summary of 1-hour TSP Concentration ($\mu g/m^3$) at A10

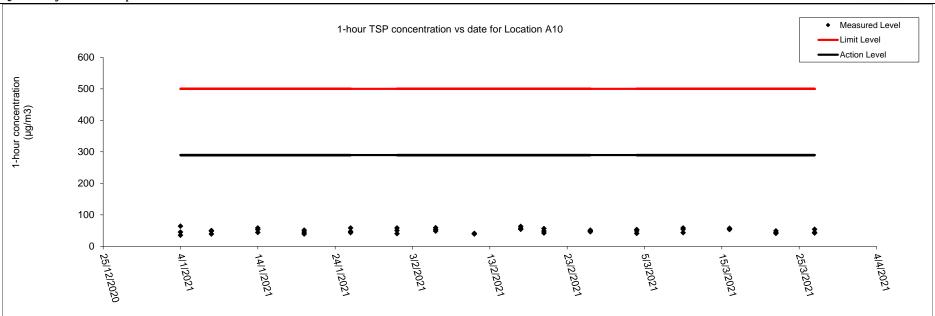
The Summary of 1-hour 13F Concentration (µg/m²) at A10								
Date	Weather	Sampling Time (1)	Sampling Time (2)	Sampling Time (3)	Reading (1) μg/m³	Reading (2) μg/m³	Reading (3) μg/m³	Average μg/m³
4/1/2021	Sunny	10:04	11:04	12:04	45	64	35	48
8/1/2021	Cloudy	10:40	11:40	12:40	48	39	50	46
14/1/2021	Sunny	10:35	11:35	12:35	58	44	53	52
20/1/2021	Sunny	10:40	11:40	12:40	39	45	51	45
26/1/2021	Sunny	10:58	11:58	12:58	47	58	43	49
1/2/2021	Sunny	10:38	11:38	12:38	40	50	58	49
6/2/2021	Sunny	11:54	12:54	13:54	48	59	53	53
11/2/2021	Cloudy	10:54	11:54	12:54	40	41	39	40
17/2/2021	Sunny	10:52	11:52	12:52	57	54	63	58
20/2/2021	Sunny	11:34	12:34	13:34	56	42	48	49
26/2/2021	Sunny	10:48	11:48	12:48	46	51	48	48
4/3/2021	Cloudy	10:56	11:56	12:56	49	41	53	48
10/3/2021	Sunny	10:20	11:20	12:20	43	54	58	52
16/3/2021	Sunny	10:31	11:31	12:31	57	53	56	55
22/3/2021	Cloudy	10:33	11:33	12:33	41	49	43	44
27/3/2021	Cloudy	9:57	10:57	11:57	42	44	54	47

Average 1-hour TSP: 49

Max.: 64

Min.: 35





The Summary of 1-hour TSP Concentration ($\mu g/m^3$) at A20



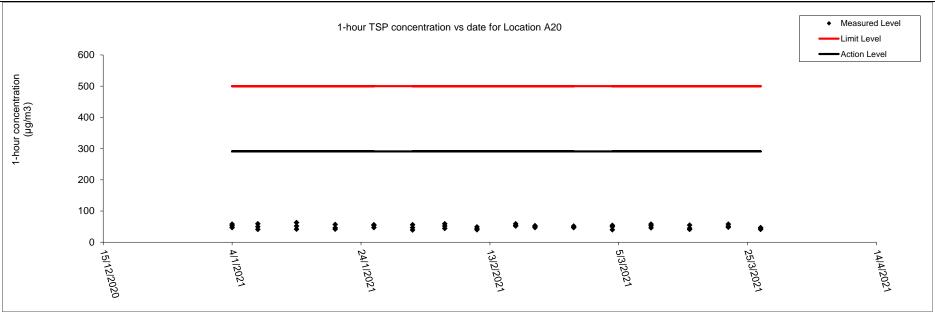
Date	Weather	Sampling Time (1)	Sampling Time (2)	Sampling Time (3)	Reading (1) μg/m³	Reading (2) μg/m³	Reading (3) μg/m ³	Average μg/m³
4/1/2021	Sunny	9:20	10:20	11:20	47	53	58	53
8/1/2021	Cloudy	11:07	12:07	13:07	50	59	41	50
14/1/2021	Sunny	11:17	12:17	13:17	63	42	52	52
20/1/2021	Sunny	11:13	12:13	13:13	42	57	46	48
26/1/2021	Sunny	11:20	12:20	13:20	54	47	56	52
1/2/2021	Sunny	10:54	11:54	12:54	39	47	56	47
6/2/2021	Sunny	11:37	12:37	13:37	59	44	52	52
11/2/2021	Cloudy	11:24	12:24	13:24	43	49	40	44
17/2/2021	Sunny	11:24	12:24	13:24	54	59	52	55
20/2/2021	Sunny	10:55	11:55	12:55	50	47	53	50
26/2/2021	Sunny	11:27	12:27	13:27	52	48	47	49
4/3/2021	Cloudy	11:33	12:33	13:33	40	54	50	48
10/3/2021	Sunny	10:53	11:53	12:53	58	53	46	52
16/3/2021	Sunny	11:04	12:04	13:04	55	41	45	47
22/3/2021	Cloudy	11:08	12:08	13:08	51	58	48	52
27/3/2021	Cloudy	10:21	11:21	12:21	45	47	41	44

Average 1-hour TSP: 50

Max.: 63

Min.: 39







Start Date	Weather Condition	Elapse Time		Chart Reading		Avg Air Temp	Avg Atmospheric Pressure	Flow Rate	Standard Air Volume		Weight g)	Particulate weight	Conc.		
		Initial	Final	Actual (min)	Min	Max	Avg	(°C)	(mm Hg)	(m³/min)	(m³)	Initial	Final	(g)	(μg/m³)
04/01/2021	Sunny	6863.3	6887.3	1440.0	40	41	40.5	18.3	765.8	1.12	1614	4.4119	4.4815	0.0696	43
08/01/2021	Cloudy	6887.3	6911.3	1440.0	40	41	40.5	9.1	768.8	1.17	1686	2.7316	2.9577	0.2261	134
14/01/2021	Sunny	6911.3	6935.3	1440.0	40	40	40.0	15.2	763.4	1.10	1577	2.7424	2.8828	0.1404	89
20/01/2021	Sunny	6938.2	6962.2	1440.0	39	40	39.5	18.2	759.8	1.04	1498	2.7622	2.8370	0.0748	50
26/01/2021	Sunny	6962.2	6986.2	1440.0	40	40	40.0	19.6	762.7	1.07	1547	2.7806	2.9673	0.1867	121
01/02/2021	Sunny	6986.6	7010.6	1440.0	39	39	39.0	20.3	764.6	1.23	1776	2.7446	2.8013	0.0567	32
06/02/2021	Sunny	7010.6	7034.6	1440.0	39	39	39.0	20.7	763.1	1.23	1766	2.7646	2.8265	0.0619	35
11/02/2021	Cloudy	7034.6	7058.6	1440.0	38	39	38.5	17.4	761.0	1.20	1729	2.7442	2.7831	0.0389	23
17/02/2021	Sunny	7059.1	7083.1	1440.0	39	39	39.0	20.4	764.7	1.23	1776	2.7187	2.8061	0.0874	49
20/02/2021	Sunny	7083.1	7107.1	1440.0	38	39	38.5	19.6	764.9	1.20	1734	2.7805	2.8870	0.1065	61
26/02/2021	Sunny	7107.1	7131.1	1440.0	38	39	38.5	22.3	757.4	1.17	1680	2.7548	2.8015	0.0467	28
04/03/2021	Cloudy	7132.3	7156.3	1440.0	39	40	39.5	18.9	763.5	1.18	1693	2.7718	2.8511	0.0793	47
10/03/2021	Sunny	7156.3	7180.3	1440.0	39	40	39.5	19.8	765.0	1.18	1695	2.7237	2.8616	0.1379	81
16/03/2021	Sunny	7180.3	7204.3	1440.0	39	39	39.0	24.0	760.0	1.11	1593	2.7073	2.7843	0.0770	48
22/03/2021	Cloudy	7205.1	7229.1	1440.0	40	40	40.0	17.8	767.1	1.33	1912	2.7317	2.9068	0.1751	92
27/03/2021	Cloudy	7229.1	7253.1	1440.0	39	39	39.0	24.1	759.0	1.19	1717	2.7907	2.8643	0.0736	43

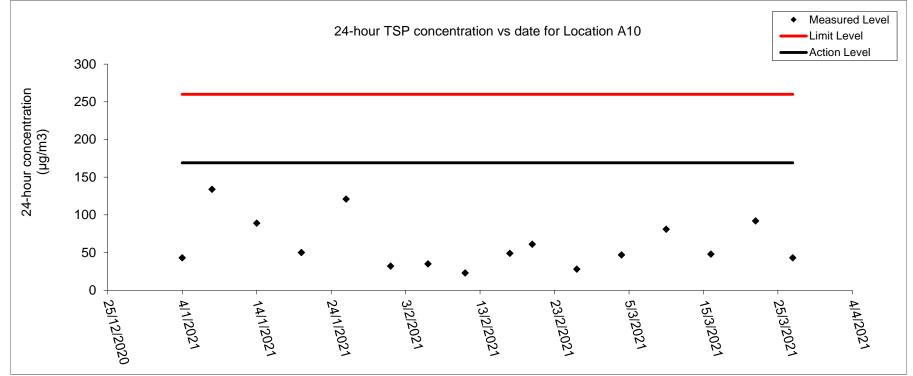
Min: 23 Max: 134

Avg: 61



Calibration information for Location A10									
Date of Calibration:	2-Jan-21	Slope =	16.4884						
Calibration due date:	15-Jan-21	Intercept =	22.7954						
Date of Calibration:	17-Jan-21	Slope =	16.0843						
Calibration due date:	30-Jan-21	Intercept =	22.3125						
Date of Calibration:	1-Feb-21	Slope =	15.0066						
Calibration due date:	14-Feb-21	Intercept =	21.0374						
Date of Calibration:	17-Feb-21	Slope =	15.1557						
Calibration due date:	2-Mar-21	Intercept =	21.4636						
Date of Calibration:	4-Mar-21	Slope =	14.8899						
Calibration due date:	17-Mar-21	Intercept =	22.5894						
Date of Calibration:	22-Mar-21	Slope =	13.7450						
Calibration due date:	4-Apr-21	Intercept =	22.6202						







Start Date	Weather Condition	Elapse Time		Chart Reading		Avg Air Temp	Avg Atmospheric Pressure	Flow Rate	Standard Air Volume	_	Weight g)	Particulate weight	Conc.		
		Initial	Final	Actual (min)	Min	Max	Avg	(°C)	(mm Hg)	(m³/min)	(m³)	Initial	Final	(g)	(μg/m³)
04/01/2021	Sunny	6983.2	7007.2	1440.0	40	40	40.0	18.3	765.8	1.09	1565	2.7306	2.8567	0.1261	81
08/01/2021	Cloudy	7007.2	7031.2	1440.0	39	40	39.5	9.1	768.8	1.11	1604	2.7667	2.9444	0.1777	111
14/01/2021	Sunny	7031.2	7055.2	1440.0	40	41	40.5	15.2	763.4	1.14	1642	2.7047	2.7753	0.0706	43
20/01/2021	Sunny	7058.4	7082.4	1440.0	39	40	39.5	18.2	759.8	1.01	1461	2.7397	2.8109	0.0712	49
26/01/2021	Sunny	7082.4	7106.4	1440.0	39	40	39.5	19.6	762.7	1.02	1468	2.7762	2.8800	0.1038	71
01/02/2021	Sunny	7106.8	7130.8	1440.0	38	39	38.5	20.3	764.6	1.20	1724	2.7285	2.7738	0.0453	26
06/02/2021	Sunny	7130.8	7154.8	1440.0	39	39	39.0	20.7	763.1	1.23	1777	2.7156	2.8142	0.0986	55
11/02/2021	Cloudy	7154.8	7178.8	1440.0	38	38	38.0	17.4	761.0	1.15	1659	2.7646	2.7975	0.0329	20
17/02/2021	Sunny	7179.1	7203.1	1440.0	38	39	38.5	20.4	764.7	1.20	1724	2.7540	2.8149	0.0609	35
20/02/2021	Sunny	7203.1	7227.1	1440.0	39	39	39.0	19.6	764.9	1.25	1799	2.7649	2.8556	0.0907	50
26/02/2021	Sunny	7227.2	7251.2	1440.0	39	40	39.5	22.3	757.4	1.24	1790	2.7281	2.7776	0.0495	28
04/03/2021	Cloudy	7252.3	7276.3	1440.0	39	40	39.5	18.9	763.5	1.29	1855	2.7717	2.8526	0.0809	44
10/03/2021	Sunny	7276.3	7300.3	1440.0	38	39	38.5	19.8	765.0	1.20	1729	2.6962	2.7616	0.0654	38
16/03/2021	Sunny	7300.3	7324.3	1440.0	38	39	38.5	24.0	760.0	1.15	1661	2.7221	2.7799	0.0578	35
22/03/2021	Cloudy	7325.1	7349.1	1440.0	40	40	40.0	17.8	767.1	1.38	1991	2.7578	2.9073	0.1495	75
27/03/2021	Cloudy	7349.1	7373.1	1440.0	39	40	39.5	24.1	759.0	1.26	1821	2.6864	2.7457	0.0593	33

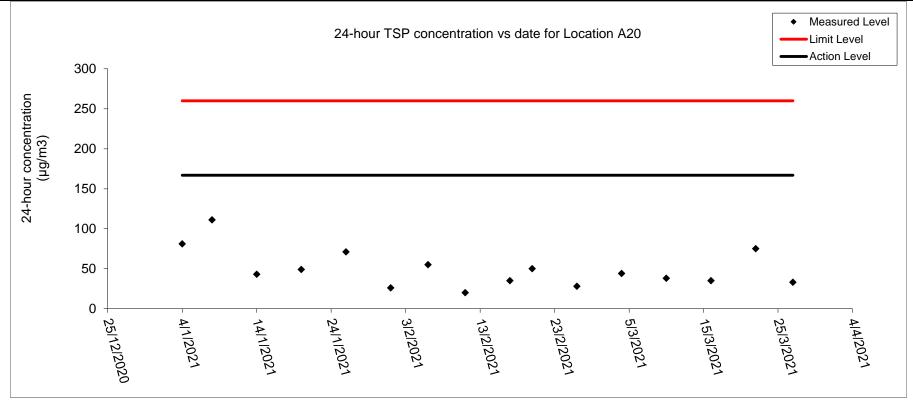
Min: 20 Max: 111

Avg: 50



Calibration information for Location A20									
Date of Calibration:	2-Jan-21	Slope =	11.2556						
Calibration due date:	15-Jan-21	Intercept =	28.5295						
Date of Calibration:	17-Jan-21	Slope =	11.0434						
Calibration due date:	30-Jan-21	Intercept =	27.7296						
Date of Calibration:	1-Feb-21	Slope =	10.9934						
Calibration due date:	14-Feb-21	Intercept =	25.8768						
Date of Calibration:	17-Feb-21	Slope =	11.0485						
Calibration due date:	2-Mar-21	Intercept =	25.2008						
Date of Calibration:	4-Mar-21	Slope =	11.3743						
Calibration due date:	17-Mar-21	Intercept =	25.4426						
Date of Calibration:	22-Mar-21	Slope =	11.5871						
Calibration due date:	4-Apr-21	Intercept =	24.8517						



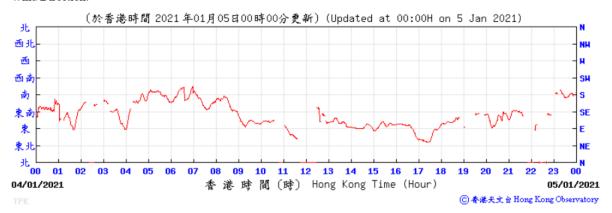


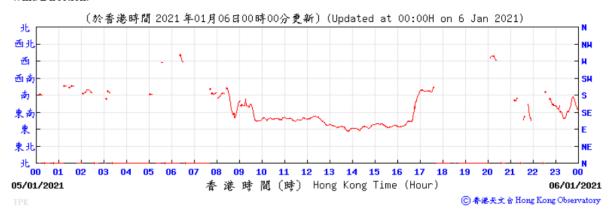


Wind direction data for 04, 08, 14, 20 and 26 January 2021

A. 04/01/2021:

Wind Direction:

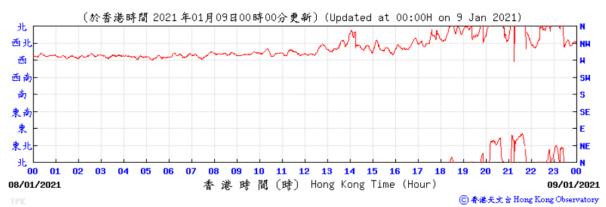


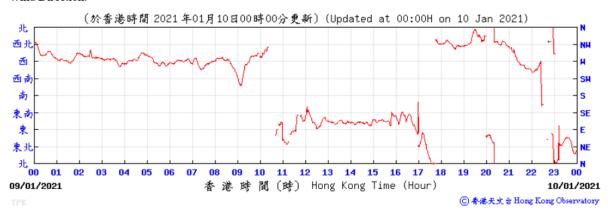




B. 08/01/2021:

Wind Direction:

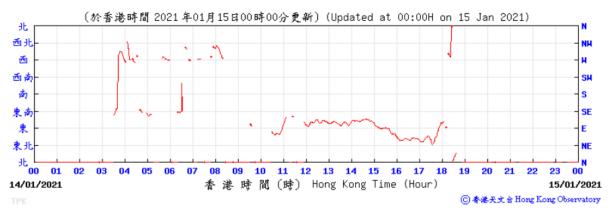


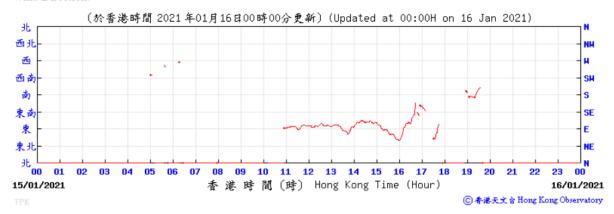




C. 14/01/2021:

Wind Direction:

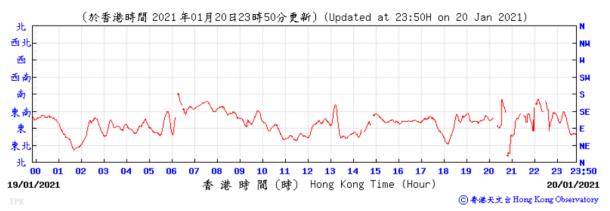


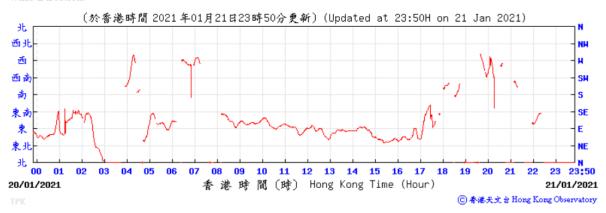




D. 20/01/2021:

Wind Direction:

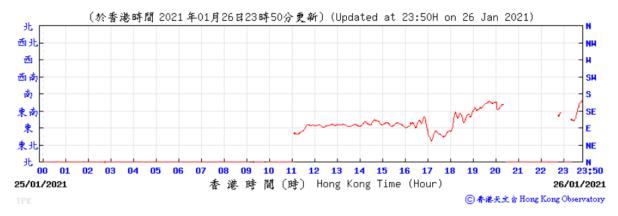


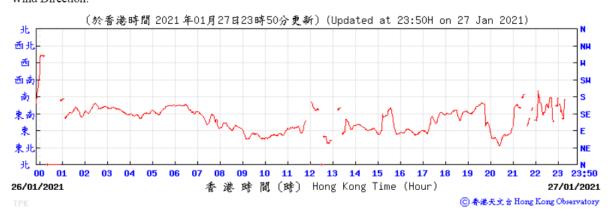




E. 26/01/2021

Wind Direction:

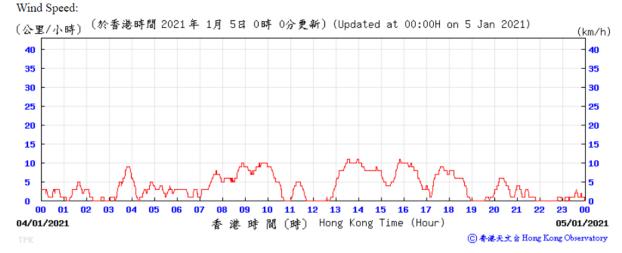


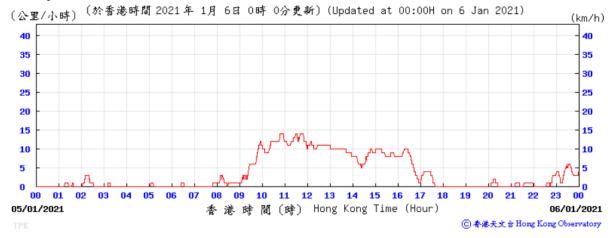




Wind speed data for 04, 08, 14, 20 and 26 January 2021

A. 04/01/2021:

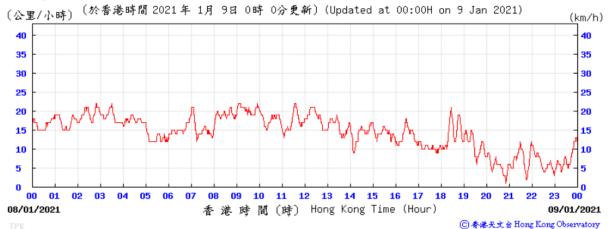


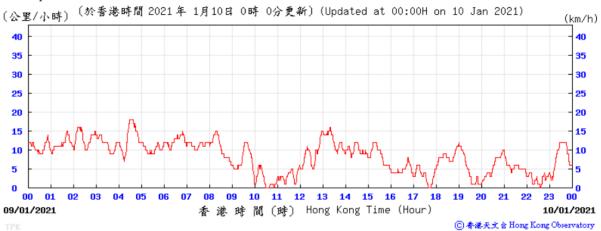




B. 08/01/2021:

Wind Speed:

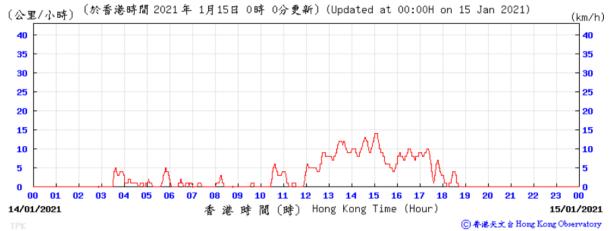


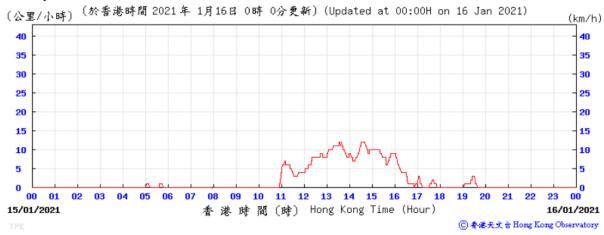




C. 14/01/2021:

Wind Speed:

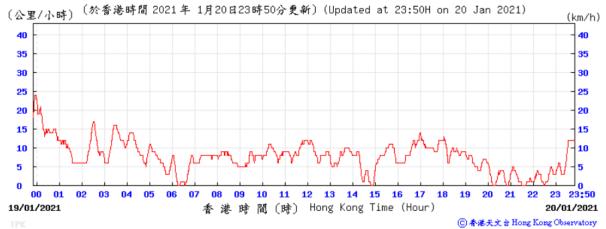


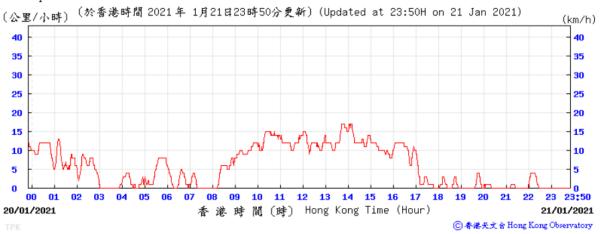




D. 20/01/2021:



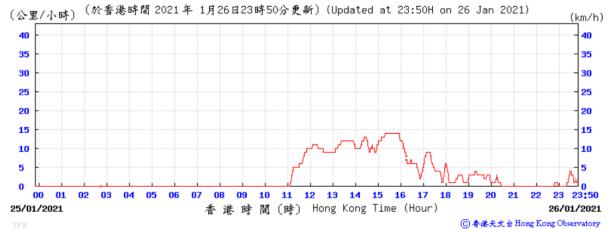






E. 26/01/2021

Wind Speed:



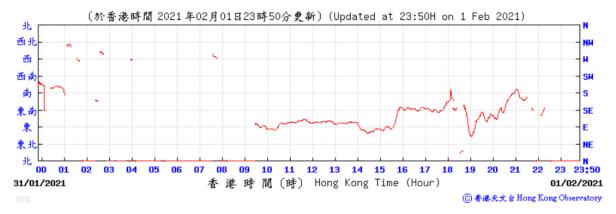


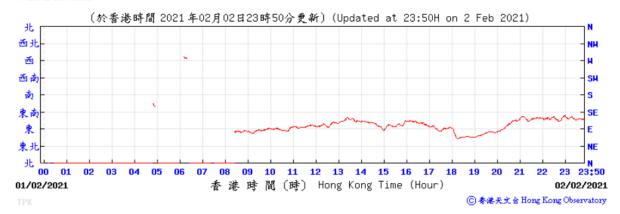


Wind direction data for 01, 06, 11, 17, 20 and 26 February 2021

A. 01/02/2021:

Wind Direction:

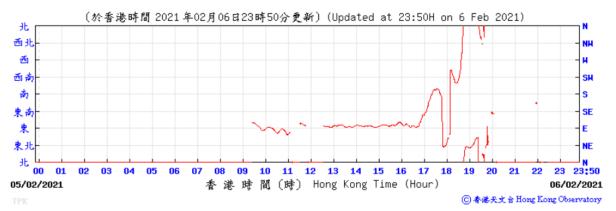


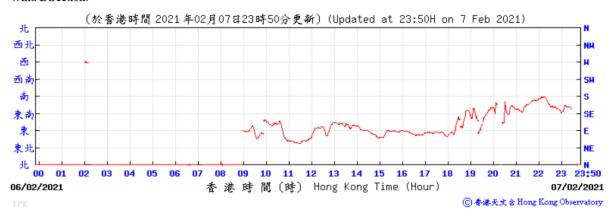




B. 06/02/2021:

Wind Direction:



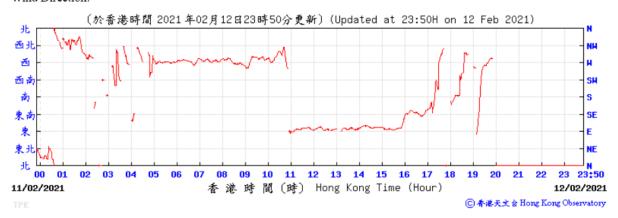




C. 11/02/2021:

Wind Direction:

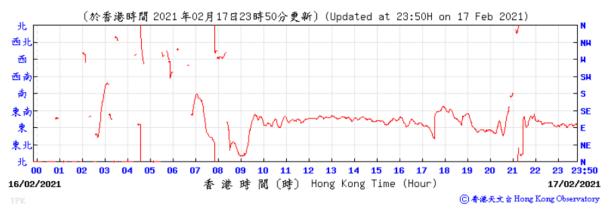


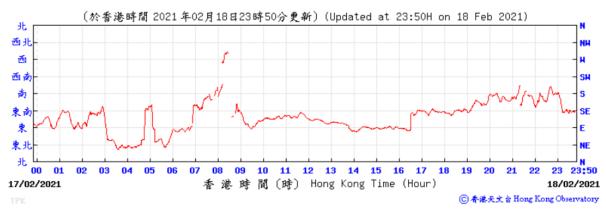




D. 17/02/2021:

Wind Direction:

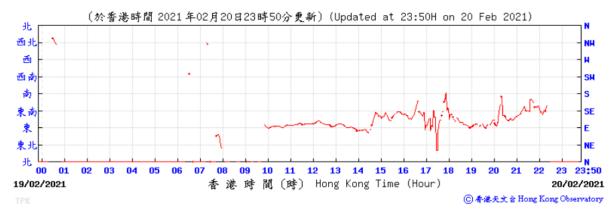


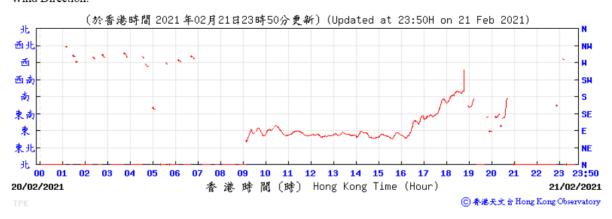




E. 20/02/2021

Wind Direction:

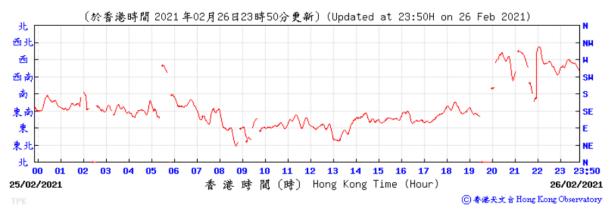


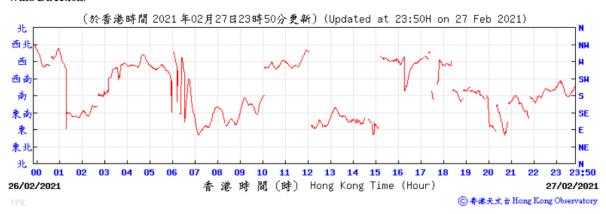




F. 26/02/2021

Wind Direction:





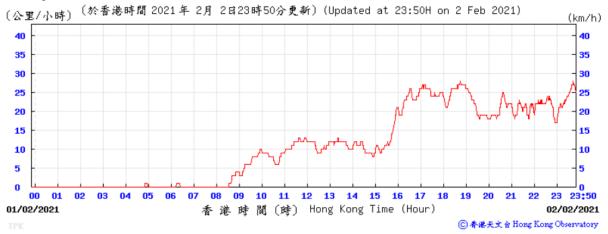


Wind speed data for 01, 06, 11, 17, 20 and 26 February 2021

A. 01/02/2021:

Wind Speed:

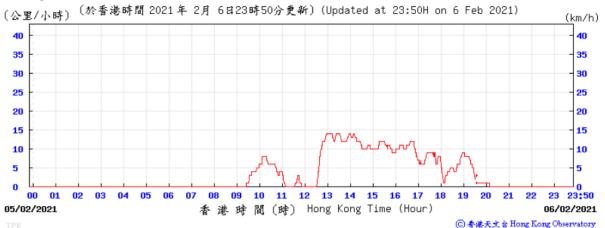


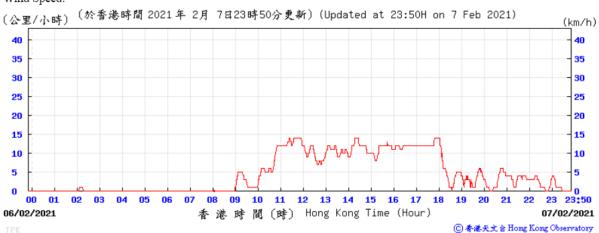




B. 06/02/2021:





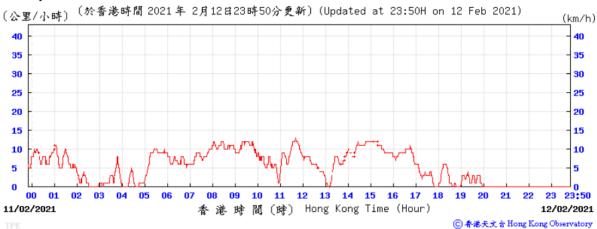




C. 11/02/2021:





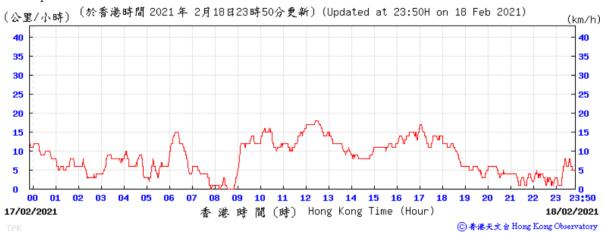




D. 17/02/2021:



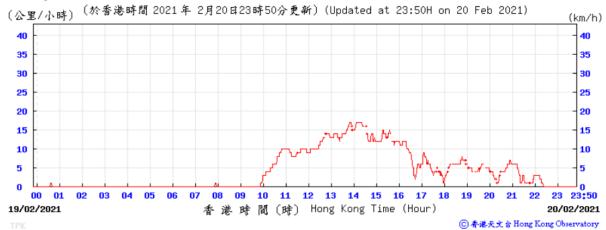






E. 20/02/2021



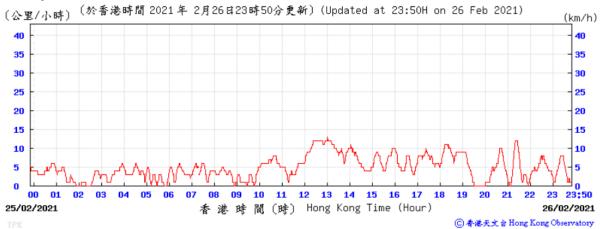






F. 26/02/2021





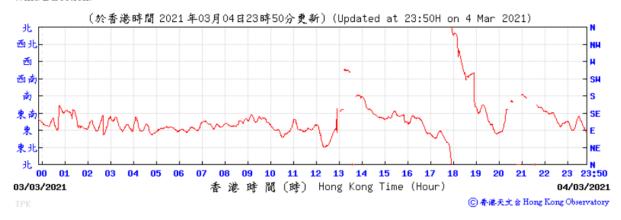




Wind direction data for 04, 10, 16, 22 and 27 March 2021

A. 04/03/2021:

Wind Direction:

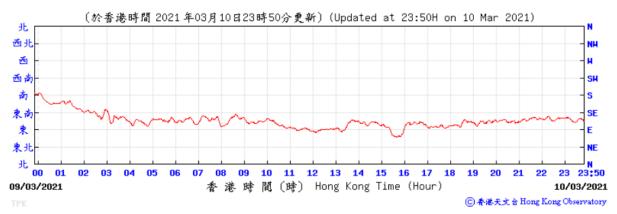


The wind direction graph of 05/03/2021 was not available from the Hong Kong Observatory website.



B. 10/03/2021:

Wind Direction:

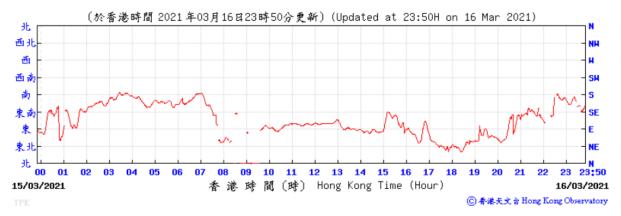


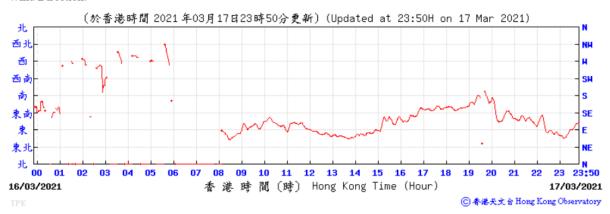




C. 16/03/2021:

Wind Direction:



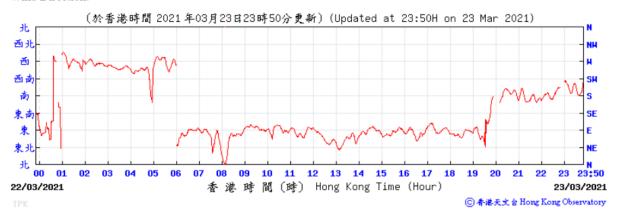




D. 22/03/2021:

Wind Direction:

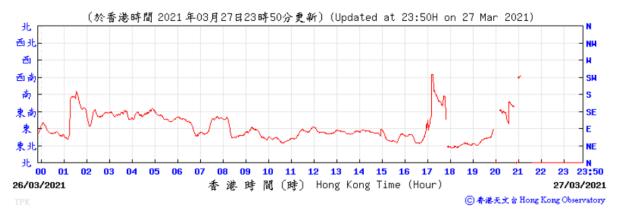






E. 27/03/2021

Wind Direction:







Wind speed data for 04, 10, 16, 22 and 27 March 2021

A. 04/03/2021:

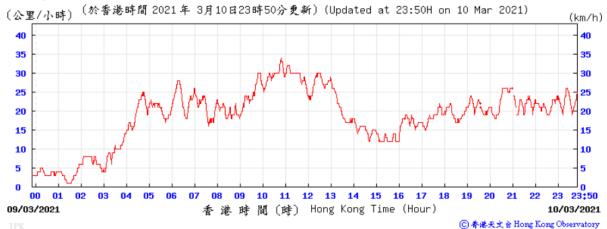
Wind Speed: (於香港時間 2021年 3月 4日23時50分更新) (Updated at 23:50H on 4 Mar 2021) (公里/小時) (km/h) 09 10 11 23:50 香港時間 (時) Hong Kong Time (Hour) 03/03/2021 04/03/2021 ◎ 香港天文 含 Hong Kong Observatory

The wind speed graph of 05/03/2021 was not available from the Hong Kong Observatory website.



B. 10/03/2021:

Wind Speed:







C. 16/03/2021:

Wind Speed:

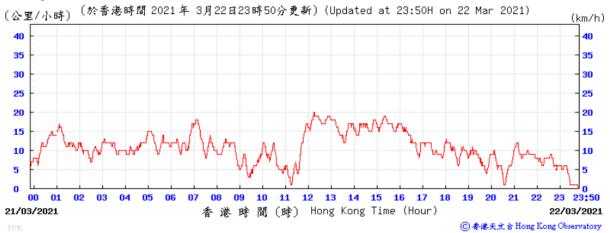


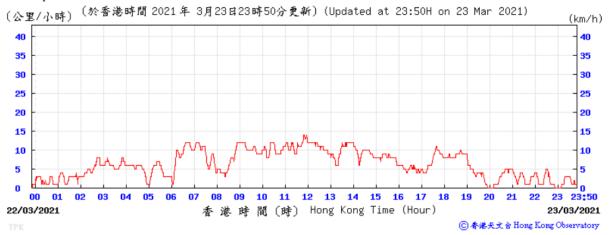




D. 22/03/2021:









E. 27/03/2021

Wind Speed:





Contract No. AL G513 Expansion of Wo Hop Shek Crematorium Quarterly EM&A Report No.4



APPENDIX H: WASTE FLOW TABLE



	Actu	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
Reporting Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper / cardboard packaging	Plastics (see Note)	Chemical Waste	Others, e.g. general refuse	
	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	(in ,000kg)	
January 2021	25.87	0	0	0	22.12	0	0	0	0	0	3.75	
February 2021	2.00	0	0	0	0	0	0	0	0	0	2.00	
March 2021	3.79	0	0	0	0	0	0	0	0	0	3.79	

Contract No. AL G513 Expansion of Wo Hop Shek Crematorium Quarterly EM&A Report No.4 Waste to Public Fill (January 2021):



Facility 2	Date of transactio n	Vehicle No.2	Account No. 2	Chit No.2	Time-in?	Time-out?	Waste depth (meter)	Weight- in (tonne)	Weight- out (tonne)	weight
TM38FB	07/01/21	UY8*1	7032841	22174845	11:58	12:07	0	17.66	15.87	1.79
TM38FB	22/01/21	UX8*1	7032841	22174848	14:57	15:07	0	23.79	16.27	7.52
TM38FB	23/01/21	UX8*1	7032841	22174849	14:28	14:36	0	23.6	16.06	7.54
TM38FB	25/01/21	UY8*1	7032841	22174850	11:36	11:45	0	21.21	15.94	5.27
								Grand	Total:	22.12

Waste to Landfill (January 2021):

Facility 2	Date of transactio n	Vehicle No.2	Account No. 2	Chit No. 2	Time-in?	Time-out?	depth	Weight- in (tonne)	Weight- out (tonne)	Net weight (tonne)
NENT	08/01/21	LA5*81	7032841	22174846	14:25	14:47	1.2	18.11	15.69	2.42
NENT	21/01/21	LA5*81	7032841	22174847	15:14	15:33	1.02	16.99	15.66	1.33
								Crand	Totalı	2.75

Waste to Landfill (February 2021):

Facility 2	Date of transactio n	Vehicle No.2	Account No. 2	Chit No. 2	Time-in?	Time-out?	depth	Weight- in (tonne)	out	weight
NENT	25/02/21	LA5*81	7032841	22174851	15:01	15:18	1.07	17.66	15.66	2
								Grand	T-4-1	

Waste to Landfill (March 2021):

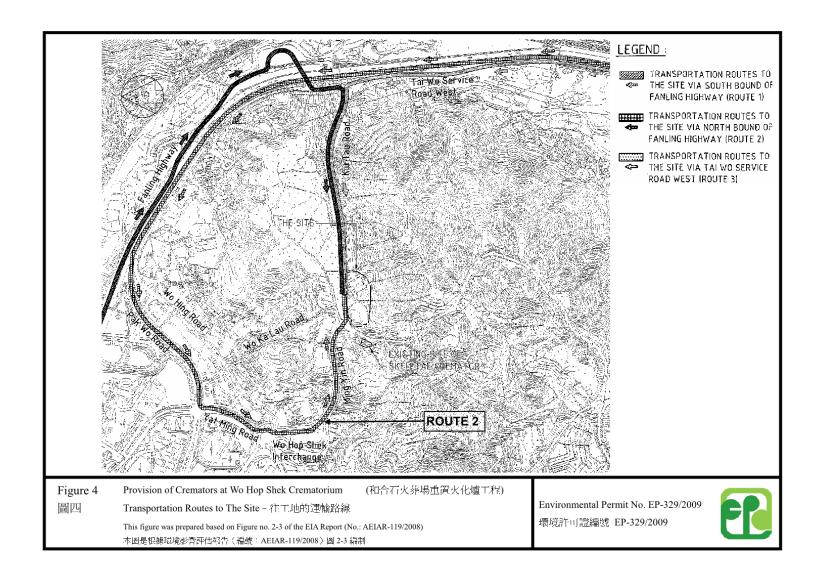
Facility 2	Date of transactio n	Vehicle No.	Account No.	Chit No.2	Time-in2	Time-out?	depth	Weight- in (tonne)	out	weight
NENT	26/03/21	LA5*81	7032841	22174853	16:00	16:21	1.46	17.58	15.68	1.9
NENT	19/03/21	LA5*81	7032841	22174852	14:59	15:22	1.42	17.6	15.71	1.89
								Grand	Total:	3.79

Contract No. AL G513 Expansion of Wo Hop Shek Crematorium Quarterly EM&A Report No.4

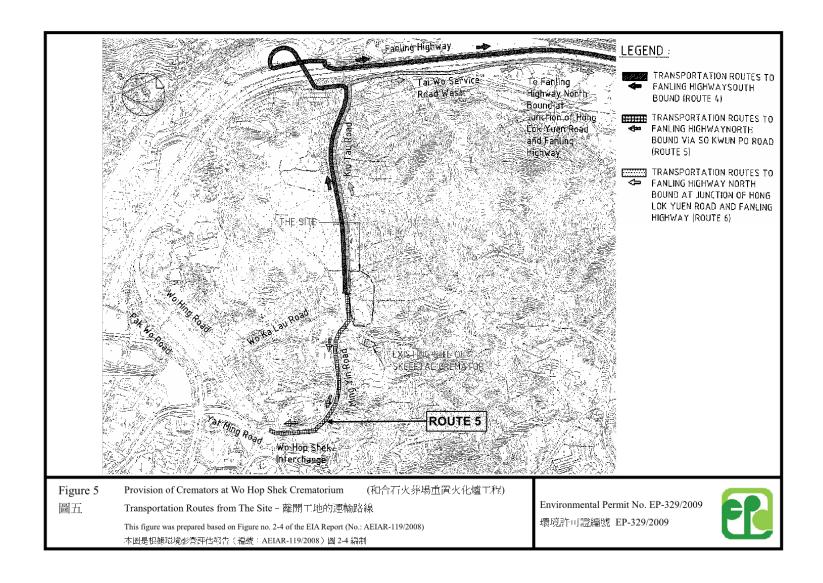


APPENDIX I: TRANSPORTATION ROUTES TO/FROM THE SITE









Contract No. AL G513 Expansion of Wo Hop Shek Crematorium Quarterly EM&A Report No.4



APPENDIX J: STATISTICS ON COMPLAINT, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS



Statistical Summary of Exceedances

	Air Quality							
Location	Location Action Level Limit Level Total							
A10 0 0								
A20	0	0	0					

Statistical Summary of Environmental Complaints

Reporting	Envir	Environmental Complaint Statistics					
Period	Frequency	Cumulative	Complaint Nature				
1 Jan 2021 - 31 Mar 2021	0	0	N/A				

Statistical Summary of Environmental Non-compliance

Reporting Period	Environi	Environmental Non-compliance Statistics					
	Frequency	Cumulative	Details				
1 Jan 2021 - 31 Mar 2021	0	0	N/A				

Statistical Summary of Environmental Summons

Reporting Period	Envir	onmental Summons Sta	tistics
Period	Frequency	Cumulative	Details
1 Jan 2021 – 31 Mar 2021	0	0	N/A

Statistical Summary of Environmental Prosecution

Reporting Period	Enviro	nmental Prosecution Sta	atistics
	Frequency	Cumulative	Details
1 Jan 2021 - 31 Mar 2021	0	0	N/A