

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD. 8/F Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fo Tan, Hong Kong

T: +852 2695 8318 F: +852 2695 3944 E: etl@ets-testconsult.com W: www.ets-testconsult.com



China Harbour – Zhen Hua Joint Venture

Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018)

TUEN MUN AREA 38 FILL BANK

QUARTERLY EM&A SUMMARY REPORT NO.7

(FROM NOVEMBER 2018 TO JANUARY 2019)

Prepared by:

TANG, Chung Hang Environmental Officer

Checked by:

LAU, Chi Leung

Environmental Team Leader

Issue Date: 27 February 2019

Report No.: ENA91370

This report shall not be reproduced unless with prior written approval from this laboratory.



Ref.: CEDPFRSFEM02_0_0555L.19

6 March 2019

By Email and Fax No.: 2695 3944

ETS-Testconsult Limited 8/F, Block B, Veristrong Industrial Centre 34-36 Au Pui Wan Street Fo Tan, Hong Kong

Attention: Mr. C.L. Lau

Dear Mr. Lau,

Re: Contract No. CV/2015/07 Handling of Surplus Public Fill (2016 – 2018)

Quarterly EM&A Summary Report No. 7 (November 2018 to January 2019) for the Tuen Mun Area 38 Fill Bank

Reference is made to your submission of the draft Quarterly EM&A Summary Report No. 7 (November 2018 to January 2019) for the TM Area 38 Fill Bank received by email on 28 February 2019 and the subsequent revision on 6 March 2019.

We are pleased to inform you that we have no further comment on the quarterly EM&A summary report.

Thank you for your attention. Please do not hesitate to contact our Jason Lai or the undersigned should you have any queries.

Yours sincerely, For and on behalf of Ramboll Hong Kong Limited

Haffe Rea

F. C. Tsang Independent Environmental Checker

c.c. CEDD CHZHJV

D Attn: Ms. Lisa Yung HJV Attn: Mr. S W Sung Fax No.: 2714 0113 By Email

Q:\Projects\CEDPFRSFEM02\02 Project Management\02 Corr\CEDPFRSFEM02_0_0555L.19.doc

Ramboll Hong Kong Limited 英環香港有限公司

21/F, BEA Harbour View Centre, 56 Gloucester Road, Wan Chai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899 www.ramboll.com



Report No. ENA91370 Quarterly EM&A Summary Report No.7

TABLE OF CONTENTS Page **EXECUTIVE SUMMARY** INTRODUCTION 1.0 1 **PROJECT INFORMATION** 2.0 2.1 Project Activities in this Reporting Quarter 1 2.2 Project Organization and Management Structure 1 2.3 Contact Details of Key Personnel 1 SUMMARY OF EM&A REQUIREMENTS 3.0 3.1 EM&A Programme 1 - 23.2 Monitoring Stations and Parameters 2 3.3 Monitoring Methodology and Calibration Details 2 2 3.4 Environmental Quality Performance Limits (Action/Limit Levels) 2 3.5 Environmental Mitigation Measures 4.0 MONITORING RESULTS 4.1 Air Quality 2 4.2 Noise 2 4.3 Marine Water Quality 3 5.0 **INSPECTION RESULTS** 5.1 Inspection Results 3 - 45.2 Status of Environmental Licensing and Permitting 4 5.3 Advice on Solids and Liquid Waste Management Status 4 NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS 6.0 6.1 Summary of Non-compliance 4 6.2 Review of the Reasons for and the implication of non-compliance 5 5 6.3 Summary of Action Taken 6.4 Summary of Environmental Complaint, Notification of Summons and Successful 5 7.0 COMMENTS, CONCLUSIONS AND RECOMMENDATION 5 - 6

APPENDIX

- A Organization Chart
- B Graphical Plots of Impact Air Quality Monitoring Data
- C Graphical Plots of Impact Noise Monitoring Data
- D Graphical Plots of Impact Marine Water Quality Monitoring Data
- E Environmental Quality Performance (Action / Limit Levels)
- F Event-Action Plans
- G Work Programme
- H Implementation Schedule of Environmental Mitigation Measures (EMIS)
- I Statistical Analysis of the Trend of Suspended Solids in the Quarter
- J Site General Layout Plan
- K Weather Condition
- L Complaint Log

Figures

- Figure 1 Locations of Air Quality Monitoring Stations Tuen Mun Area 38 Fill Bank
- Figure 2 Locations of Water Quality Monitoring Stations Tuen Mun Area 38 Fill Bank
- Figure 3 Locations of Noise Quality Monitoring Stations Tuen Mun Area 38 Fill Bank

Tables

- 2.1 Contact Details of Key Personnel
- 4.1 Summary of Number of Exceedances for 1-hr and 24-hr TSP Monitoring
- 4.2 Total Number of Marine Water Quality Exceedances in this quarter
- 4.3 Summary of Statistically Significant Results of SS
- 5.1 Summary of Environmental Licensing and Permit Status
- 5.2 Estimated Offsite Waste Disposal in the Reporting Quarter
- 6.1 Summary of Environmental Complaints and Prosecutions



EXECUTIVE SUMMARY

This is Quarterly Environmental Monitoring and Audit (EM&A) Summary Report No.7 prepared by ETS-Testconsult Ltd (ET) for the "Contract No. CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tuen Mun (TM) Area 38 Fill Bank" (The Project).

This report documents the findings of EM&A Works conducted during the operation phase of Fill Bank at Tuen Mun Area 38 from November 2018 to January 2019.

Site Activities

As informed by the Contractor, the site activities in this reporting quarter were as below:

November 2018	 Operation of the TM38 Fill Bank. Delivery of public fill to Taishan; Concrete block breaking work; Operation of glass cullet storage compartment at TMFB; Provision of photoelectric height limits warning system at the existing height restriction gantries; Repair works for damaged at TMFB caused by Super Typhoon; Installation of LED Display Board;
December 2018	 Operation of the TM38 Fill Bank. Delivery of public fill to Taishan; Concrete block breaking work; Operation of glass cullet storage compartment at TMFB; Provision of photoelectric height limits warning system at the existing height restriction gantries; Repair works for damaged at TMFB caused by Super Typhoon; Installation of LED Display Board;
January 2019	 Operation of the TM38 Fill Bank. Delivery of public fill to Taishan; Concrete block breaking work; Operation of glass cullet storage compartment at TMFB; Provision of photoelectric height limits warning system at the existing height restriction gantries; Repair works for damaged at TMFB caused by Super Typhoon; Installation of LED Display Board; Construction of vertical Barrier of 5m high along the west side of the internal road R4 at TMFB.

Environmental Monitoring Works

Air Monitoring

No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in this quarter.

Marine Water Quality Monitoring

According to the summary of marine water monitoring results, no exceedance of Action and Limit levels was recorded in this quarter.

Noise Monitoring

No exceedance of Action and Limit levels for noise monitoring was recorded in this quarter.

Environmental Complaints, Notification of summons and successful prosecutions

In this quarter, no complaint was received. Besides, no notification of summon and prosecution with respect to environmental issue was received in this quarter.

1.0 INTRODUCTION

China Harbour – Zhen Hua Joint Venture (CHZH-JV) appointed Environmental Team (ET) of ETS-Testconsult Limited (ETL) to undertake the Environmental Monitoring and Audit (EM&A) for the





Report No. ENA91370 Quarterly EM&A Summary Report No.7

"Contract No: CV/2015/07 –Handling of Surplus Public Fill (2016-2018) – Tuen Mun (TM) Area 38 Fill Bank" (The Project).

In accordance with the Condition 4 of Part C of Environmental Permit (No.: EP-210/2005/C) (the EP), an EM&A programme as set out in the Project Profile should be implemented. The EM&A programme requires environmental monitoring for air quality, water quality and environmental site inspections for air quality, water quality, landscape and visual, and waste management.

Baseline monitoring was completed in May 2003 by Stanger Asia Ltd. Action and Limit Levels were established for air and water quality parameters based on the baseline monitoring results.

This quarterly report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tuen Mun Area 38 from November 2018 to January 2019.

2.0 **PROJECT INFORMATION**

2.1 Work Programme in this Reporting Quarter

Details of work programme are shown in Appendix G.

2.2 Project Organization and Management Structure

The project organization chart is shown in Appendix A.

2.3 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1.

Organization	Name of Key Staff	Project Role	Tel. No.	Fax No.	
CEDD	Lisa Yung, Norelle Li, May Lau, James Sze, Phoebe Tang	Engineer's Representative	2762 5555	2714 0113	
IEC (Ramboll)	F C Tsang	IEC	3465 2888	3465 2899	
Contractor (CHZH-JV))	Michael Cheung	Project Director	2887 8118	2512 0427	
ET (ETL)	C. L. Lau	ET Leader	2946 7791	2695 3944	

 Table 2.1
 Contact Details of Key Personnel

3.0 SUMMARY OF EM&A REQUIREMENTS

3.1 EM&A Programme

The EM&A programme required environmental monitoring for air, marine water and environmental site inspections for air, marine water, landscape and visual, and waste management. The EM&A requirements for each parameter described in the following sections include:

- All monitoring parameters;
- Monitoring schedules for the reporting month and forthcoming months;
- Action and Limit levels for all environmental parameters;
- Event/Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report; and
- Environmental requirements in contract documents.

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



3.2 Monitoring Stations and Parameters

The EM&A Manual designates several locations to monitor environmental impacts in terms of air quality, noise and water quality due to the Project. The description and detailed locations of monitoring stations for air quality, noise and marine water quality are shown in Figures 1, 2 and 3 and relevant sections of this Report.

3.3 Monitoring Methodology and Calibration Details

All monitoring works were conducted and monitoring equipment was calibrated in according with the EM&A Manual.

3.4 Environmental Quality Performance Limits (Action/Limit Levels)

The environmental quality performance limits, i.e. Action/Limit Levels (AL Levels) were derived from the baseline monitoring results. If the measured environmental quality parameters exceed the AL Levels, the respective action plan will be implemented. The AL Levels for each monitoring parameter are given in Appendix E. The event action plan is given in Appendix F.

3.5 Environmental Mitigation Measures

Relevant mitigation measures were recommended in the EM&A Manual for the Contractor to implement. A list of mitigation measures is given in Appendix H.

4.0 MONITORING RESULTS

4.1 Air Quality

In accordance with the EM&A Manual, 1-hr and 24-hr TSP air quality monitoring are to be conducted three times and one time per six days correspondingly. In the reporting quarter, no exceedances of Action and Limit levels were recorded for 1-hr and 24-hr TSP monitoring. The monitoring trend of air quality during the reporting quarter are given in Appendix B.

Major dust sources in the Fill Bank were dump truck traffic and hauling activities.

Table 4.1 presents the number of exceedances recorded in each month of the reporting quarter. The number of monitoring event included regular monitoring events and additional ones.

Monitoring Parameter	Level of Exceedance	November 2018	December 2018	January 2019
24-hr TSP	No of monitoring events	5	5	5
	Action Level	0	0	0
	Limit Level	0	0	0
1-hr TSP	No of monitoring events	15	15	17
	Action Level	0	0	0
	Limit Level	0	0	0

 Table 4.1
 Summary of Number of Exceedances for 1-hr and 24-hr TSP Monitoring

4.2 Noise

Since Lands Dept did not approve to carry out noise monitoring at their own area where the noise monitoring stations TM-N1 and TM-N2 located due to the security, noise monitoring carried out at two noise monitoring stations TM-RN1 and TM-RN2 (refer to the figure attached) from 18 December 2007.

No exceedance was recorded in this reporting quarter.



4.3 Marine Water Quality

In accordance with the Project Profile, impact marine water quality monitoring was conducted at two control monitoring stations (TM-FC1 and TM-FC2) and two impact monitoring stations (TM-FM1and TM-FM2) in this quarter.

Impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-ebb and mid-flood tides at three depths (i.e. 1m below surface, mid depth and 1m above seabed). The AL Levels are included in Appendix E.

According to the summary of marine water monitoring results, no exceedance of action and limit level was recorded in this quarter. Table 4.2 presents the total number of marine water quality exceedances in the reporting quarter. The trend of marine water quality in the past three months is depicted in Appendix D.

Parameter	Exceedance	November 2018	December 2018	January 2019
	Level			
Number of monitoring da	ys	12	12	13
Dissolved Oxygen, DO	Action	0	0	0
(S&M)	Limit	0	0	0
Dissolved Oxygen, DO	Action	0	0	0
(B)	Limit	0	0	0
Turbidity	Action	0	0	0
	Limit	0	0	0
Suspended Solids, SS	Action	0	0	0
	Limit	0	0	0

Table 4.2 Total Number of Marine Water Quality Exceedances in this guarter

A comparison between the quarterly mean/median of SS and the 1.3 times of the baseline mean was made for each tide at each station. The statistical analysis results are given in Appendix I. Monitoring stations with significant difference (p<0.05) is summarized in Table 4.3.

Table 4.3Summary of Statistically Significant Results of SS

Monitoring Station	Monitoring Station		difference?
Monitoring Station		Mid-flood	Mid-ebb
Designated Control Station	FC1	X	Х
Designated Control Station	FC2	X	Х
Designated Monitoring Station	FM1	X	Х
	FM2	X	X

5.0 INSPECTION RESULTS

5.1 Implementation Status of Environmental Mitigation Measures

ET conducted weekly site inspections to monitor the Contractor's implementation of environmental mitigation measures.

Air quality was the major environmental issue in the reporting quarter. The Contractor generally implemented most of the environmental mitigation measures in the reporting quarter. Dump truck traffic was the major dust source in the Fill Bank. Generally, the Contractor implemented adequate dust mitigation measures in the reporting quarter including dampening of haul roads, water spraying on the truckloads, during loading and unloading of material and for crushing plant, operation of automatic wheel washing facilities, dampening of fill material prior to handling or stockpiling, etc.

The major noise source was dump truck traffic in the Fill Bank. All site equipment and machinery were well maintained and no noise nuisance was observed during operating.

Drainage channels and wastewater treatment facilities were found maintained in good condition for merit function. The Contractor arranged site workers to clean up the silt and mud regularly.



Although there were a few observations regarding accumulation of mud and silt inside the drainage channel and stagnant water, the Contractor rectified most of these problems. Besides, the Contractor was reminded to clear the accumulated mud and silt to avoid any blockage and clean the stagnant water properly.

Overall site area was found tidy and clean. The Contractor was reminded to collect and dispose of the general refuse and other C&D waste in a timely manner.

5.2 Status of Environmental Licensing and Permitting

The status of licences and permits is summarized in Table 5.1.

Description	Permit No.	Valid	Period	Section
		From	То	
Environmental Permit	EP- 210/2005/C	06/09/18		Issued
Marine Dumping Permit	EP/MD/19- 029	01/10/18	31/12/18	Approval for dumping 2,000,000 tons (approximately equal to 1,111,111 cu.m. bulked quantity) of Public Fill (Reclamation Materials) from Tseung Kwan O Area 137 Fill Bank and Tuen Mun Area 38 Fill Bank to designated dumping area at Guanghaiwan of Taishan
Marine Dumping Permit	EP/MD/19- 071	18/01/19	31/03/19	Approval for dumping 2,000,000 tons (approximately equal to 1,111,111 cu.m. bulked quantity) of Public Fill (Reclamation Materials) from Tseung Kwan O Area 137 Fill Bank and Tuen Mun Area 38 Fill Bank to designated dumping area at Guanghaiwan of Taishan
Chemical Waste Producer	5296-421- C4184-01	20/04/17		Spent battery containing heavy metals and spent lubricating oil
Effluent Discharge License	WT0002870 1-2017	25/09/17	30/09/22	Effluent arising from vehicle washing and dust suppression activities and contaminated surface runoff treated by screening facilities and sedimentation tanks (sedimentation and chemical precipitation).
Billing Account for Waste Disposal	7027643	22/05/17		
Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust)	415661	12/04/17		

Table 5.1Summary of environmental licensing and permit status

5.3 Advice on Solids and Liquid Waste Management Status

Table 5.2 summarizes data on offsite waste disposal in the quarter.

 Table 5.2
 Estimated Offsite Waste Disposal in the Reporting Quarter

Waste Type	November 2018	December 2018	January 2019
Public Fill ('000m ³)	0	0	0
C&D Waste (general refuse) ('000kg)	9.5	22.34	21.61
Chemical Waste	400	0	0
e.g. Waste oil (L) / Chemical Waste (kg)			



6.0 NON-COMPLIANCE OF THE ENVIRONMENTAL QUALITY PERFORMANCE LIMITS

6.1 Summary of Non-compliance

According to the monitoring results, no action and limit level exceedance was recorded in this quarter.

6.2 Review of the Reasons for and the Implications of Non-compliance

Since no non-compliance was recorded in this quarter, no review was required.

6.3 Summary of Actions Taken

Since no exceedance was recorded in this quarter, no further action was required.

6.4 Summary of Environmental Complaint, Notification of Summon and Successful Prosecution Handling

In this quarter, no complaint was received. Besides, no notification of summon and prosecution with respect to environmental issue was received in this quarter.

A summary of environmental complaints and prosecutions was given in Table 6.1.

Period	Complaints logged	Summon served	Successful Prosecution
November 2018	0	0	0
December 2018	0	0	0
January 2019	0	0	0
Cumulative	3	0	0

Table 6.1 Summary of Environmental Complaints and Prosecutions

7.0 COMMENTS, CONCLUSIONS AND RECOMMENDATION

Major activity in the Fill Bank was the import and dumping of fill materials in this quarter. Air quality was the major environmental issue in the Fill Bank. Generally, the Contractor implemented most of the mitigation measures to minimize the dust impact.

No exceedance of action and limit levels was recorded for 1-hr and 24-hr TSP monitoring in the reporting quarter.

According to the marine water monitoring results in this quarter, no exceedance of action and limit level was recorded.

The noise level measured at the monitoring station complied with the Limit Level of 65dB(A). No complaint was received regarding noise issue in this reporting quarter.

In this quarter, no complaint was received. Besides, no notification of summon and prosecution with respect to environmental issue was received in this quarter.

According to the ET weekly site inspection and IEC site audits carried out in this quarter, it was indicated that site practices of the Contractor were generally undertaken in an environmentally acceptable manner and the overall site environmental performance was up to standard.

According to the environmental site inspections performed in the reporting quarter, the following recommendations were provided:

Air Quality

- Ensure the frequency of water spraying on haul roads, unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke;
- Provide water spraying onto the truckloads during inspection of fill material;



Contract No. CV/2015/07 Handling of Surplus Public Fill (2016-2018) Tuen Mun Area 38 Fill Bank

Report No. ENA91370 Quarterly EM&A Summary Report No.7

- Conduct road sweeping on all paved haul roads and public roads especially outside and near the site egress by the road sweeper. Undertake water spraying on stockpiling area by water bowser;
- Erect adequate speed limit signs to advise the truck drivers of the speed limit;
- Operate mist spraying systems and automatic water sprinklers in the Fill Bank;
- Implement the dust mitigation measures for the construction activities;
- Designate proper haul roads to ensure effective water spraying; and
- Ensure all vehicles to be washed before leaving the site egress by provision, operation and maintenance of automatic wheel washing facilities.

Noise

Conduct noisy activities at a farther location from the NSRs.

Water Quality

- Maintain the drainage system, including the trapezoidal channels and permanent desilting chambers regularly; and
- Remove the stagnant water or provide approved pesticides for the stagnant water in the permanent desilting chambers, if any.

Chemical and Waste Management

- Remove waste materials from the site to avoid accumulation regularly;
- Handle and store chemical wastes properly;
- Remove unwanted material in the existing stockpiles and avoid further dumping of such material;
- Provide and maintain sufficient drip trays for diesel drums, chemical containers, chemical waste storage drums and diesel operated generator set;
- Maintain good housekeeping at the workshop area;
- Ensure sufficient tarpaulin sheets are provided to cover drip trays; and
- Avoid soil being polluted during oil filling and equipment maintenance; hence, properly remove and store the contaminated soil, if any.

Landscape and Visual

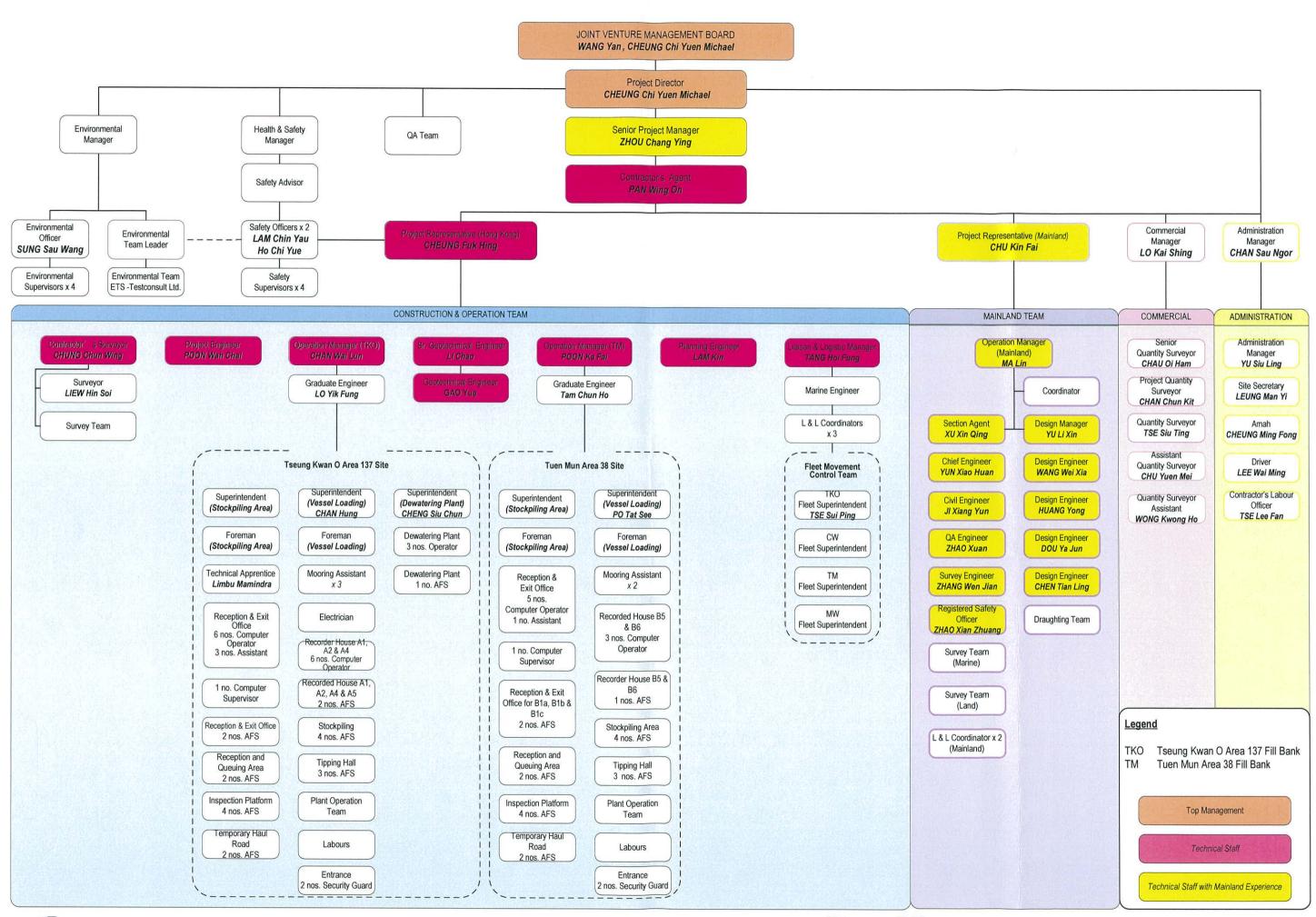
- Provide hydroseeding on the exposed slopes, on which the final profile has been formed;
- Erect all the site hoarding/chaining fences in accordance with agreed design at proper location; and
- Maintain the hydroseeding slopes in accordance with the Landscape Plan.

- END OF REPORT -



Appendix A

Organization Chart



Contract No. CV/2015/07 Handling of Surplus Public Fill (2016-2018)



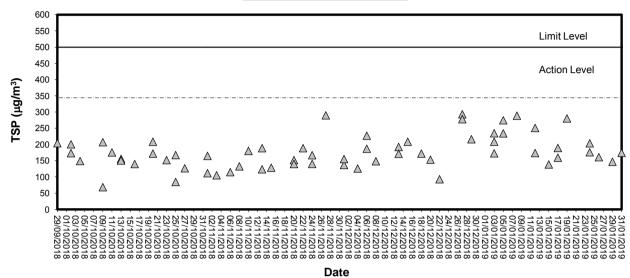
Organization Chart Rev.7



Appendix B

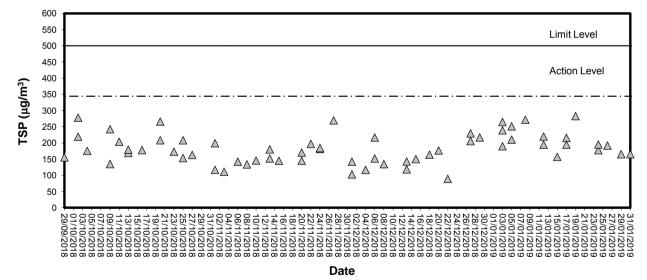
Graphical Plots of Air Quality Monitoring Data



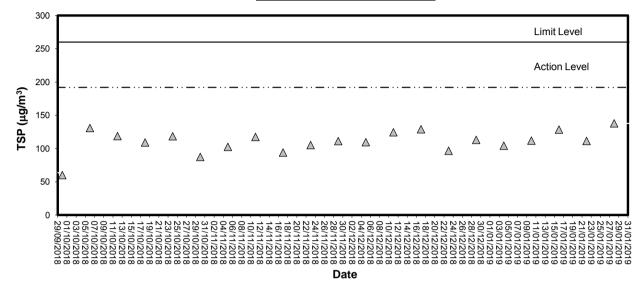


1-hour TSP level at TM-A1

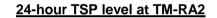


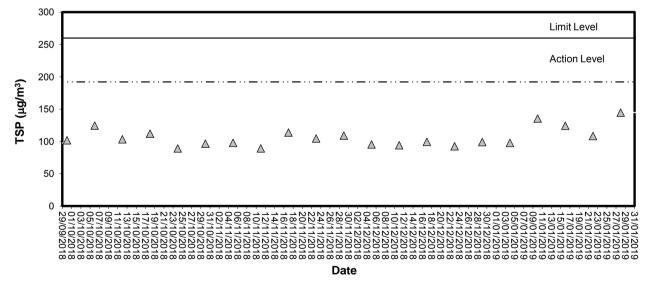






24-hour TSP level at TM-A1





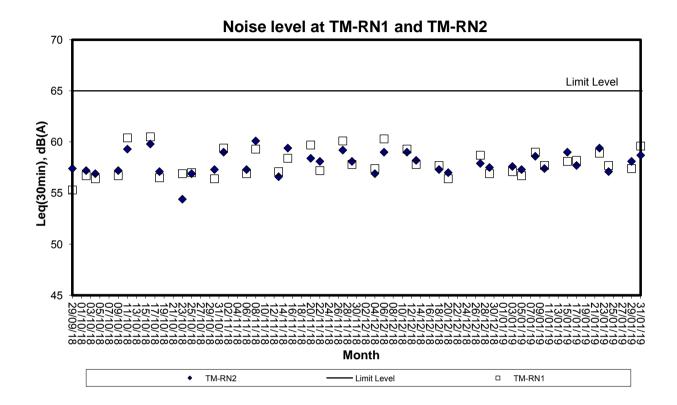


Appendix C

Graphical Plots of Impact Noise Monitoring Data



Noise Monitoring (Day-time)

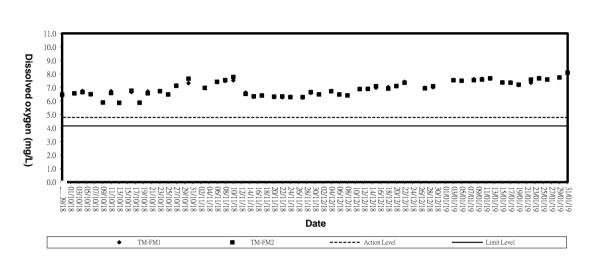




Appendix D

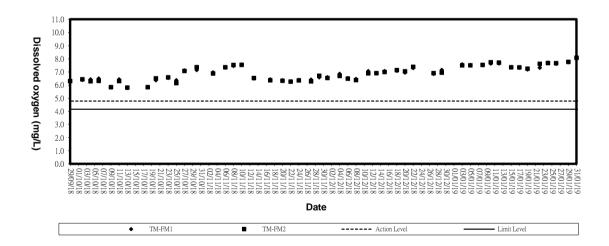
Graphical Plots of Impact Marine Water Quality Monitoring Data



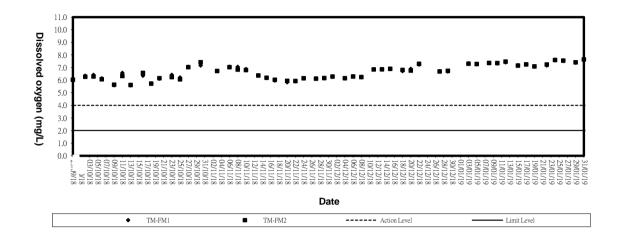


Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide

Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide

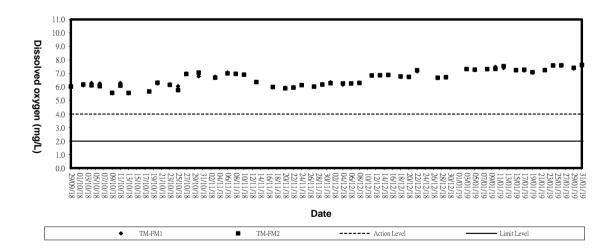






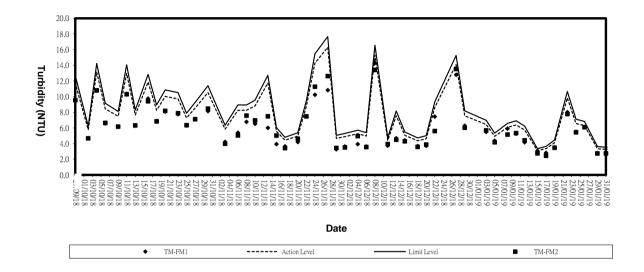
Dissolved Oxygen (Bottom) at Mid-Flood Tide

Dissolved Oxygen (Bottom) at Mid-Ebb Tide

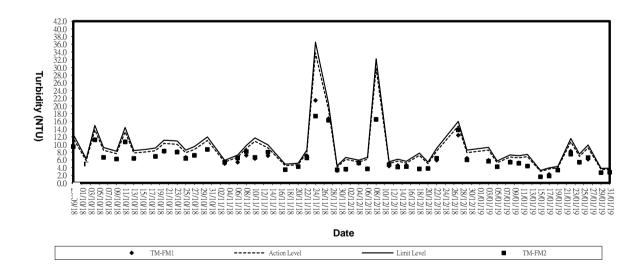




Turbidity (Depth-average) at Mid-Flood Tide

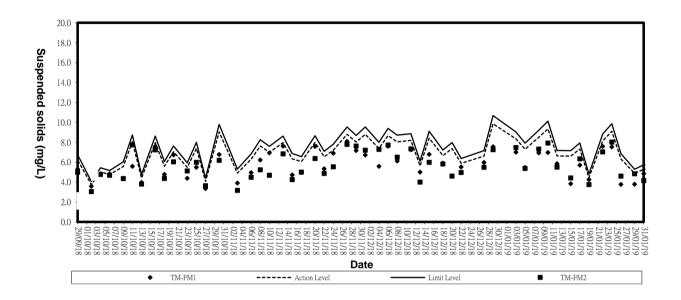


Turbidity (Depth-average) at Mid-Ebb Tide

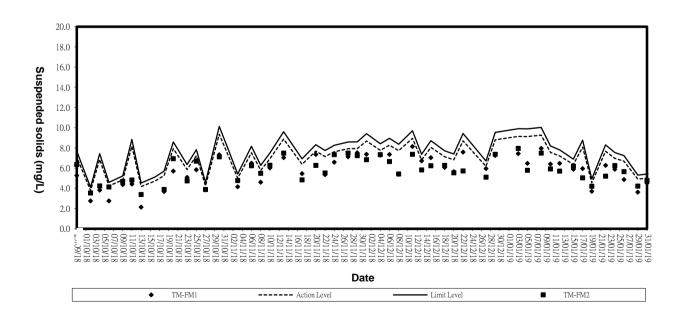




Suspended solids (Depth-average) at Mid-Flood Tide



Suspended Solids (Depth-average) at Mid-Ebb Tide





Appendix E

Environmental Quality Performance (Action / Limit Levels)



Action and Limit Levels for 1-hour TSP and 24-hour TSP Monitoring

Monitoring Location	24-hr TSP (μg/m³)		1-hr TSP (μg/m³)		
	Action Level	Limit Level	Action Level	Limit Level	
TM-A1	192	260	344	500	
TM-A2	192	260	344	500	

Action and Limit Levels for Marine Water Quality Monitoring

Parameter	Action Level	Limit Level
DO (mg/L)	Surface & Middle	Surface & Middle
	<4.78 mg/L	<4.00 mg/L
	(5%-ile of baseline data)	(1%-ile of baseline data)
	<u>Bottom</u>	<u>Bottom</u>
	<4.16 mg/L	<2.00 mg/L
	(5%-ile of baseline data)	
SS (mg/L) (Depth-averaged)	>120% of the upstream control station's SS at the same tide on the same day	>130% of the upstream control station's SS at the same tide on the same day
Turbidity (NTU) (Depth-averaged)	>120% of the upstream control station's turbidity at the same tide on the same day	>130% of the upstream control station's turbidity at the same tide on the same day

Action and Limit Levels for Noise Monitoring

Time Period	Action *	Limit *
0700-1900 hrs on normal week days	When one documented complaint is received	65 dB(A)



Appendix F

Event-Action Plans

	Contractor		 Recity any unacceptatue practise appropriate appropriate 	 Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Amend proposal if appropriate 		 Take immediate action to avoid further exceedance Submit proposals for remedial actions to IC(E) within 3 working days of notification proposals Amend proposal if appropriate.
TY EXCEEDANCE	ER		. Notify Contractor	 Confirm receipt of notification of failure in writing Notify the Contractor Ensure remedial measures properly implemented 		 Confirm receipt of notification of failure in writing Notify the Contractor Ensure remedial measures properly implemented
EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE ACTION	IC(E)	ACTION LEVEL	 Check monitoring data submitted by the ET Check contractor's working method 	 Check monitoring data submitted by the ET Leader Check the Contractor's working method Check the Contractor's working method Discuss with ET and Contractor on possible remedial measures Advice the ER on the effectiveness of the proposed remedial measures Supervise implementation of remedial measures 		 Check monitoring data submitted by the ET Leader Check Contractor's working method Check Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the proposed remedial measures Supervise implementation of remedial measures
Ш	FT Leader		 Identify source, investigate the causes of exceedance and propose remedial measures Inform ER, IC(E) and Contractor Transcrease Information Repeat measurement to confirm finding Increase monitoring frequency to daily 	 Identify source, investigate the causes of exceedance and propose remedial measures Inform IC(E) and Contractor Repeat measurements to confirm finding Income to confirm Repeat measurements to confirm Repeat measurements to confirm Repeat measurements to confirm Repeat measurements to confirm Repeat measurements Inform Inform Inform Inform Inform Inform Inform Repeat measurements Inform Inform<td>monitoring</td><td> Identify source, investigate the causes of exceedance and propose remedial measures Inform ER, Contractor and EPD Repeat measurement to confirm finding Increase monitoring frequency to daily Assess the effectiveness of Contractor's remedial actions and keep (CIC). EPD and ER informed of the results </td>	monitoring	 Identify source, investigate the causes of exceedance and propose remedial measures Inform ER, Contractor and EPD Repeat measurement to confirm finding Increase monitoring frequency to daily Assess the effectiveness of Contractor's remedial actions and keep (CIC). EPD and ER informed of the results
EVENT			1. Exceedance for one sample	2. Exceedance for two or more consecutive samples		1. Exceedance for one sample



	Contractor	 Take Immediate action to avoid furthe exceedances Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed proposals Resubmit proposals if problem still not under control Stop the relevant activity of works as determined by the ER until the exceedance is abated
TY EXCEEDANCE	В	 Confirm receipt of notification of failure in writing Notify Contractor In consultation with the LC(E), are eventation with the LC(E), the remedial measures to be implemented Ensure remedial measures Ensure remedial measures Ensure remedial measures Consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated
ALL		- v.v. 4 v.
EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE ACTION	IC(E)	 Discuss amongst ER, ET and Contractor on the potential remedial actions Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly Supervise the implementation of remedial measures
	ET Leader	 Identify source, investigate the causes of exceedance and propose remedial measures Notify IC(E), ER, EPD and Contractor Repeat measurement to confirm finding Increase monitoring frequency to daily Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented discuss the remedial actions to be taken Assess effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results If a finding
	<u> </u>	
EVENT		2. Exceedance for two or more consecutive samples

: ; . . . 1 . [] \Box]] 3 :] : : :-: , • • : ` ----...



.

.

· ·

.

.

.

				EVENT/ACTION PLAN FOR NOISE EXCEEDANCE	ž	OISE EXCEEDANCE			
EVENT				ACTION	N				
•		ET Leader		IC(E)		ER		Contractor	-7
Action	-'viri 4' ri	Notify the IC(E) and the Contractor. Carry out investigation. Report the results of investigation to the IC(E) and the Contractor. Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check mitigation effectiveness	મંત્રં છું	Review the analysed results submitted by the ET. Review the proposed remedial measures by the Contractor and advise the ER accordingly. Supervise the implementation of remedial measures.	- 0 m +	Confirm receipt of notification of failure in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed measures for the Ensure remedial measures are properly implemented.		Submit noise mitigation proposals to IC(E), Implement noise mitigation proposals.	Y
Limit		Notify the IC(E), the ER, the EPD	÷-	Discuss amongst the ER, the ET		Confirm receipt of notification of	÷	Take immediate action to avoid	
		and the Contractor.		Leader and the Contractor on the		talture in wrung.		numer exceedance	
	N	Identify source.		potential remedial actions.	N	Notify the Contractor.	N	Submit proposais for remedial	a
	e,	Repeat measurement to confirm	2	Review the Contractor's remedial	ri	Require the Contractor to propose		actions to I.J.(E.) within 3 working days of notification.	-
		induds.		dutulis wildlight iterasial in		construction included on the second s	~	Imolement the arread	100.C3
	4 u	Carry out analysis of Contractor's		assure there inconvertess and advise the FR accordingly.	4	Ensure remedial measures are	5	proposals.	-
	;	working procedures to determine	3	Supervise the implementation of		properly implemented.	4.	Resubmit proposals if problem	-
	-	possible mitigation to be		remedial measures.	່າ	If exceedances continue, consider		still not under control.	
		implemented.				what activity of the work is		Stop the relevant activity of	
	G	Inform the IC(E), the ER and the				responsible and instruct the		works as determined by the EK	
	*ECT	EPD the causes & actions taken for				Contractor to stop that activity of		until the exceedances is	
	1					Work uput the exceeded tests		anaich	
	1.	Assess effective				abated.			-
	α	EK injormed of the results If evreedance due to the							
	;								
		additional monitoring							



		ting submitted by ET 2. Confirm ET assessment if	c		e measures 4. Review contractor's			he accordingly	5. Supervise the immementation of mitigation	· sance				
EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE ACTION		 Notify EPD and other relevant governmental agencies in writing writing 24 hours of the 	identification of the exceedance 2. Discuss with IEC, ET and	Contractor on the proposed mitigation measures;	3. Require contractor to propose	analysed problem if related to the	 Construction works Ensure remedial measures are 	properly implemented						
OR WA		riting tion of	ice; ient;	to IEC	in ofe	Đ	ue to	ER and	is due	within 4 ion of		igation de time		
AND ACTION PLAN F	Contractor	Notify the ER and IEC in writing within 24 hours of identification of			the identification of an		method if exceedance is due to the construction works	. –	propose mingauon measures un IEC and ER if exceedance is due	to the construction works within 4 working days of identification of	an exceedance	 Implement the agreed mitigation measures within reasonable time 	scale	
NT A	-		2.0			ى 	C (ی۔ ص	2		5		ay	
EVE	ET oader	Identify sources Repeat in-site	confirm finding Notify Contract	exceedance	 Check monitoring data, all plant, equipment and Contractor's 			to the Contractor within 3 working days of identification of	exceedance and advise contractor if exceedance is due to		Contractor if exceedance is due	to the construction works within 4	8. Repeat measurement on next day	
		+ ~			4	<u>ц</u>							~~~~)
Event		Action level heind exceeded	by one sampling day								ال المشاهدين	دممرور	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	

:` ~~. ; ; i Ì .]] ··· . .: :---. ;___ ~ **)** . لـ. : • :. . • ---..... ••••



.

.



• • • • • • •

ш	IEC	 Check monitoring data submitted by ET submitted by ET Confirm ET assessment if exceedance is due / not due to the works Discuss with ET, ER and contractor on the mitigation measures. Review proposals on mitigation measures on and advise the ER accordingly. Assess the effectiveness of the implemented mitigation measures 	
EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE ACTION	ER	 Notify EPD and other relevant governmental agencies in writing within 24 hours of identification of exceedance Discuss with IEC, ET and Contractor on the proposed mitigation measures; Request Contractor to critically review the working methods; Ensure remedial measures are properly implemented fare implemented mitigation measures. 	
r and action plan for wa	Contractor	in writing; he practice; of working of the c and ER c and ER ation and ER ays of the eed es within cate	
EVENI	and to and an	 Leader Repeat in-situ measurement to confirm findings; Identify source(s) of impact; Notify Contractor in writing within 24 hours of identification of the exceedance Check monitoring data, all plant, equipment and Contractor's working methods; Carry out investigation Report the results of investigation to the Contractor within 3 working days of identification of exceedance and advise contractor if exceedance is due to contractor's construction works Discuss mitigation measures within 4 working of identification of an exceedance Besure mitigation measures are implemented; Increase the monitoring frequency to daily until no 	exceedance of Limit Level.
Event		Limit level being exceeded by day day	

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

> ----

7

]

]

Ŋ

۱ ۱

.۔.: نہ

: ; . . ;

 \square

...

.....

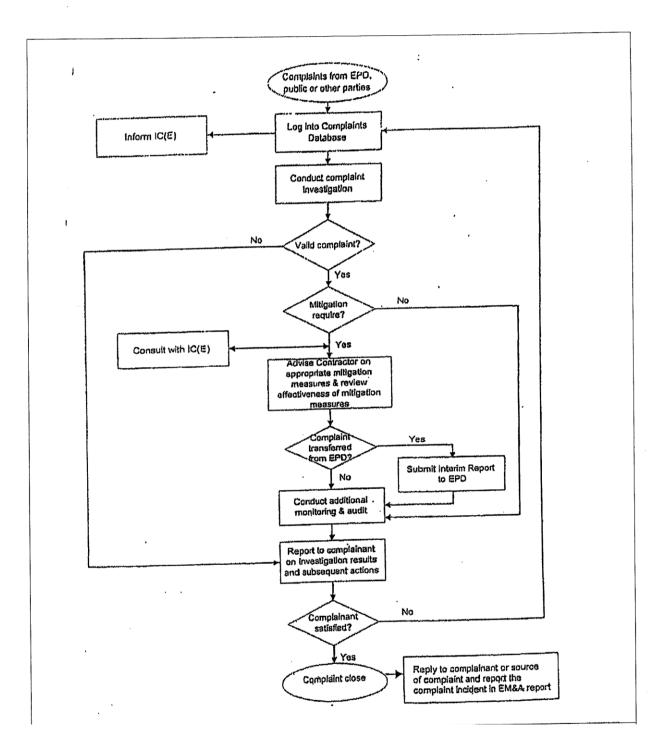
.....

• •



.







Appendix G

Work Programme

Three Months Rolling Programme (1-December-2018 to 28-February-2019)

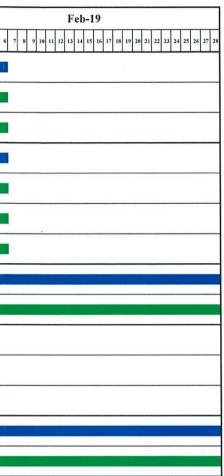
Item	Description	From	То	Dec-18	Jan-19	1
1	Section 1	1-Dec-18	10-Jan-19			
1.1	Take over existing site faiclities	11-May-17	11-May-17			
1.2	Operation of Fill Bank, surveillance system and tipping halls	1-Dec-18	10-Jan-19			
1.3	Design, provision and operation of crushing plant	1-Dec-18	10-Jan-19			
1.4	Operation of the existing and expanded dewatering plants	1-Dec-18	10-Jan-19			
1.5	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	1-Dec-18	10-Jan-19			
1.6	Breaking up the incoming precast concrete units	1-Dec-18	10-Jan-19			
1.7	Carry out repair works for damages caused by Super Typhoon	1-Dec-18	10-Jan-19			
	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	1-Dec-18	10-Jan-19			
2	Section 1A	11-Jan-19	28-Feb-19			
2.1	Operation of Fill Bank, surveillance system and tipping halls	11-Jan-19	28-Feb-19			
2.2	Operation of crushing plant	11-Jan-19	28-Feb-19			
2.3	Operation of the existing and expanded dewatering plants	11-Jan-19	28-Feb-19			
2.4	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	11-Jan-19	28-Feb-19			
2.5	Breaking up the incoming precast concrete units	11-Jan-19	28-Feb-19			
2.6	Carry out repair works for damages caused by Super Typhoon	11-Jan-19	28-Feb-19			
2.7	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	11-Jan-19	28-Feb-19			
3	Section 2	1-Dec-18	10-Jan-19			
3.1	Take over existing site faiclities	11-May-17	11-May-17			
3.2	Operation of Fill Bank, surveillance system and tipping halls	1-Dec-18	10-Jan-19			
3.3	Breaking up the incoming precast concrete units	1-Dec-18	10-Jan-19			
3.4	Operation of glass cullet storage compartment at Portion B7	1-Dec-18	10-Jan-19			
3.5	Construction of concrete vehicular access road	1-Dec-18	10-Jan-19			
3.6	Construction of transformer room and meter room	1-Dec-18	10-Jan-19			T
3.7	Carry out repair works for damages caused by Super Typhoon	1-Dec-18	10-Jan-19			
3.8	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	1-Dec-18	10-Jan-19			
4	Section 2A	11-Jan-19	28-Feb-19			
4.1	Operation of Fill Bank, surveillance system and tipping halls	11-Jan-19	28-Feb-19			
4.2	Breaking up the incoming precast concrete units	11-Jan-19	28-Feb-19			
4.3	Operation of glass cullet storage compartment at Portion B7	11-Jan-19	28-Feb-19			
4.4	Construction of transformer room and meter room	11-Jan-19	28-Feb-19			
4.5	Carry out repair works for damages caused by Super Typhoon	11-Jan-19	28-Feb-19			
4.6	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	11-Jan-19	28-Feb-19			

Feb-19	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 23	5 26 27 28
	- 1
	I
and the second	
ويعار والمتحدين ويعرف والمتها والمتعادي	
요즘 아이는 것은 것은 것은 것은 것은 것은 것은 것을 가지 않는 것이 없다.	

Three Months Rolling Programme (1-December-2018 to 28-February-2019)

				Dec-18	Jan-19	
Item	Description	From	То	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	1 1 2 3 4 5 6
5	Section 3	1-Dec-18	6-Feb-19			
5.1	Design and construction of of seawalls at Zone B (approx. 900m)	1-Dec-18	6-Feb-19			
5.2	Design and construction of of seawalls at at Zone C (approx. 2000m)	1-Dec-18	6-Feb-19			
6	Section 3A	1-Dec-18	6-Feb-19		이 방법 같은 것 같아요. 같은 것 같은 것 같은 것 같은 것 같은 것 같이	
6.1	Design, construction and operation of new berthing facilities at Zone B	1-Dec-18	6-Feb-19			
6.2	Design, construction and operation of new navigation channel and turning basin inassociated with the berthing facilities at Zone B	1-Dec-18	6-Feb-19			
6.3	Design and construction of seawalls at Zone B (approx. 1500m)	1-Dec-18	6-Feb-19			
7	Section 4	1-Dec-18	28-Feb-19	이는 것이 많이 많은 것이 아이들이 아이들 것이 같아요. 아이들 것이 같아요. 아이들		
7.1	Collection and delivery of Public Fill to the Designated Reclamation Sites in the Mainland	1-Dec-18	28-Feb-19			
8	Section 5 (The work was substantially completed on 24-9-2018)	1-Mar-18	31-Dec-18			2
8.1	Removal of existing stockpiled Public Fill at Portion A6 down to +6.0mPD	1-Mar-18	24-Sep-18			
8.2	Carry out rectification work for defects	25-Sep-18	31-Dec-18			6.
9	Section 7	1-Dec-18	28-Feb-19			
9.1	Removal of existing stockpiled Public Fill at Portion A5c down to +5.2mPD and +6.0mPD	1-Dec-18	28-Feb-19			

Remarks: The "海域使用証" has not been approved by Mainland Authority for the construction of berthing facility and seawall at Zone B. (Refer to referenced letter CHEC308/OUT/2017/11/01.01/000884 on 3-Nov-2017)





Appendix H

Implementation Schedule of Environmental Mitigation Measures (EMIS)



Environmental Mitigation Implementation Schedule

	Location		Implementa	tion Status	
Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable
Air Quality					
 Dust control / mitigation measures shall be provided to prevent dust nuisance. 	All areas				
 Water sprays shall be provided and used to dampen materials. 	All areas				
 All stockpile of aggregate or spoil should be enclosed or covered and water applied in dry or windy condition. 	All areas				
 Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and tail boards, and shall be covered by a clean tarpaulin. 	All areas	\checkmark			
 Unpaved areas should be watered regularly to avoid dust generation. 	Site Egress	\checkmark			
 The designated site main haul road shall be paved or regular watering. 	All haul roads	\checkmark			
The public road around the site entrance should be kept clean and free from dust.	All areas	\checkmark			
 Wheel w ashing facilities including high-pressure w ater jet shall be provided at the entrance of w ork site and and w ash-w ater shall have sand and silt settled out or removed before being discharged into storm drains. 	Site Egress				
 Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank. 	Site Egress	\checkmark			
 The temporary slope surfaces shall be covered with impermeable sheet or sprayed with water. 	All areas	\checkmark			
 Vehicle and equipment should be switched off w hile not in use. 	All areas				
 All plant and equipment should be w ell maintained e.g. w ithout black smoke emission. 	All areas	\checkmark			
Open burning should be prohibited.	All areas	\checkmark			
 Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regulated machines and non-road vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation (APCO Cap.311). 	All areas	\checkmark			
Noise Impact					
 The approved method of w orking, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted. 	All areas	\checkmark			
 Only well maintained plant should be operated on-site and plant should be serviced regularly during the site works. 	All areas	\checkmark			
 Pow ered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials. 	All areas				
 Air compressors and hand held breakers should have noise labels. 	All areas				
 Machines and plants that may be in intermittent use should be shut dow n between work periods or should be throttled dow n to a minimum. 	All areas	\checkmark			



Noisy equipment and mobile plant shall alw ays be site aw ay from NSRs.	All areas					
---	-----------	--	--	--	--	--

	Location	Implementati	on Status		
Environmental Protection Measures		Implemented	Partially implemented	Not implemente d	Not Applicable
Water Quality					
The existing / realigned intercepting channels and the sand / silt removal facilities shall be used and maintained.	All areas		\checkmark		
 Temporary intercepting drains should be used at the stockpiling area to divert polluted stormw ater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormw ater to the intercepting channels. 	All areas	\checkmark			
The stormw ater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	All areas	\checkmark			
 The material shall be properly covered to prevent w ashed aw ay especially before rainstorm. 	All areas	\checkmark			
 Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding. 	All areas		\checkmark		
 The temporary slope surfaces shall be covered with impermeable sheet or sprayed with water. 	Temporary Slopes	\checkmark			
 Existing and new ly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. 	All areas	\checkmark			
 A wheel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being discharged into storm drains. 	Wheel Washing facility	\checkmark			
 The section of construction road betw een w heel w ashing bay and the public road shall be paved w ith concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. 	Site Egress	\checkmark			
 Sew age from toilets shall be discharged in to a foul sew er, or chemical toilets shall be provided. 	Site Office	\checkmark			
 The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities. 	All areas	\checkmark			
 Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water. 	All areas	\checkmark			
 Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer. 	Along the seafront	\checkmark			
 A waste collection vessel shall be deployed to remove floating debris. 	Along the seafront	\checkmark			
Landscape and Visual					
• The maximum stockpiling height at the fill bank shall be limited to a maximum of +40mPD.	All areas	\checkmark			
Surface of outer slopes of the Fill Bank shall preferably be hydroseeded.	Completed slopes	\checkmark			
• Stockpile of public fill shall be removed in a sequence to allow the outer hydrseeded to be removed later than other portions as far as practicable.	Completed slopes	\checkmark			
• Casuarina equisetifolia were planted as buffer tree along the northern perimeter of the Site. The height of Casuarina equisetifolia was maintained at least 3m above soil level.	Site boundary	\checkmark			



	Location	Implementation Status				
Environmental Protection Measures		Implemented	Partially implemented	Not implemente d	Not Applicable	
Lighting shall be set to minimise night-time glare.	All areas					
Waste Management						
Construction Waste Management						
• Relevant licence / permits for disposal of construction waste or excavated materials available for inspection.	All areas					
• Excavated material to be generated from construction works to be re-used on-site as far as practicable to reduce off-site disposal.	All areas	\checkmark				
• Mud and debris should be removed from waterworks access roads and associated drainage systems.	All areas		\checkmark			
• 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.	All areas	\checkmark				
• Prior to disposal of C&D w aste, recyclable materials should be salvaged for reuse (such as w ood and metal) and inert w aste utilised as public fill to minimise the quantity of w aste to be disposed of to landfill.	All areas					
• In order to monitor the disposal of C&D material and solid wastes at public filling areas and landfills, and to control fly-tipping, a trip-ticket system should be included as one of the contractual requirements.	All areas	\checkmark				
• Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.	All areas					
Chemical Waste Management						
• It is required to register as a chemical waste producer if chemical wastes would be produced from the site activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Waste Storage Area	\checkmark				
• After use, chemical wastes (e.g. cleaning fluids, solvents, lubrication oil and fuel) should be handled according to the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.	Waste Storage Area	\checkmark				
• Spent chemicals should be stored and collected by an approved operator for disposal at the Chemical Waste Treatment Facility or other licensed facility in accordance with the Chemical Waste (General) Regulation.	Waste Storage Area	\checkmark				
• Chemical wastes should be separated for special handling and appropriate treatment at the Chemical Waste Treatment Facility.	Waste Storage Area	\checkmark				
• Chemical wastes including waste oil should be stored properly in designated areas, e.g. chemical waste storage area.	Waste Storage Area	\checkmark				
• The designated chemical waste storage area should only be used for storing chemical wastes.	Waste Storage Area	\checkmark				
The set-up of chemical waste storage area should						
• Be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition.	Waste Storage Area	\checkmark				
Be enclosed on at least 3 sides and securely closed.	Waste Storage Area					



	Location	Implementati	on Status		
Environmental Protection Measures		Implemented	Partially implemented	Not implemente d	Not Applicable
• 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.	Waste Storage Area				
Have adequate ventilation.	Waste Storage Area	\checkmark			
• Be covered to prevent rainfall entering (water collected within the bund must be tested and disposal as chemical waste if necessary).	Waste Storage Area	\checkmark			
Be arranged so that incompatible materials are adequately separated.	Waste Storage Area	\checkmark			
Warning panels should be displayed at the waste storage area.	Waste Storage Area	\checkmark			
Waste storage area should be cleaned and maintained regularly.	Waste Storage Area	\checkmark			
• Chemical waste should be transported by a registered chemical waste collector to a facility licensed to receive chemical waste.	All areas	\checkmark			
All generators, fuel and oil storage should be within bundle areas.	All areas				
Oil leakage from machinery, vehicle and plant should be prevented.	All areas				
In the event of chemical waste / dangerous goods / chemicals spillage or leakage, the procedures as outlined in the Spillage Response Plan should be follow ed.	All areas	\checkmark			
• The dangerous goods / chemical spillage or leakage procedures (including equipments) should be in place.	All areas	\checkmark			
Good Site Practices					
2.2 Nomination of approved personnel, such as site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.	All areas	\checkmark			
2.3 Training of site personnel in proper waste management and chemical handling procedures should be provided.	All areas				
2.4 Good site practices should be adopted to clean the rubbish and litter on a regular basis so as to prevent the rubbish and litter from dropping into the nearby environment.	All areas		\checkmark		
2.5 Proper storage and site practices to minimise the potential for damage or contamination of construction materials.	All areas	\checkmark			
2.6 The Environmental Permit should be displaced conspicuously on site.	Site Entrance				
2.7 Construction noise permits should be posted at site entrance or available for site inspection.	Site Entrance				
2.8 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	All areas	\checkmark			
2.9 Chemical storage area provided with lock and located on sealed areas.	Chemical Storage Area	\checkmark			



	Location	Implementati	on Status		
Environmental Protection Measures		Implemented	Partially implemented	Not implemente d	Not Applicable
2.10 All chemicals should be placed at the banded area with adequate band capacity (>110% of largest tank).	Chemical Storage Area	\checkmark			
2.11 Any unused chemicals or those with remaining functional capacity should be recycled.	All areas	\checkmark			
2.12 Regular cleaning and maintenance programme for waste storage area, drainage systems, silt traps, sumps and oil interceptors.	All areas	\checkmark			
• To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse generated by the workforce.	All areas	\checkmark			
• A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be used, e.g. trip ticket system for chemical waste disposal. Quantities could be determined by weighing each load or other suitable methods.	All areas	\checkmark			
• A collection area should be provided where waste can be stored and loaded prior to removal from site. An enclosed and covered area is preferred to reduce the occurrence of 'wind blown' light material. If an open area is unavoidable for the storage or loading/unloading of wastes, then the area should be bunded and all the polluted surface run-off collected within this area should be diverted into wastewater treatment system.	All areas	\checkmark			
Remove wastes in a timely manner.	All areas				



Appendix I

Statistical Analysis of the Trend of Suspended Solids in the Quarter



Statistical Analysis of the Trend of Suspended Solids

For Mid-Flood Tide

Station: TM-FM1

<u>t-test</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	5.9733	1.3518	0.3902
Quarterly Mean	37	0	6.0131	1.2829	0.2109

<u>Result:</u>

Probability that two variances are equal (f-test) = 0.3817

Difference between means = -0.0398 (95% Cl : -0.9757< Diff < 0.8961)

t-value of difference = -0.0897 (17 degrees of freedom) P = 1 (>0.05)

Conclusion:

There is no statistically significant difference between the groups.

Station: TM-FM2

<u>t-te st</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.0267	1.1748	0.3391
Quarterly Mean	37	0	5.8554	1.3823	0.2272

Result:

Probability that two variances are equal (f-test) = 0.7099

Difference between means = 0.1713 (95% CI : -0.6776 < Diff < 1.0202)

t-value of difference = 0.4196 (21 degrees of freedom) P = 1 (>0.05)

Conclusion:



Statistical Analysis of the Trend of Suspended Solids

For Mid-Flood Tide

Station: TM-FC1

<u>t-te st</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.6942	1.8839	0.5438
Quarterly Mean	37	0	5.5818	1.2242	0.2013

Result:

Probability that two variances are equal (f-test) = 0.0.254

Difference between means = 0.8424 (95% Cl : -0.4014 < Diff < 2.0862)

t-value of difference = 1.4527 (14 degrees of freedom) P = 1 (>0.05)

Conclusion:

There is no statistically significant difference between the groups.

Station: TM-FC2

<u>t-test</u>

Group Name	Ν	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	6.3067	1.8674	0.5391
Quarterly Mean	37	0	6.0437	1.1039	0.1815

Result:

Probability that two variances are equal (f-test) = 0.0085

Difference between means =0.2630 (95% CI : -0.9658 < Diff < 1.4918)

t-value of difference = 0.4624 (13 degrees of freedom) P = 1 (>0.05)

Conclusion:



Statistical Analysis of the Trend of Suspended Solids For Mid-Ebb Tide

Station: TM-FM1

<u>t-test</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.0008	1.6394	0.4733
Quarterly Mean	36	0	6.2449	1.1713	0.1952

Result:

Probability that two variances are equal (f-test) = 0.0647

Difference between means = 0.7559 (95% Cl : -0.3420 < Diff < 1.8538)

t-value of difference = 1.4767 (14 degrees of freedom) P = 1 (>0.05)

Conclusion:

There is no statistically significant difference between the groups.

Station: TM-FM2

<u>t-test</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.2758	1.5293	0.4415
Quarterly Mean	36	0	6.0801	1.0025	0.1671

Result:

Probability that two variances are equal (f-test) = 0.0285

Difference between means = 1.1957 (95% Cl :0.1834 < Diff < 2.208)

t-value of difference = 2.5333 (14 degrees of freedom) P = 1 (>0.05)

Conclusion:



Statistical Analysis of the Trend of Suspended Solids

For Mid-Ebb Tide

Station: TM-FC1

<u>t-test</u>

Group Name	N	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.0008	1.6394	0.4733
Quarterly Mean	36	0	6.1352	1.0525	0.1754

Result:

Probability that two variances are equal (f-test) = 0.0229

Difference between means = 0.8656 (95% CI : -0.2169 < Diff < 1.9481)

t-value of difference = 1.7151 (14 degrees of freedom) P = 1 (>0.05)

Conclusion:

There is no statistically significant difference between the groups.

Station: TM-FC2

<u>t-te st</u>

Group Name	Ν	Missing	Mean	Std Dev	SE
130% Baseline Mean	12	0	7.2758	1.5293	0.4415
Quarterly Mean	36	0	6.0917	1.0615	0.1769

Result:

Probability that two variances are equal (f-test) = 0.0499

Difference between means = 1.1841 (95% Cl : 0.1640 < Diff < 2.2042)

t-value of difference = 2.4897 (14 degrees of freedom) P = 1 (>0.05)

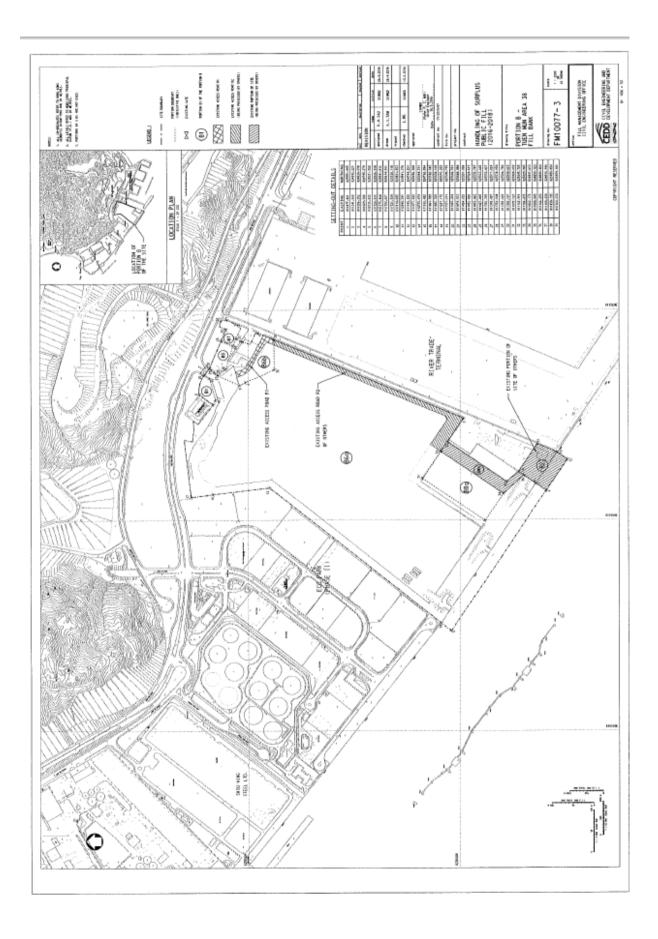
Conclusion:



Appendix J

Site General Layout plan







Appendix K

Weather Condition

	Mean Pressure (hPa)	Air	Temperat		Mean Dew Point	Mean Relative Humidit	Total Rainfall	Prevailing Wind Direction	Mean Wind Speed
Day	(111 4)	Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)	(deg. C)	(%)	()	(degrees)	(km/h)
1	***	27.6	24.3	22	10.1	42	0	20	13.6
2	***	22.4	21.1	20.1	16	73	0	350	8.2
3	***	22.9	21.3	19.2	18	81	0	20	7
4	* * *	26.4	23.1	21.1	20.3	85	0	20	5.7
5	***	28.8	24.6	22.7	20.4	78	0	150	7.6
6	* * *	29.4	24.7	21.5	20.1	76	0	160	6.8
7	***	27.8	24.7	21.8	20.5	78	0	160	4.2
8	***	27.1	24.5	22.3	20.3	78	0	20	7.3
9	* * *	29.3	24	20.9	17.7	68	0	20	9.3
10	***	26.5	24.1	22.2	19.5	76	0	20	6.3
11	***	29	23.8	20.9	19.5	78	0	150	5
12	* * *	29.4	24.8	22.2	20.3	76	0	020#	5.0#
13	***	27.5	24.1	21.9	18.8	73	0	***	***
14	* * *	26.9	23.8	22.3	18.5	72	0	160#	10.6#
15	***	25.9	23.8	22.3	19.7	78	0	150	8.8
16	***	26.7	24.6	23.1	21.2	81	0	150	9.7
17	***	25	24	23.1	21.5	86	0	150	6.1
18	***	27.1	24.3	22.9	20.9	82	0	150	5.5
19	***	27.9	23.4	21.2	18	72	0.5	20	7.8
20	* * *	25.4	23.2	21.7	19.1	78	0	20	8.3
21	***	28.7	24.5	20.7	20.1	77	0	20	7.4
22	* * *	22.9	20.3	18.2	12.5	62	0	30	11.6
23	***	25.2	20.8	17.8	12.7	60	0	20	10.4
24	***	24.2	20.9	18.9	16.3	75	0	10	5
25	***	21.2	18.6	16.5	16.3	87	27	20	3.8
26	* * *	20.9	18.5	16.5	16.7	89	10	10	3.8
27	***	21.7	19.6	18.6	17	85	4.5	20	5.7
28	* * *	22.3	20.1	18.5	18.6	91	9.5	20	3.5
29	***	26.7	21	17.9	16.4	76	0	10	6.5
30	***	25.2	21.5	18	15.1	68	0	160	6.5

Daily Extract of Meteorological Observations, November 2018 - Tuen Mun

*** unavailable

data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

Daily E			igical O	bservation	· · · · · · · · · · · · · · · · · · ·				
	Mean Pressure	Aiı	· Temperat	ure	Mean Dew	Mean Relative	Total Rainfall	Prevailin Wind	Mean Wind
	(hPa)				Point	Humidity	(mm)	Direction	Speed
Day	(u)	Absolute	Mean	Absolute	(deg. C)	(%)	(,	(degrees)	(km/h)
,		Daily	(deg.	Daily					
		Max	C)	Min					
		(deg. C)	-	(deg. C)					
1	***	27.3	22.6	19.9	17.9	75	0	150	5.7
2	***	26.7	22.6	19.9	18.7	79	0	160	8
3	***	28.2#	23.3#	20.4#	19.8#	82#	0.0#	160	5.4
4	***	29.9	24.2	20.8	20.6	81	0	160	3.5
5	***	26.9	23.6	22.2	20	80	0	140	8.4
6	***	26.4	23.4	21.9	20.4	83	0	20	4.8
7	***	22.8	19.6	16.7	17.9	91	1.5	20	9.7
8	***	18.3	16.3	14.9	11.2	72	0	30	12.9
9	***	15.1#	14.1	13.3#	10	77	0.5	20	11.3
10	***	16.3#	14.4	12.2#	10.2	76	0	20	10.2
11	***	19	16.1	13.9	10.1	68	0	350	10.5
12	***	14.4	12.8	11.9	6.7	66	0	20	12.5
13	***	16.4#	13.7	11.5#	6.9	64	0	20	12.4
14	***	16.4	14.7	13.4	9	69	0	20	10.5
15	***	23.1#	17.8	14.9#	12.4	71	0	20	6.5
16	***	19.1	17.5	16	13.9	79	0.5	350	6.9
17	***	22.4	16.8	14	6.5	53	0	20	7.8
18	***	22.8	17.8	13.9	7.3	51	0	340	7.5
19	***	23.5	20.2	17.3	15.8	76	0	160	6.2
20	***	26.2	22.5	20.4	19.3	82	0	150	9.3
21	***	26.6	23	20.8	19.5	82	0	150	9.4
22	***	27.2	22.5	18.9	17.9	76	0	10	5.8
23	***	22.4	20	16.3	17.3	85	5	20	11.5
24	***	17.8	16.6	15.4	14.6	88	1.5	30	11.5
25	***	20.8	18.4	16.6	16.1	87	0	10	5.8
26	***	26.4	20.7	17.6	17.5	82	0	10	4.3
27	***	23.9	20.2	18.4	15.4	75	0	20	7.8
28	***	21.4	17.6	15	11	65	0	30	12
29	***	15	12.9	10.9	6.2	64	0	30	15.8
30	***	13.9	11.1	9.3	4.7	64	0	***	
31	***	13.9	11.1	9.6	5.2	67	0	350#	8.6#

Daily Extract of Meteorological Observations, December 2018 - Tuen Mun

data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected

	Mean Pressure (hPa)	Air	· Temperat	ure	Mean Dew Point	Mean Relative Humidity	Total Rainfall (mm)	Prevailin Wind Direction	Mean Wind Speed
Day		Absolute Daily Max (deg. C)	Mean (deg. C)	Absolute Daily Min (deg. C)	(de <u>g</u> . C)	(%)		(degrees)	(km/h)
1	***	15.8	12	9.5	6.2	68	0	20	9.1
2	***	14.8	13.1	11.5	7.2	67	0	20	11.5
3	***	15.2	13.9	12.7	10.2	79	0	20	9.1
4	***	21.0#	17.7	14.8#	15.5	88	0	170	3.3
5	***	21.9	19	17.4	17.1	89	0.5	20	3.6
6	***	19.5	17.7	16.6	14.1	80	0	20	7.8
7	***	19.8	18.2	17	15.4	84	0	160	3.7
8	***	20.6	19	17.9	15.1	78	0	20	5.3
9	***	20.8	18.1	16.7	14.4	79	0	160	6
10	***	21.7	19.3	17.1	16.1	82	0	220	3.7
11	***	25.4	20.6	17.8	17.8	85	0	160	4.2
12	***	23.9	20.5	18.5	17.9	86	0	160	3.6
13	***	19.9	19	18.3	17.1	89	0	160	6
14	***	20.6	18.9	17.9	16.4	85	0	160	6
15	***	21.7	19	17.2	16.8	88	1.5	20	6.5
16	***	19.2	16.4	15	10.1	66	0	020#	12.3#
17	***	20.8#	16.1	13.5#	9.2	64	0	20	9.1
18	***	18.7	16.1	12.9	10.5	69	0	20	7.7
19	***	23.6	18.8	15.6	14.2	75	0	20	5.9
20	***	25.5#	20.4	17.2#	16.4	79	0.5	20	4.8
21	***	19.8#	16.9	15.1#	9.4	62	0	020#	10.8#
22	***	19.8	15.2	12	3.9	48	0	20	9
23	***	22.2	15.5	11.7	4.7	49	0	20	6.6
24	***	22.4	16.5	12.1	9.8	67	0	160	7.3
25	***	25.9	18.1	12.7	11.6	68	0	160	4.1
26	***	23.3#	18.6	15.4#	11.4	64	0	360	6.1
27	***	20.9	17	14	11.1	69	0	160	7.7
28	***	21.8	17.5	14.3	10.7	65	0	170	4.7
29	***	21.5#	18.2	14.8#	11.8	66	0	150	7.3
30	***	23.5	18.8	14.5	13.8	74	0	20	4.9
31	***	26.4	21.8	18.1	16.4	72	0	340	4.7

Daily Extract of Meteorological Observations , January 2019 - Tuen Mun

data incomplete

Rainfall measured in increment of 0.5 mm. Amount of < 0.5 mm cannot be detected



Appendix L

Complaint Log



Complaint Log

Log Ref.	Location	Received Date	Details of Complaint	Investigation / Mitigation Action	Status
001	Lung Mun Road near Tuen Mun Area 38 Fill Bank	24 May 2017	One complaint received on 24 May 2017, which was forwarded to ET on 03 June 2017, from public against the rocks and debris deposited on the road surface along Lung Mun Road near Tuen Mun Area 38 Fill Bank. The complainant complained that waste generated caused an environmental nuisance.	 Refer to the ET site investigation on 06 June 2017, the condition of Lung Mun Road near Tuen Mun Area 38 Fill Bank was found satisfactory. Details of Action(s) Taken by the Contactor: Regular water spraying by water lorries is provided for road cleaning at Lung Mun Road; Regular cleaning on Lung Mun Road and the access road at the site exit by road sweeper to remove mud and gravel is arranged four times on each working day; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; Site vehicle for transporting materials are covered properly by using clean tarpaulin sheets; Regular cleaning at the site haul road is provided to minimize the fugitive dust emission. 	Closed



002	Lung Mun Road near Tuen Mun Area 38 Fill Bank	16 April 2018	One complaint received on 16 April 2018 from public and forwarded to ET by email at 10:51 on 25 May 2018. The complaint detail was" 來往屯門第 38 區填料庫的龍門路沿路有很多泥頭車出入,泥頭會從車上掉至路面上,要求部門跟進及回覆。"	 Refer to the ET site investigation on 26 May 2018, the condition of Lung Mun Road near Tuen Mun Area 38 Fill Bank was found satisfactory. Details of Action(s) Taken by the Contactor: Regular cleaning on Lung Mun Road and the access road at the site exit by road sweeper to remove mud and gravel is arranged four times on each working day; Regular water spraying by water lorries is provided for road cleaning at Lung Mun Road; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; Site vehicles for transporting materials are covered properly by using clean tarpaulin sheets; 	Closed
003	Lung Mun Road near Tuen Mun Area 38 Fill Bank	26 June 2018	One complaint received on 26 June 2018 from public and forwarded to ET by email at 13:58 on 03 July 2018. The complaint detail was" 當天水車於 6 時出動洗街,導致交通阻塞."	 Refer to the ET site investigation on 07 July 2018, the condition of Lung Mun Road near Tuen Mun Area 38 Fill Bank was found satisfactory. Details of Action(s) Taken by the Contactor: Improve the road washing plan to avoid washing in traffic peak peroid Revised the road washing schedule as soon as possible once there is traffic jam 	Closed



Figures



