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China Harbour – Zhen Hua Joint Venture

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

TSEUNG KWAN O AREA 137 FILL BANK

MONTHLY EM&A REPORT NO.8

(DECEMBER 2017)

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Report No.: ENA80002

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Ref.: CEDPFRSFEM02_0_0208L.18

16 January 2018

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)

Monthly EM&A Report (No. 8) for December 2017 for the Tseung Kwan O Area 137 Fill Bank

Reference is made to your submission of the draft Monthly EM&A Report for December 2017 for the TKO Area 137 Fill Bank received by email on 11 January 2018 and the final revision on 15 January 2018.

We are pleased to inform you that we have no further comment on the captioned 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 Environ Hong Kong Limited

Valle

F. C. Tsang Independent Environmental Checker

c.c. CEDD Attn: Mr. Simon Leung CHZHJV Attn: Mr. S W Sung Fax No.: 2714 0113 By Email

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Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank ENA80002 Monthly EM&A Report No.8

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EXECUTIVE SUMMARY

This monthly Environmental Monitoring and Audit (EM&A) report No.8 was prepared by ETS-Testconsult Ltd (ET) for "Contract No: CV/2015/07 – Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O (TKO) Area 137 Fill Bank" (The Project).

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at TKO Area 137 in December 2017.

Site Activities

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

- 1.Operation of the TKO137 Fill Bank.
- 2. Transferring public fill to vessel and delivering to Taishan and other parties.
- 3. Operation of dewatering plant.
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6.Crushing plant operation.

7. Expansion of dewatering plant at TKOFB

Environmental Monitoring Progress

The summary of the monitoring activities in this monitoring period is listed below:

- Noise Monitoring (Day-time): 1 Occasion at 1 designated location
- 24-hour TSP Monitoring: 6 Occasions at 2 designated locations
- 1-hour TSP Monitoring: 15 Occasions at 2 designated locations
- Marine Water Quality Monitoring: 12 Occasions at 2 designated locations
- Weekly-site inspection: 4 Occasions

Noise Monitoring

No exceedance of Action and Limit levels for noise monitoring was recorded in the reporting period.

Air Monitoring

No exceedance of Action and Limit levels was recorded for 1-hr and 24-hr TSP monitoring in the reporting period.

Marine Water Quality Monitoring

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

Weekly Site Inspections

In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting period. The major findings observed during site inspections are presented in the Section 7.0.

Environmental Complaints, Notification of summons and successful prosecutions

No complaint, notification of summons or successful prosecutions with respect to environmental issues was received in this reporting period.

Future Key Issues

Based on site inspections and forecast of engineering works in coming month, key issues to be considered are as follows:

- Noise and air quality impact due to site works;
- Maintain wheel washing facilities properly;
- Maintain all drainage and desilting facilities properly;
- Use and maintain silt curtain properly;
- Clean up the fill material on concrete pavement along the BHA frequently;
- Sufficient drip trays for all oil drums / chemical containers;
- Implement all necessary preventive measures to avoid oil leakage. In the event an oil leakage happens, the Contractor should properly remove the leaked oil and handle the contaminated soil and all materials using for this cleaning works as chemical waste:
- Maintain good site practice and waste management to minimize environmental impacts at the site; and
- Follow-up improvements on waste management issues.

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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 "Contract No: CV/2015/07 –Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O (TKO) Area 137 Fill Bank" (The Project).

In accordance with the Environmental Permit (No.: EP-134/2002/K) (the EP), an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-060/2002). The EM&A programme for this study as stated in Section 2.3.1 of the EM&A Manual covers the following environmental aspects during the establishment, operation and removal phases of the Fill Bank at Tseung Kwan O Area 137:

- Fugitive Dust;
- Noise generation from onsite activities;
- Water Quality; and
- Landscape and Visual.

The EM&A programme requires environmental monitoring for air quality, noise and water quality and environmental site inspections for air quality, noise, water quality, 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 period 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.

Baseline monitoring was completed in August and September 2002 by MateriaLab. Action and Limit Levels were established for air and water quality parameters based on the baseline monitoring results.

This report documented the findings of EM&A Works conducted during the operation phase of Fill Bank at Tseung Kwan O Area 137 in December 2017.

2.0 **PROJECT INFORMATION**

2.1 Scope of the Project

The scale and scope of the Project as stated in the EP include:

- Site clearance;
- Construction of a temporary storm water system;
- Stockpiling of 6 million m³ of public fill;
- Setting up two barging points: one at the TKO Basin and one at the Construction and Demolition Material Sorting Facility (C&DMSF) for transporting the stockpiled public fill by barges;
- Setting up a temporary barging point at the existing Explosive Off-loading Barging Point located in the south-eastern part of Area 137 for the month of May 2004 to December 2004 for transporting the stockpiled public fill by barge;
- Construction and operation of a Construction and Demolition Material Sorting Facility (C&DMSF);
- Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin; and
- Remove the temporary fill bank.

2.2 Site Description

TKO Area 137 Fill Bank is located at the southern end of Wan Po Road. In the vicinity of the site are other industrial uses such as SENT landfill, TKO Industrial Estate, etc. Both Island Resort and Fullview Garden are also situated at more than 1.8km from the site. Other existing ASRs and NSRs, including resident developments and schools, are located at a further distance away from TKO Area 137.

2.3 Work Programme

Details of work programme are shown in Appendix G.

2.4 Project Organization and Management Structure

The project organization chart is shown in Appendix A.

2.5 Contact Details of Key Personnel

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

 Table 2.1
 Contact Details of Key Personnel

Organization	Name of Key Staff	Project Role	Tel. No.	Fax No.
CEDD	Simon Leung, May Lau, James Sze, Phoebe Tang	Engineer's Representative	2762 5555	2714 0113
IEC (Ramboll Environ)	F C Tsang	IEC	3465 2888	3465 2899
Contractor (CHZH-JV))	Zhou Chang Ying	Project Director	96266299	22474108
ET (ETL)	C. L. Lau	ET Leader	2946 7791	2695 3944

3.0 WORK PROGRESS IN THIS REPORTING PERIOD

As informed by the Contractor, the activities in the reporting period include:

- 1. Operation of the TKO137 Fill Bank.
- 2. Transferring public fill to vessel and delivering to Taishan and other parties.
- 3. Operation of dewatering plant.
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6.Crushing plant operation.
- 7.Expansion of dewatering plant at TKOFB

4.0 AIR QUALITY MONITORING

4.1 Monitoring Requirement

TSP levels were monitored in the reporting period in accordance with the EM&A Manual. Table 4.4 shows the Action and Limit Levels for the environmental monitoring works.

4.2 Monitoring Equipment

Both 1-hour and 24-hour TSP air quality monitoring was performed using a GMWS2310 High Volume Air Sampler (HVS) located at each of the designated monitoring station. Table 4.1 summarizes the equipment used in the air quality monitoring programme. A copy of the calibration certificates for the HVS and calibrator are attached in Appendix B1.

Table 4.1Air Quality Monitoring Equipment

· · · · · · · · · · · · · · · · · · ·		
Equipment	Model and Make	
HVS	Greasby GMWS2310	
Calibrator	Tisch TE-5025A	

4.3 Monitoring Parameters, Frequency and Duration

Table 4.2 summarizes the monitoring parameters, monitoring duration and frequencies of air quality monitoring.

Table 4.2Monitoring parameters, duration, frequency of air quality monitoring

Parameter Duration		Frequency	
24-hr TSP	24 hr	Once every six days	
1-hr TSP	1 hr	Three times per day every six days	

4.4 Monitoring Locations

Table 4.3 tabulates the air quality monitoring locations of this project.

Table 4.3 Air quality monitoring location	ons
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Monitoring station	Location
TKO-A1	Site Egress
TKO-A2a	CREO

4.5 Monitoring Methodology

Both 1-hr and 24-hr air quality monitoring (High Volume Sampler)

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets were employed for both 1-hour and 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate was indicated on the flow rate chart.
- For TSP sampling, fiberglass filters (Whatman G653) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling month of 1 hour or 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recoded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C <u>+</u> 3°C and the relative humidity (RH) <50% <u>+</u>5%.
- All measurement procedures in Section 2.3 of the EM&A Manual were followed during the reporting period.

Maintenance & Calibration

- HVS and their accessories should be maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVS should be calibrated at bi-monthly intervals.

Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Tseung Kwan O Station of Hong Kong Observatory. All wind data during this reporting period are shown in Appendix E.

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4.6 Action and Limit Levels

Table 4.4 shows the Action and Limit levels for 24-hr TSP and 1-hr TSP monitoring.

Table 4.4	Action and Limit Levels for 24-hr TSP and 1-hr TSP

Monitoring Logotion	24-hr TSP (μg/m³)		1-hr TSP (μg/m³)	
Monitoring Location	Action Level	Limit Level	Action Level	Limit Level
TKO-A1	210	260	376	500
TKO-A2a *	210	260	376	500

Remark (*): Since dust monitoring stations TKO-A2 and TKO-A2a are located close to the major dust emission sources and also close to the same sensitive receptor and no significant difference between them on the prevailing meteorological conditions, the baseline data from TKO-A2 (August and September 2002 by MateriaLab) can also be valid in the case of TKO-A2a.

4.7 Event-Action Plans

Please refer to Appendix F for details.

4.8 Results and Observation

4.8.1 1-hour and 24-hour TSP Monitoring results

Monitoring data of both 1-hour and 24-hour TSP monitoring carried out in this reporting period are summarized in Appendix B2. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting period is shown in Appendix B3. Wind data included wind speed and wind direction was extracted from Tseung Kwan O Station of Hong Kong Observatory during this reporting period and is presented in Appendix E.

No exceedance of Action and Limit Level of 1-hr TSP and 24-hour TSP monitoring results was recorded during the reporting period.

4.8.2 Observation

Generally, the Contractor implemented sufficient dust mitigation measures, including operation of the mist spraying systems at the CEDD Combined Reception Office and the site egress area, wheel washing facilities, road dampening by water bowsers and automatic water sprinklers on the main haul roads. Other dust sources near TKO Area 137 also included operation of the temporary CWSF and dumping activities at the SENT Landfill.

5.0 Noise Monitoring

5.1 Monitoring Requirements

Noise monitoring was conducted at 1 monitoring station as specified in the approved EM&A Monitoring Proposal for good site practice. The equipment, parameter, frequency, duration, methodology, calibration details, results and observations of the noise monitoring for the reporting period are presented in this section.

5.2 Monitoring Equipment

An Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (Lx). It complies with International Electro Technical Commission Publications 651:1979 (Type1) and 804:1985 (Type1), and speed in m/s was used to monitor the wind speed.

Table 5.1 summarizes noise monitoring equipment model being used. A copy of the calibration certificate for noise meter and calibrator are attached in Appendix C1



Table 5.1 Noise Monitoring Equipment	
Equipment	Model
Sound Level Meter	Rion NL-31 / Rion NL-52
Sound Level Calibrator	Rion NC-73 / Castle GA607

5.3 Monitoring Parameters, Duration and Frequency

Duration, frequencies and parameters of noise measurement are presented in Table 5.2.

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Table 5.2	Duration.	Frequencies	and Parameters	of Noise	Monitorina

		Ŭ	
Time	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal weekday	30	L _{eq} , L ₁₀ , L ₉₀	Once per month

5.4 Monitoring Locations

One Noise monitoring was conducted at the noise monitoring location, TKO-N1 as shown in Figure 2 during the reporting period. Table 5.3 describes the location of the monitoring station.

Table 5.3Noise Monitoring Location

Monitoring station	Location	Type of Measurement
TKO-N1	Outside site Egress along Wan Po Road	Free Field

5.5 Monitoring Procedures and Calibration Details

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting: A
 - Time weighting : Fast
 - Time measurement : 30 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- The wind speed was frequently checked with a portable wind meter.
- During the monitoring period, the Leq, L10 and L90 were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- Correction factor of +3dB(A) should be made to the free Field measurements.
- Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth in quarterly intervals.
- The meter is sent to the supplier or HOKLAS laboratory to check and calibrated in yearly intervals.

5.6 Action and Limit Levels

The Action and Limit levels for noise levels derived as illustrated in Table 5.4.

Table 5.4Action and Limit Levels for noise monitoring

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

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5.7 Event-Action Plans

Please refer to the Appendix F for details.

5.8 Results and Observation

5.8.1 Results

Only Day-time noise monitoring was carried out at monitoring station TKO-N1 in this reporting period. The detail of the noise monitoring is provided in Appendix C2. Graphical presentation of the monitoring result for the reporting period is shown in Appendix C3. Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

5.8.2 Observation

The major noise source during the monitoring event was the dump truck traffic.

6.0 MARINE WATER QUALITY MONITORING

6.1 Monitoring Requirements

In accordance with the EM&A Manual, impact marine water quality monitoring was conducted three days per week. Measurements were taken at both mid-flood and mid-ebb tides at three depths (i.e. 1m below surface, mid depth and 1m from seabed) at Control Station, C1 and Monitoring Station, M4.

6.2 Monitoring Locations

For the Reclamation Project, there were 4 Designated Monitoring Stations and 2 Designated Control Stations specified in the EM&A Manual. Upon the completion of the monitoring programme under Stage 2 reclamation works, the ET started monitoring events at the impact station M4 and the control station C1 from 18 May 2004 onwards. Figure 1 shows the location of the marine water quality monitoring stations. Table 6.1 describes the locations of the monitoring stations in the reporting period.

Station Description	Code	HK Metric Grid E	HK Metric Grid N		
Control Station (Ebb tide)	TKO-C1	844 740.208	815 371.502		
Monitoring Station, Tung Lung Chau Fish Culture Zone	TKO-M4	847 741.029	812 977.878		

Table 6.1Locations of Marine Water Monitoring Stations

6.3 Monitoring Parameters

Monitoring of the marine water quality parameters are listed in Table 6.2.

Table 6.2Marine Water Quality Monitoring Parameters

In-situ measurement	Laboratory analysis
Depth (m)	Suspended solids (mg/L)
Temperature (°C)	
Dissolved Oxygen (mg/L and % saturation)	
Turbidity (NTU)	
Salinity (ppt)	

6.4 Monitoring Frequency

The monitoring frequency of the marine water monitoring is summarized in Table 6.3.

Table 0.5 Monitoring net	fucinely of the marine we			
Parameter	Frequency No. of Location		No. of Depths	
Temperature				
Salinity		2	3	
DO	3 days/week, 2 tides/day (TKO-C1	(TKO-C1 and TKO-	(Surface, mid-depth	
Turbidity	2 110e3/0ay	M4)	& bottom)	
Suspended solids				

Table 6.3Monitoring frequency of the marine water

6.5 Monitoring Methodology and Equipment Used

For Location of the monitoring stations

Global Positing System (GPS)

A hand-held digital GPS was used to identify the designated monitoring stations prior to water sampling.

For Water Depth measurement

Echo Sounder

A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

For In-situ Water Quality Measurement

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use, and subsequently recalibrated at 3 monthly intervals or sometimes longer throughout all stages of the water quality monitoring.

Dissolved Oxygen, Salinity and Temperature Measuring Equipment

A portable, weatherproof dissolved oxygen & salinity measuring instrument, which complete with cable, sensor and DC power source (e.g. YSI 85 or equivalent) was used for measuring:

- a dissolved oxygen level in the range of 0-20 mg/L and 0-200 % saturation;
- a salinity in range 0-40 ppt; and
- a temperature of 0-45 degree Celsius

A membrane electrode with automatic temperature compensation complete with a cable was installed.

Turbidity Measurement Instrument

A portable and weatherproof turbidity meter (HACH model 2100Q) was used during impact monitoring. It has a photoelectric sensor capable of measuring turbidity between 0-1000 NTU. Response of the sensor was checked with certified standard Turbidity solutions before the start of measurement.

For Water Sampling and Sample Analysis

In-situ monitoring was carried out at three depths: 1 meter below water surface, at mid-depth and 1 meter above the seabed. If the water depth is less than 6 m, the mid-depth station shall be omitted and if the water depth is below 3 m, only the mid depth station shall be monitored.

Water Sampler

A water sampler comprising a transparent PVC cylinder, with a capacity of not less than 2 liters, was lowered into the water body at the predetermined depth. The both opening ends of the sampler were then closed accordingly by dead weight and water samples were collected.

Water Container

The sample container, made by high-density polythene, was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4°C. The water samples were then delivered to a local HOKLAS-accredited laboratory (Environmental Laboratory, ETS-Testconsult Ltd, HOKLAS Registration No. 022) on the same day for analysis.

The summary of testing method of testing parameter as recommended by EIA or required by EPD, with the QA/QC results in accordance with the requirement of HOKLAS or international accredited scheme is shown in Table 6.4.

Table 6.4	Summary of testing procedures
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Laboratory Analysis	Testing Procedure	Detection Limit
Total suspended solids	In house method based on APHA 19 th ed 2540D	1.0 mg/L

In-situ measurement

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use. Responses of sensors and electrodes were checked with certified standard solutions before each use. Wet bulb calibration for a DO meter was carried out before the start of measurement.

At each measurement/sampling depth, two consecutive measurements of dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity and salinity were taken. For turbidity measurement, the sample was collected by using sampler and then transferred to the cell. The reading of turbidity of the sample was directly recorded from the Turbidimeter (HACH 2100Q) after inserting the cell to the Turbidimeter. For DO, DOS and Salinity, duplicate measurements were performed by dropping the calibrated probes of the corresponding monitoring equipments to the designated depths of the water column and taking readings after stabilized. The duplicate measurements were averaged if the difference was not greater than 25%. If the difference is greater than 25%, repeat measurement will be required.

Table 6.5 shows the equipment used for in-situ monitoring of water quality. The calibration certificates are attached in Appendix D1.

Parameter	Model	Date of Calibration	Due Date	Equipment No.
Coordinate of Monitoring stations	Garmin eTrex 10			ET/EW/005/09
Dissolved Oxygen	YSI Dissolved Oxygen, Salinity & Temperature	14/10/17	13/01/18	ET/EW/008/007*
(Saturation), Temperature, Salinity	Meter, YSI 2030	14/10/17	13/01/18	ET/EW/008/009*
Turbidity	HACH Model 2100Q Turbid Meter	21/10/17	19/01/18	ET/0505/017*
		18/11/17	17/01/18	ET/0505/014*
Water Depth	Speedtech SM-5			ET/EW/002/08

 Table 6.5
 Details of Marine Water Quality Monitoring Equipment (In-site measurement)

Remark:(*) indicates the instrument should be calibrated on use.

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6.6 Action and Limit Level

The water quality criteria, namely Action and Limit (A/L) levels are presented in the table below.

	able 6.6 Water Quality Action and Limit Levels				
Parameter	Action Level	Limit Level			
DO (mg/L)	<u>Surface & Middle</u> <5.45 mg/L (5%-ile of baseline data) <u>Bottom</u> <4.72 mg/L (5%-ile of baseline data)	<u>Surface & Middle</u> <5.10 mg/L (1%-ile of baseline data) <u>Bottom</u> <2.00 mg/L			
SS (mg/L) (Depth- averaged)	>6.74 mg/L (95%-ile of baseline data) or >120% of the upstream control station's SS at the same tide on the same day	>7.67 mg/L (99%-ile of baseline data) or >130% of the upstream control station's SS at the same tide on the same day			
Turbidity (NTU) (Depth- averaged)	>4.28 NTU (95%-ile of baseline data) or >120% of the upstream control station's turbidity at the same tide on the same day	>4.58 NTU (99%-ile of baseline data) or >130% of the upstream control station's turbidity at the same tide on the same day			

Table 6.6 Water Quality Action and Limit Levels

6.7 Event and Action Plan

Please refer to the Appendix F for details.

6.8 Monitoring Duration in this reporting period

Below is the time schedule for the marine water quality monitoring events that were conducted in this reporting period:

December 2017						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					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						

 Table 6.7
 Time Schedule of Impact Marine Water Quality Monitoring

Remark: $(\mathbf{\nabla}) =$ Marine water quality monitoring carried out by ET.

The daily marine water quality monitoring duration are detailed in Appendix D2.

6.9 Marine Water Quality Monitoring Results

The impact water quality measurement results are detailed in Appendix D2. Appendix D3 presents the water quality monitoring data and graphical presentations of monitoring results respectively. The summary of marine water quality exceedances is shown in Table 6.8.

Table 6.8	Summary of Impact Marine Water Quality Exceedances in this reporting period

1 4 6 6 6 6									
Station	Exceedance	DO		Turbidity		S	S	Total	
	Level	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb
TKO-C1	Action	0	0	0	0	0	0	0	0
	Limit	0	0	0	0	0	0	0	0
	Action	0	0	0	0	0	0	0	0
TKO-M4	Limit	0	0	0	0	0	0	0	0

According to the summary of marine water monitoring results, no exceedance of Action and limit levels was recorded for this reporting period.

7.0 ENVIRONMENTAL AUDIT

7.1 Weekly ET Site Inspections and EPD's Site Inspection

7.1.1 Weekly ET Site Inspections

Weekly ET site inspections were carried out by ET to monitor the timely implementation of proper environmental pollution control and mitigation measures for the Project. In this reporting period, four weekly site inspections were conducted (06, 13, 20, 27 December 2017). Table 7.1 presents the key findings of weekly ET site inspection in this reporting period.

Date	Key Findings	Action(s) Taken recommended by ET	Action(s) Taken by the Contractor during the ET weekly site audit	Rectification Status by ET
06 December 2017	Silt curtain near tipping hall No.1 was damaged (Previous item)	To repair the damage silt curtain properly.	Silt curtain near tipping hall No.1 was repaired.	Closed
13 December 2017	No defective work or observe	ation was recorded during	the weekly ET site inspecti	on.
20 December 2017	Silt curtain near tipping hall No.1 was damaged. (New item)	To repair the silt curtain properly.		Follow-up
27 December 2017	Silt curtain near tipping hall No.1 was damaged. (Previous item)	To repair the silt curtain properly.	Silt curtain near tipping hall No.1 was replaced.	Closed

Table 7.1 Key Findings of Weekly ET Site Audits in this reporting period
--

7.1.2 EPD's Site Inspection

No EPD's site inspection was carried out at TKO137 Fill Bank in December 2017.

7.2 Review of Environmental Monitoring Procedures

The monitoring works conducted by the Environmental Team were inspected regularly. The observations for the monitoring works were recorded and summarized as follows:

Air Quality Monitoring

- The monitoring team recorded the observations around the monitoring stations within and outside of the site.
- The monitoring team recorded the temperature, air pressure and general weather condition on the monitoring day.

Noise Monitoring

- The monitoring team recorded the observations around the monitoring station, which might affect the results.
- Major noise sources were identified and recorded.

Water Quality Monitoring

• The monitoring team recorded the observations around the monitoring stations, which might affect the results.

7.3 Assessment of Environmental Monitoring Results

All monitoring results were audited against the Action and Limit levels and any exceedance would be validated.

No exceedance was recorded in water quality, air quality and noise monitoring in this reporting period.

The monitoring results in this reporting period were comparable with those of baseline month. Detailed discussions were given in Section 4, 5 and 6 of this Report.



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7.4 Advice on the Solid and Liquid Waste Management Status

The Contractor usually disposed of non-inert waste, including general refuse and materials segregated from the existing stockpiles, to SENT landfill. Table 7.2 summarizes data on offsite waste disposal in this reporting period.

Waste Type	Actual Amount	Disposal Locations		
Public Fill ('000m ³)	0	TKO 137 Fill Bank		
C&D Waste ('000kg)	50.7	SENT Landfill / Refuse Collection Point		
Chemical Waste (kg/L)	0	Collected by licensed collector		

 Table 7.2
 Actual amounts of Waste generated in this reporting period

The Contractor should provide sufficient preventive measures during equipment maintenance works so as to avoid oil leakage on the ground. In the event of any oil leakage, the Contractor should clean up the polluted soil and handle all the materials used for this cleaning works as chemical waste.

Concrete bunding has erected outside the CEDD combined reception office and near the automatic wheel washing facilities for storing generator sets and oil drums. The drain outlet of all the bunded areas should be plugged properly. Besides, pre-cast drip trays were provided for oil drums at several areas, such as workshop and chemical storage area. The Contractor should collect and dispose of any stagnant water accumulated in the concrete bunding and drip trays and handle them as chemical waste.

The Contractor should use suitable containers with proper labels to store chemical wastes in accordance with Code of Practice on the Packaging, Labeling and Storage of Chemical Waste. The Contractor should also advise their workers of the proper procedures in handling the chemical waste. All the trip tickets for chemical waste disposal were properly kept in the site office.

The Contractor was reminded to increase the frequency of inspection and cleaning of the site drainage system, including permanent desilting chambers, desilting facilities, oil interceptor bypass tank, DP3 and DP4 and all the trapezoidal channels. Moreover, the Contractor should apply approved pesticides in the stagnant water ponds.

All the runoff from the parking area should be pumped to the desilting facilities and oil interceptors to remove suspended solids and oil & grease prior to discharge.

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8.0 Status of Environmental Licensing and Permitting

All permits/licenses valid in this reporting period are summarized in Table 8.1.

Table 8.1	Summary O			sing and permit status
Description	Permit No.		Period	Section
		From	То	
Amended Environmental Permit	EP- 134/2002/K	04/02/13		 Site clearance Construction of a temporary storm water system Stockpiling of 6 million m3 of public fill Setting up two barging points for transporting the stockpiled public fill by barges Setting up a temporary barging point at the existing Explosive Off-loading Barging Point for the month of May 2004 to December 2004 for transporting the stockpiled public fill by barge Construction of operation of a construction and Demolition Material Sorting Facility (C&DMSF) Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin Remove the temporary fill bank
Marine Dumping Permit	EP/MD/18- 062	01/10/17	31/12/17	 Approval for dumping 4,800,000 tons (approximately equal to 2,666,667 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	5919-839- C4181-01	19/04/17		 Spent battery cell containing heavy metals and spent lubricating oil
Effluent Discharge License	WT000291 78-2017	27/09/17	30/09/22	 Effluent, Surface Run-off, and all other wastewater discharges from screen and sedimentation tank
Billing Account for Waste Disposal	7027643	22/05/17		
Notification Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust)	415682	12/04/17		

Table 8.1 Summary of environmental licensing and permit status

9.0 ENVIRONMENTAL NON-CONFORMANCE

9.1 Summary of air quality, noise and marine water quality

No Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded in this reporting period.

Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

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

9.2 Summary of Environmental Complaints

No complaint was received in this reporting period.

9.3 Summary of Notification of Summons and successful Prosecution

There was no notification of summons and successful prosecution respect to environmental issues registered in this reporting period.

10.0 IMPLEMENTATION STATUS

10.1 Implementation Status of Environmental Mitigation Measures

An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix I. Most of the necessary mitigation measures were implemented properly. Any deficiencies were noted in the remarks of the schedule.

10.2 Implementation Status of Event and Action Plan

Since no exceedance of Action and Limit level of air quality, noise and marine water monitoring results was recorded for this reporting period, no further action was required.

10.3 Implementation Status of Environmental Complaint, Notifications of Summons and Successful Prosecutions Handling

No complaint, notification of summon and successful prosecution was received in this reporting period.

A summary of environmental complaints, notifications of summons and successful prosecutions was given in Table 10.1 and further details of the complaint could be found in the Complaint Log (Appendix L).

Complaints l	logged	Summons s	erved	Successful prosecution received			
December 2017	Cumulative	December 2017 Cumulative		December 2017	Cumulative		
0	2	0	0	0	0		

 Table 10.1
 Summary of Environmental Complaints and Prosecutions

11.0 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

Impact monitoring of air quality, noise and water quality were carried out at designated locations in accordance with the EM&A Manual in this reporting period.

No Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded in this reporting period.

Since no documented complaints on noise issue were received in this reporting period, no Action Level exceedance was recorded. Besides, no exceedance in Limit Level was recorded according to the result from Day-time monitoring.

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

No complaint, prosecutions and notifications of summons were received in this reporting period.

According to the ET weekly site inspections carried out in this reporting period, the Contractor generally implemented sufficient dust mitigation measures, including operation of the mist spraying systems and automatic wheel washing facilities, dampening of haul roads and stockpiling areas.

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Recommendations

According to the environmental site inspections performed in the reporting period, 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;
- 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 site 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, permanent desilting chambers, regularly;
- Operate and maintain the silt curtains regularly;
- Operate the cleaning vessel within the TKO Basin regularly;
- Clean up the fill material on the concrete pavement at BHA frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water in the permanent desilting chambers, 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;
- Maintain the hydroseeded slopes in accordance with the Landscape Plan.

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 mesh screen on top of the additional drainage to avoid improper dumping of rubbish;
- 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

12.0 FUTURE KEY ISSUES

12.1 Work Programme for the Coming Month

As informed by the Contractor, the activities to be conducted by them in the next month included: 1. Operation of the TKO137 Fill Bank.

- 2. Transferring public fill to vessel and delivering to Taishan and other parties.
- 3. Rock Crushing Plant Operation.
- 4. Public fill removal at Portion A6.
- 5. Concrete block breaking work.
- 6. Bentonite pool removal work.
- 7. Renovation of tipping halls at both fill banks

12.2 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Chemical and waste management;
- Treatment of runoff and wastewater prior to discharge;
- Dust generated from loading and unloading activities; and
- Dust generated from dump trucks traffic.

Mitigation measures to be required in the coming month:

Air Quality Impact

- To provide adequate water spraying on haul roads and working platform;
- To operate and maintain automatic wheel washing facilities properly;
- To dampen the fill material prior to unloading or movement;
- To provide road sweeping on haul road near site egress and public roads outside site egress;
- To ensure implementation of the dust mitigation measures for the site activities;
- To maintain proper operation of the mist spraying system;
- To provide proper maintenance for vehicles and machines on site; and
- To investigate any other dust sources around the air sensitive receivers

<u>Noise</u>

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site;
- To follow up any exceedance caused by the Fill Bank operation; and
- To re-schedule the work activities in the event of valid noise exceedance.

Water Quality Impact

- To maintain the drainage system in the Fill Bank;
- To ensure the cleanliness of oil interceptor bypass tanks and all the drainage channels;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To repair, inspect and maintain the silt curtains regularly;
- To provide covers for the drip trays to avoid stagnant water pond due to rainfall;
- To deploy a cleaning vessel to remove floating rubbish in the TKO Basin;
- To clean up the concrete paved area at Portion I every night to avoid fill materials from being washed into the sea; and
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding in the Fill Bank.

Chemical and Waste Management

- To remove waste from the site regularly;
- To properly store and handle chemical wastes on site;
- To implement trip ticket system for all the imported public fill and general refuse disposal;
- To provide and manage sufficiently sized drip trays for diesel drums or chemical containers;
- To remove existing unwanted material in the stockpiles and avoid improper disposal at the Fill Bank through inspection of imported truckloads;
- To maintain proper housekeeping at the workshop area;
- To remove the oil stains in the event of leakage and handle all materials using for this cleaning works as chemical waste;
- To maintain mesh screen on top of the additional drainage, DP3 opening to avoid improper dumping of rubbish into this channel; and
- To identify C&D material by packaging, labeling, storage, transportation and disposal in accordance with statutory regulations.

12.3 Monitoring Schedule for the Coming Month

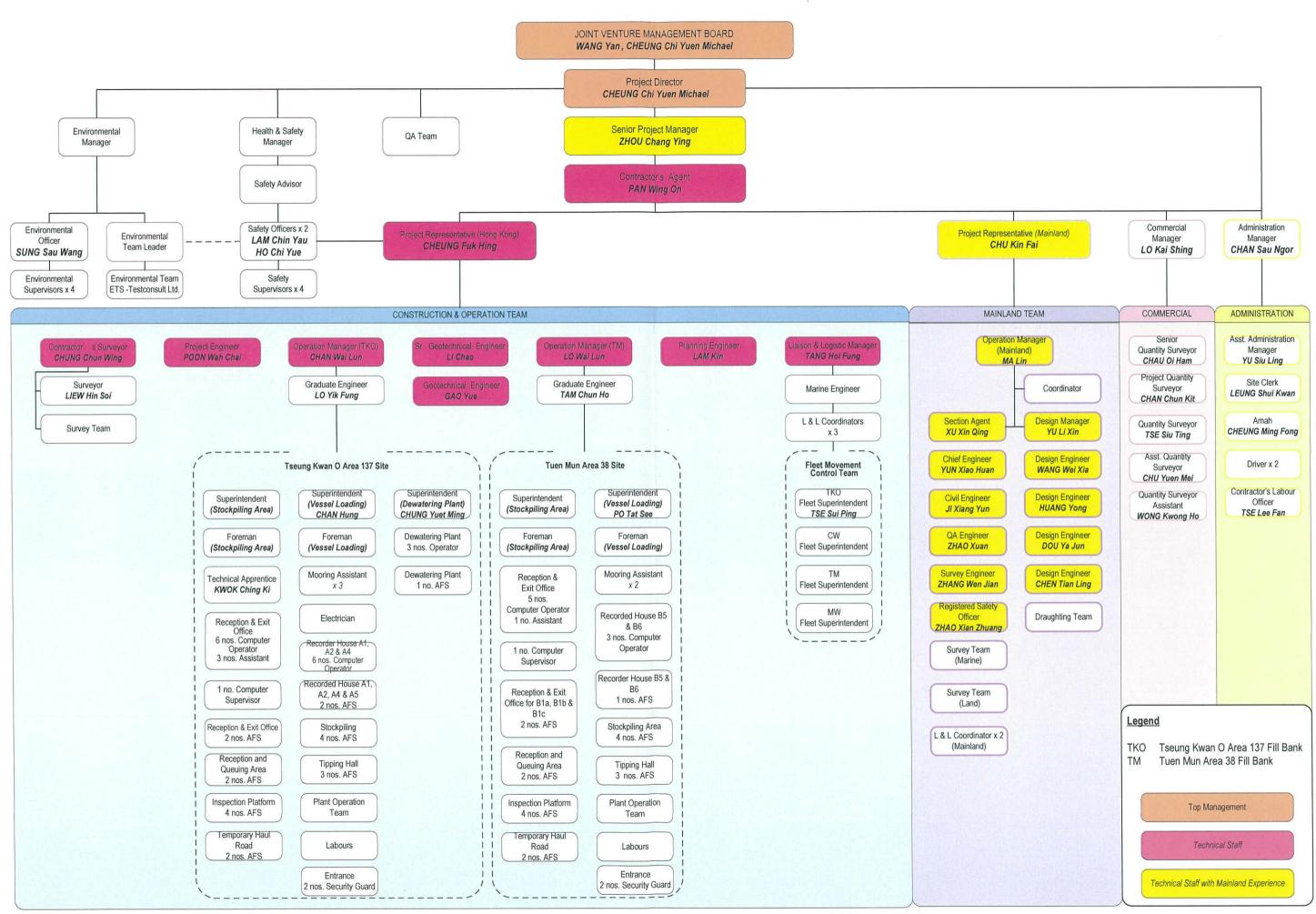
The proposed EM&A program of the coming month is attached in Appendix K.

- END OF REPORT -



Appendix A

Project Organization Chart







Organization Chart Rev. 3



Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipment





Calibration Report

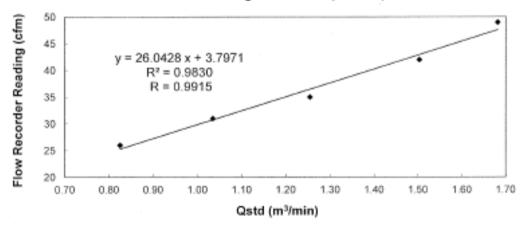
of High Volume Air Sampler

Manufacturer	:	Graseby 105	Date of Calibration	;	10 November 2017				
Serial No.	;	9795 (ET/EA/003/18)	Calibration Due Date	:	09 January 2018				
Method	;	Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual							

Results

Flow recorder rea	ading (cfm)	ng (cfm) 49			35	31	26	
Qstd (Actual flow	Qstd (Actual flow rate, m ³ /min)			1.50	1.25	1.03	0.82	
Pressure : 762.06 mm Hg				Temp. :	300	к		

Sampler 9795 Calibration Curve Site: Tseung Kwan O 137 (TKO-A1)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies* / does not comply* with the specified requirements and is deemed acceptable*/ unacceptable* for use.

Calibrated by : CHAN, Wai Man (Technician)

Checked by

LAW, Sau Yee

(Senior Environmental Officer)

- END OF REPORT -

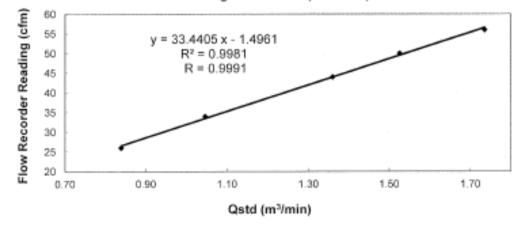




Calibration Report of High Volume Air Sampler

Manufacturer	;	Andersen G1051	Date of Calib	ration	:	10 November 2017						
Serial No.	;	1176 (ET/EA/003/05)	Calibration D	ue Date	:	09 Ja	nuary 2018					
Method	:	Based on Operations Manual for the 5-p manufactured by Tisch TE-5025 A	Based on Operations Manual for the 5-point calibration using standard calibration kit nanufactured by Tisch TE-5025 A									
Results	:	Flow recorder reading (cfm)	56	50		44	34	26				
		Qstd (Actual flow rate, m ³ /min)	1.73	1.53		1.36	1.05	0.84				
		Pressure : 762.05 mm H	9	Temp. :		300	к					

Sampler 1176 Calibration Curve Site: Tseung Kwan O 137 (TKO-A2a)



Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration

The high volume sampler complies" / does not comply* with the specified requirements and is deemed acceptable* / unacceptable * for use.

Calibrated by CHAN, Wai Man (Technician)

Checked by LAW, Sau Yee (Senior Environmental Officer)

ET/ EA/004/14



TISCH ENVIRONMENTAL, INC. 145 SOUTH MIAMI AVE VILLAGE OF CLEVES, OH 45002 513.467.9000 877.263.7610 TOLL FREE 513.467.9009 FAX

	ORIFICE 7	TRANSFER STAN	NDARD CERT	IFICATION	WORKSHEET	FE-5025A	
Date - Apr 03, 2017 Rootsmeter S/N 0438320 Ta (K) - Operator Tisch Orifice I.D 3297 Pa (mm) - 7							
PLATE OR Run #	VOLUME START (m3)	VOLUME STOP (m3)	DIFF VOLUME (m3)	DIFF TIME (min)	METER DIFF Hg (mm)	ORFICE DIFF H2O (in.)	
1 2 3 4 5	NA NA NA NA	NA NA NA NA	1.00 1.00 1.00 1.00 1.00	1.4360 1.0230 0.9170 0.8720 0.7180	3.2 6.4 7.9 8.8 12.7	2.00 4.00 5.00 5.50 8.00	

DATA TABULATION

Vstd	(x axis) Qstd	(y axis)		Va	(x axis) Qa	(y axis)
0.9900 0.9858 0.9837 0.9825 0.9773	0.6894 0.9636 1.0727 1.1268 1.3612	1.4101 1.9943 2.2296 2.3385 2.8203		0.9957 0.9915 0.9893 0.9882 0.9830	0.6934 0.9692 1.0789 1.1333 1.3691	0.8881 1.2560 1.4042 1.4728 1.7762
Qstd slop intercept coefficie	: (b) =	2.10166 -0.03302 0.99984	n e r	Qa slope intercept coefficie	(b) =	1.31603 -0.02080 0.99984
y axis =	SQRT [H2O (H	Pa/760) (298/5	y axis = SQRT[H2O(Ta/Pa)]			

CALCULATIONS

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

Va = Diff Vol [(Pa-Diff Hg)/Pa] Qa = Va/Time

For subsequent flow rate calculations:

 $Qstd = 1/m\{ [SQRT(H2O(Pa/760)(298/Ta))] - b \}$ $\tilde{Q}a = 1/m\{[SQRT H2O(Ta/Pa)] - b\}$



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egress

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	Conc. (μg/m ³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	ουπο. (μg/m)
1/12/2017	15:00	2/12/2017	15:00	17862.74	17886.74	24.00	1.1597	1.1597	1.1597	2.5981	2.6834	51
7/12/2017	08:00	8/12/2017	08:00	17888.74	17912.74	24.00	1.0061	1.0061	1.0061	2.6961	2.8539	109
13/12/2017	14:30	14/12/2017	14:30	17916.74	17940.74	24.00	1.3133	1.3133	1.3133	2.6945	2.8946	106
19/12/2017	08:00	20/12/2017	08:00	17942.74	17966.74	24.00	1.3133	1.3133	1.3133	2.6781	2.9069	121
25/12/2017	08:00	26/12/2017	08:00	17969.74	17993.74	24.00	1.1597	1.1597	1.1597	2.6780	2.8320	92
31/12/2017	08:00	1/1/2018	08:00	17996.74	18020.74	24.00	1.3901	1.3901	1.3901	2.6762	2.8635	94

Monitoring Station : TKO-A2a

Location : CREO

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	. Conc. (μg/m³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	οοπο. (μg/m)
1/12/2017	15:00	2/12/2017	15:00	19956.61	19980.61	24.00	1.1213	1.1213	1.1213	2.5821	2.6785	60
7/12/2017	08:00	8/12/2017	08:00	19982.61	20006.61	24.00	1.1213	1.1213	1.1213	2.6947	2.9823	178
13/12/2017	14:30	14/12/2017	14:30	20010.61	20034.61	24.00	1.2409	1.2409	1.2409	2.7013	2.8443	80
19/12/2017	08:00	20/12/2017	08:00	20036.61	20060.61	24.00	1.1213	1.1213	1.1213	2.6687	2.8810	131
25/12/2017	08:00	26/12/2017	08:00	20063.61	20087.61	24.00	1.0615	1.0615	1.0615	2.6663	2.9485	185
31/12/2017	08:00	1/1/2018	08:00	20090.61	20114.61	24.00	1.1213	1.1213	1.1213	2.6910	2.8204	80



Summary of 1-hr TSP Monitoring Results

Monitoring	Station	: TKO-A1
------------	---------	----------

Location : Site Egres Site Egress

St	art	Fini	sh	Elapse	e Time	Sampling	Flow Rate	e (m ³ /min.)	Average	Filter W	eight (g)	Conc. (μg/m³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	
1/12/2017	13:00	1/12/2017	14:00	17861.74	17862.74	1.00	1.0829	1.0829	1.0829	2.6184	2.6416	357
4/12/2017	08:35	4/12/2017	09:35	17886.74	17887.74	1.00	1.1981	1.1981	1.1981	2.5953	2.6185	323
6/12/2017	08:30	6/12/2017	09:30	17887.74	17888.74	1.00	1.1597	1.1597	1.1597	2.7031	2.7268	341
8/12/2017	10:55	8/12/2017	11:55	17912.74	17913.74	1.00	1.1597	1.1597	1.1597	2.6652	2.6900	356
8/12/2017	13:00	8/12/2017	14:00	17913.74	17914.74	1.00	1.1213	1.1213	1.1213	2.7130	2.7371	358
11/12/2017	11:25	11/12/2017	12:25	17914.74	17915.74	1.00	1.3133	1.3133	1.3133	2.6978	2.7262	360
13/12/2017	13:00	13/12/2017	14:00	17915.74	17916.74	1.00	1.2365	1.2365	1.2365	2.6937	2.7104	225
15/12/2017	13:00	15/12/2017	14:00	17940.74	17941.74	1.00	1.3901	1.3901	1.3901	2.7196	2.7490	352
18/12/2017	14:10	18/12/2017	15:10	17941.74	17942.74	1.00	1.4669	1.4669	1.4669	2.6886	2.7151	301
20/12/2017	09:57	20/12/2017	10:57	17966.74	17967.74	1.00	1.4669	1.4669	1.4669	2.6660	2.6937	315
20/12/2017	13:37	20/12/2017	14:37	17967.74	17968.74	1.00	1.5053	1.5053	1.5053	2.6781	2.7095	348
22/12/2017	13:00	22/12/2017	14:00	17968.74	17969.74	1.00	1.3133	1.3133	1.3133	2.6805	2.7068	334
27/12/2017	13:20	27/12/2017	14:20	17993.74	17994.74	1.00	1.3133	1.3133	1.3133	2.6692	2.6817	159
27/12/2017	14:30	27/12/2017	15:30	17994.74	17995.74	1.00	1.3901	1.3901	1.3901	2.6796	2.7080	341
29/12/2017	15:30	29/12/2017	16:30	17995.74	17996.74	1.00	1.2365	1.2365	1.2365	2.6784	2.6944	216

Monitoring Station : TKO-A2a





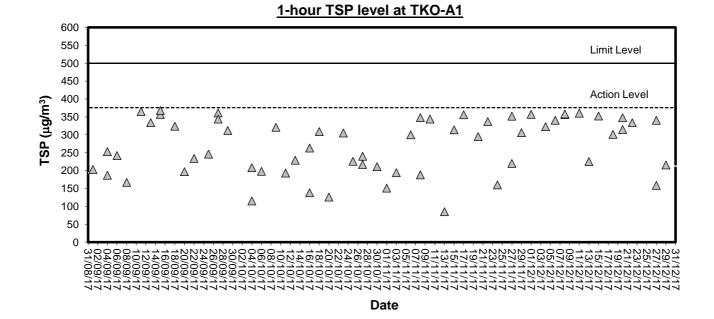
St	art	Fini	sh	Elapse	e Time	Sampling Flow Rate (m ³ /min.		e (m ³ /min.)	Average	Filter W	eight (g)	$Conc.(ug/m^3)$
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	Conc. (µg/m ³)
01/12/2017	13:05	01/12/2017	14:05	19955.61	19956.61	1.00	1.1811	1.1811	1.1811	2.6003	2.6222	309
04/12/2017	08:40	04/12/2017	09:40	19980.61	19981.61	1.00	1.1811	1.1811	1.1811	2.5882	2.6067	261
06/12/2017	08:35	06/12/2017	09:35	19981.61	19982.61	1.00	1.0017	1.0017	1.0017	2.6880	2.6985	175
08/12/2017	11:00	08/12/2017	12:00	20006.61	20007.61	1.00	1.0615	1.0615	1.0615	2.6741	2.6950	328
08/12/2017	13:00	08/12/2017	14:00	20007.61	20008.61	1.00	1.0615	1.0615	1.0615	2.6769	2.6888	187
11/12/2017	11:30	11/12/2017	12:30	20008.61	20009.61	1.00	1.2409	1.2409	1.2409	2.6850	2.7069	294
13/12/2017	13:05	13/12/2017	14:05	20009.61	20010.61	1.00	1.1512	1.1512	1.1512	2.6896	2.7010	165
15/12/2017	13:05	15/12/2017	14:05	20034.61	20035.61	1.00	1.2409	1.2409	1.2409	2.6988	2.7219	310
18/12/2017	14:20	18/12/2017	15:20	20035.61	20036.61	1.00	1.2110	1.2110	1.2110	2.6904	2.7044	193
20/12/2017	13:00	20/12/2017	14:00	20060.61	20061.61	1.00	1.3007	1.3007	1.3007	2.6510	2.6635	160
20/12/2017	14:10	20/12/2017	15:10	20061.61	20062.61	1.00	1.2708	1.2708	1.2708	2.6588	2.6856	351
22/12/2017	13:08	22/12/2017	14:08	20062.61	20063.61	1.00	1.2409	1.2409	1.2409	2.6732	2.6894	218
27/12/2017	13:25	27/12/2017	14:25	20087.61	20088.61	1.00	1.3605	1.3605	1.3605	2.6745	2.6996	307
27/12/2017	14:26	27/12/2017	15:26	20088.61	20089.61	1.00	1.2409	1.2409	1.2409	2.6677	2.6823	196
29/12/2017	15:40	29/12/2017	16:40	20089.61	20090.61	1.00	1.3007	1.3007	1.3007	2.6851	2.6941	115

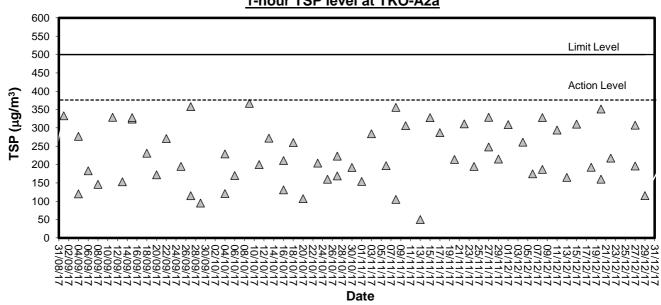


Appendix B3

Graphical Plots of Impact Air Quality Monitoring Data



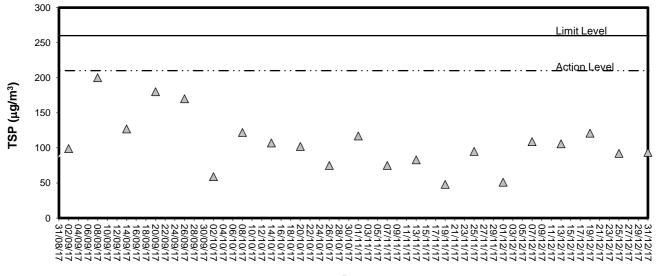




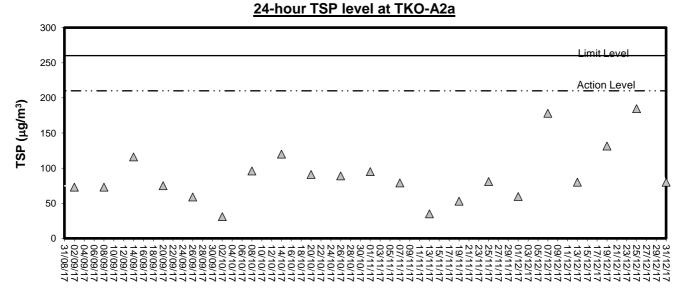
1-hour TSP level at TKO-A2a



24-hour TSP level at TKO-A1



Date



Date



Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipment





Calibration Certificate

Certificate No. 709571	Page 1 of 2 Pages
Customer : ETS-Testconsult Limited	
Address : 8/F., Block B, Veristrong Industrial Cen	tre, 34-36 Au Pui Wan St., Fotan, Hong Kong.
Order No. : Q73909	Date of receipt : 6-Oct-17
Item Tested	-
Description : Sound Level Calibrator	
Manufacturer : Rion	I.D. : ET/EN/002/01
Model : NC-73	Serial No. : 10196943
Test Conditions	
Date of Test : 16-Oct-17	Supply Voltage :
Ambient Temperature : (23 ± 3)°C	Relative Humidity : (50 ± 25) %

Celibration check. Ref. Document/Procedure : F21, Z02,

Test Results

All results were within the manufacturer's specification. The results are shown in the attached page(s).

'Main Test equipment used;

Equipment No.	Description	Cert. No.	Traceable to
8014	Spectrum Analyzer	707126	NIM-PRC & SCL-HKSAR
-8240	Sound Level Calibrator	703741	NIM-PRC & SCL-HKSAR
-S041	Universal Counter	707135	SCL-HKSAR
S206	Sound Level Meter	707129	SCL-HKSAR

The volues given in this Calibration Cartificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, availability, mis-banding, or the capability of any other laboratory to repeat the measurement. Hong Kong Caribration Ltd, shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to international System of Units (Si), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only.

Calibrated by :	Appro	wed by :	Alan Chu	
This Defilipse is lowed by: Heng Kong Gallavillon Ltd., UNI 98, 2471, WHI Fung Industrial Control, No. 58-78, To Chaen Ping Sanatyovy: Charg The 2425 1997, The: 2425 2406	Date: . NT/Hong Kang.	16-Oct-17		
inter on control of their parall states of the Kolong M. Alf Mills on Hitchie in overset by Hisnip Kong Calibration Ltd., it may not be not	reduced except in tot.			E





Calibration Certificate

Certificate No. 709571

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94 dB	94.0 dB	± 1 dB

Uncertainty : \pm 0.2 dB

2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.987 kHz	±2%

Uncertainty : ± 0,1 %

- Level Stability : 0.0 dB Uncertainty : ± 0.01 dB
- Total Harmonic Distortion : < 0.5 % Mfr's Spec. : < 3 % Uncertainty : ± 2.3 % of reading

Remarks: 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 025 hPa

END -----

The copylight of this cardificants is investibly Hang Keng Collection Unit. It may not be reproduced eccept in full



Calibration Certificate

Certificate No	. 704458		Page	1 of 3 Pages
Customer :	ETS-Testconsult Limited			
Address :	8/F., Block B, Veristrong Industr	rial Centre, 34-36 Au	ı Pui Wan St., Fo	otan, Hong Kong.
Order No. :	Q71850		Date of receipt	t : 16-May-17
Item Tested				
Description	: Sound Level Meter			
Manufacturer	: Rion		I.D.	: ET/EN/003/16
Model	: NL-52		Serial No.	: 00253765
Test Condit	ions			
Date of Test :	24-May-17		Supply Voltage	e :
Ambient Temp	perature: (23 ± 3)°C		Relative Humic	dity: (50 ± 25) %
Test Specif	ications			
Calibration che	ck.			
Ref. Document	/Procedure: Z01, IEC 61672.			
Test Result	S			
All results were	within the IEC 61672 Type 1 spe	cification.		
	shown in the attached page(s).			
Main Test equi	pment used:			
Equipment No.	Description	<u>Cert. No.</u>		Traceable to
S017	Multi-Function Generator	C170120		SCL-HKSAR
S240	Sound Level Calibrator	701036		NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant. The test results apply to the above Unit-Under-Test only

Calibrated by :	Approv	ved by :	Alen Alan Chu
This Certificate is issued by: Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chung, NT,Hong Kon Tel: 2425 8801 Fax: 2425 8646	Date:	24-May-17	

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Calibration Certificate

Certificate No. 704458

Page 2 of 3 Pages

Results :

1. Self-generated noise : 15.0 dBA (Mfr's Spec \leq 17 dBA)

2. Acoustical signal test

	UUT S	etting			
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter	Applied Value (dB)	UUT Reading (dB)
30-130	A	F	OFF	94.0	94.0
		S	OFF		94.0
	С	F	OFF		94.3
	Z	F	OFF		94.3
	A	F	OFF	114.0	114.1
		S	OFF		114.1
	C	F	OFF		114.1
	Z	F	OFF		114.1

IEC 61672 Type 1 Spec. : \pm 1.1 dB Uncertainty : \pm 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.6	- 39.4 dB, ± 2 dB
63 Hz	-26.2	- 26.2 dB, ± 1.5 dB
125 Hz	-16.2	- 16.1 dB, ± 1.5 dB
250 Hz	-8.7	- $8.6 dB, \pm 1 dB$
500 Hz	-3.3	- $3.2 \text{ dB}, \pm 1.4 \text{ dB}$
1 kHz	0.0 (Ref)	$0 dB, \pm 1.1 dB$
2 kHz	+1.2	$+$ 1.2 dB, \pm 1.6 dB
4 kHz	+1.0	$+ 1.0 \text{ dB}, \pm 1.6 \text{ dB}$
8 kHz	-1.1	- 1.1 dB , + 2.1 dB ~ - 3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

Uncertainty : $\pm 0.1 \text{ dB}$



Calibration Certificate

Certificate No. 704458

Page 3 of 3 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
А	94.0	94.0 (Ref.)		± 0.4 dB
С	94.0	94.3	+0.3	
Z	94.0	94.3	+0.3	

4.2 Time Weighting (A-weighted)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
Fast	94.0	94.0 (Ref.)		± 0.3 dB
Slow	94.0	94.0	0.0	
Time-averaging	94.0	94.0	0.0	

Uncertainty : $\pm 0.1 \text{ dB}$

Remarks : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1026 hPa.
- 4. Preamplifier model : NH-25, S/N : 43795
- 5. Firmware Version: 1.5
- 6. Power Supply Check: OK
- 7. The UUT was adjusted with the laboratory's calibrator at the reference sound pressure level before the calibration.

----- END ------



Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Location: TKO-N1 (Site Egress)

Date	Start Sampling Time (hh:mm)	Noi	se Level dB	(A)	Wind Speed	Weather Condition
		L _{eq(30min)}	L ₁₀	L ₉₀	(m/s)	
20/12/17	13:30	69.1	71.9	58.0	0.4	Fine

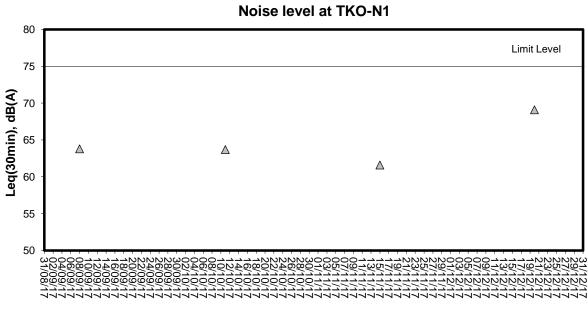


Appendix C3

Graphical Plots of Impact Noise Monitoring Data



Noise Monitoring (Day-time)



Date



Appendix D1

Calibration Certificates for Impact Marine Water Quality Monitoring Equipments



Performance C	Theck of Turbidity	Meter
Equipment Ref. No. : ET/0505/017	Manufacturer	: HACH
Model No. : <u>2100Q</u>	Serial No.	: <u>16030C048474</u>
Date of Calibration : <u>21/10/2017</u>	Due Date	: <u>19/01/2018</u>
Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	20.8	4.0
100	104	4.0
800	792	-1.0
(*) Difference = (Measured Value	e – Theoretical Value) / The	oretical Value x 100
Acceptance Criteria Diffe	erence : -5 % to 5 %	
The turbidity meter complies * / d and is deemed acceptable * / unae national standards.		
Prepared by :	Checked by :	4



Performance Check of Turbidity Meter

Equipment Ref. No.	: <u>ET/0505/014</u>	Manufacturer	;	HACH
Model No.	: <u>21000</u>	Serial No.	;	13110C029448
Date of Calibration	: <u>18/11/2017</u>	Due Date	÷	17/01/2018

Theoretical Value of Turbidity Standard (NTU)	Measured Value (NTU)	Difference % *
20	21.0	5.0
100	110	1.0
800	790	-1.3

(*) Difference = (Measured Value - Theoretical Value) / Theoretical Value x 100

Acceptance Criteria

Difference : -5 % to 5 %

The turbidity meter complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use. Measurements are traceable to national standards.

1		
	116.	- · · · · · · · · · · · · · · · · · · ·
Prepared by :	lotten	Checked by : //



Form II/CII/R/12 Issue 8 (1/2) [85/13]

quipment Ref. No.	: ET/EW	//008/007			Manufactur	rer	: YSI	
odel No.	: Pro 20	30			Serial No.		: 12H101061	
ate of Calibration	: 14/10/	2017		_	Calibration	Due Date	: 13/01/20	18
Temperature Verifi	cation							
Rof. No. of Referen	ce Thermoine	ster :	ET/0521/	023				
Ref. No. of Water B	kath :							
					Tem	perature (°C)		
Reference T	hermometer r	eading	Measured		19.7	Corrected		20.0
	deter reading		Measured		19.9	Difference		0.1
Standardization of	endium thine	alahata ()						
Reagent No. of Na ₂			PE/012/4.5/00		rent No. of 0.0	25N K ₂ Cr ₂ O ₂	CPE/012	/4.4/002/22
	-13-intene	P	1 6191214.0199					
Initial Vol. of Na ₂ S ₂ O ₅ (ml)					Trial			ial 2
Final Vol. of Na ₂ S ₂ O ₃ (m)					0.00			.15
Vol. of Na2S2O3 use					10.1		20.25	
Normality of Na2S20		0			10.15 10.10 0.02463 0.02475			
Average Normality		-	1 (N)		0.02463 0.02475 0.02469			
Acceptance criteria,	the second se	1		Less than ± 0.001N				
						DAM HILL	0.000114	
Calculation:	Normality of	f Na ₂ S ₂ O	₃₊ N = 0.25 / ml	Na ₂ S ₂ O ₃ use	d			
	Normality o	f Na ₂ S ₂ O	1+ N = 0.25 / ml	Na ₂ S ₂ O ₃ use	đ			
Lineality Checking					d			
Lineality Checking Determination of di	ssolved oxyg				d			
Lineality Checking Determination of dl Purging Time (min)	ssolved oxyg			itration *	d	5	1	0
Lineality Checking Determination of di Purging Time (min) Trial	ssolved oxyg		t by Winkler Ti	itration *	d	5 2	1	0
Lineality Checking Determination of di Purging Time (min) Trial Initial Vol. of Na ₂ S ₂	ssolved oxyg O ₅ (ml)		t by Winkler Ti 2 1 0.00	itration *				1
Lineality Checking Determination of di Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ C	ssolved oxyg O ₅ (ml) O ₅ (ml)		t by Winkler Ti 2 1 0.00 10.90	itration * 2 10.90 21.90	1	2	1	2
Lineality Checking Determination of di Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O ₃	osolved oxyg O ₅ (ml) O ₅ (ml) used (ml)		t by Winkler Ti 2 1 0.00 10.90 10.90	2 10.90 21.90 11.00	1 21.90 27.90 6.00	2 0.00	1 6.20	2 10.30
Lineality Checking Determination of di Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ C Final Vol. of Na ₂ S ₂ C Vol. (V) of Na ₂ S ₂ O ₃ Dissolved Oxygen (I	O ₅ (ml) O ₅ (ml) Used (ml) DO), mg/L		t by Winkler Ti 2 1 0.00 10.90 10.90 7.22	2 10.90 21.90 11.00 7.29	1 21.90 27.90 6.00 3.98	2 0.00 6.20 6.20 4.11	1 6.20 10.30 4.10 2.72	2 10.30 14.50 4.20 2.78
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ C Final Vol. of Na ₂ S ₂ C Vol. (V) of Na ₂ S ₂ O ₃ Dissolved Oxygen (I Acceptance criteria,	O ₅ (ml) O ₅ (ml) Used (ml) DO), mg/L Deviation	en conten	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than +	2 10.90 21.90 11.00 7.29	1 21.90 27.90 6.00 3.98	2 0.00 6.20 6.20	1 6.20 10.30 4.10 2.72	2 10.30 14.50 4.20
Lineality Checking Determination of di Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ C Final Vol. of Na ₂ S ₂ C Vol. (V) of Na ₂ S ₂ O ₃ Dissolved Oxygen (I	O ₅ (ml) O ₅ (ml) Used (ml) DO), mg/L	en conten	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than +	2 10.90 21.90 11.00 7.29	1 21.90 27.90 6.00 3.98	2 0.00 6.20 6.20 4.11	1 6.20 10.30 4.10 2.72	2 10.30 14.50 4.20 2.78
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O Dissolved Oxygen (I Acceptance criteria, Calculation:	osolved oxyg O ₅ (ml) O ₃ (ml) used (ml) DO), mg/L Deviation DO (mg/L)	en conten	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than +	2 10.90 21.90 11.00 7.29 0.3mg/L	1 21.90 27.90 6.00 3.98	2 0.00 6.20 6.20 4.11 a + 0.3mg/L	1 6.20 10.30 4.10 2.72 Less than	2 10.30 14.50 4.20 2.78
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ C Final Vol. of Na ₂ S ₂ C Vol. (V) of Na ₂ S ₂ O ₃ Dissolved Oxygen (I Acceptance criteria,	osolved oxyg O ₅ (ml) O ₃ (ml) used (ml) DO), mg/L Deviation DO (mg/L)	en conten	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than + 8000/298	itration * 2 10.90 21.90 11.00 7.29 0.3mg/L Winkle	1 21.90 27.90 6.00 3.98 Less that	2 0.00 6.20 6.20 4.11 a + 0.3mg/L	1 6.20 10.30 4.10 2.72 Less than	2 10.30 14.50 4.20 2.78 + 0.3mg/L
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O Dissolved Oxygen (I Acceptance criteria, Calculation:	osolved oxyg O ₅ (ml) O ₃ (ml) used (ml) DO), mg/L Deviation DO (mg/L)	en conten	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than + 8000/298 ing, mg/L	itration * 2 10.90 21.90 11.00 7.29 0.3mg/L Winkle	1 21.90 27.90 6.00 3.98 Less that	2 0.00 6.20 6.20 4.11 a + 0.3mg/L ult *, mg/L	1 6.20 10.30 4.10 2.72 Less than Difference	2 10.30 14.50 4.20 2.78 + 0.3mg/L (%) of DO tent
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O Dissolved Oxygen (I Acceptance criteria, Calculation: Purging time, min	o ₅ (ml) O ₅ (ml) used (ml) DO), mg/L DO (mg/L) DO n L	en conten = V x N x neter read 2	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than + 8000/298 ing, mg/L Average	itration * 2 10.90 21.90 11.00 7.29 0.3mg/L Winkle 1	1 21.90 27.90 6.00 3.98 Less that r Titration res 2	2 0.00 6.20 6.20 4.11 a + 0.3mg/L ult *, mg/L Average	1 6.20 10.30 4.10 2.72 Less than Difference Con	2 10.30 14.50 4.20 2.78 + 0.3mg/L (%) of DO trent 41
Lineality Checking Determination of dl Purging Time (min) Trial Initial Vol. of Na ₂ S ₂ Final Vol. of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O Vol. (V) of Na ₂ S ₂ O Dissolved Oxygen (I Acceptance criteria, Calculation: Purging time, min 2	Do (mg/L) DO (mg/L) DO (mg/L)	ew comten = V x N x neter read 2 7.25	t by Winkler Ti 2 1 0.00 10.90 10.90 7.22 Less than + 8000/298 ing, mg/L Average 7.23	itration * 2 10.90 21.90 11.00 7.29 0.3mg/L Winkle 1 7.22	1 21.90 27.90 6.00 3.98 Less that r Titration res 2 7.29	2 0.00 6.20 4.11 a + 0.3mg/L ult *, mg/L Average 7.26	1 6.20 10.30 4.10 2.72 Less than Difference Con 0.4	2 10.30 14.50 4.20 2.78 + 0.3mg/L (%) of DO itent 41 16

Þ



Perm E/CB/9/12 hours # (2/2) [05/13]

Zero Point Checkin	8													
	DO meter re	ading, r	ng/L				0,00							
Salinity Checking														
Reagent No. of NaC	1 (10ppt)		CPEA	012/4.7/004/	11 Reag	ent No. of Na	Cl (30ppt)	CPEA	012/4.8/004/11					
Determination of di		en conti	ent by	Winkler Thr										
Salinity (ppt)	70		ŕ				1	1						
l'rial				1	10	1	1	3						
nitial Vol. of Na ₂ S ₂	0, (ml)			0.00		2 10.60	21.30		2 30.50					
								-						
				and the second second second										
Final Vol. of Na ₂ S ₂ O ₃ (ml) 10.60 21.30 30.50 39.60 Vol. (V) of Na ₂ S ₂ O ₃ used (ml) 10.60 10.70 9.20 9.10 Dissolved Oxygen (DO), mg/L 7.03 7.09 6.10 6.03														
Dissolved Oxygen (DO), mg/L 7.03 7.09 6.10 6.03 Acceptance criteria, Deviation Less than + 0.3mg/L Less than + 0.3mg/L Less than + 0.3mg/L														
Calculation:	DO (mg/L)	$-V \times N$	x 800	0/298										
0.5.5.4.0	DO	neter rea	ading.	mg/L	Winkler	Titration rest	ilt**. me/L	D://	(N) (DO					
Salinity (ppt)	1	2		Average	l	2	Average	1 Dim	erence (%) of DO Content					
10	7.12	7.14	4	7.13	7.03	7.09	7.06		0.99					
30	6.08	6.0	8	6.08	6.10	6.03	6.07		0.16					
10 Difference Criteria 1) Difference betwee 2) Linear regression 3) Zero checking: 0. 4) Difference (%) of	n temperatur coefficient : .0mg/L	>0.99						nomete	r:<0.5 °C					
he equipment comp unaccoptable ^d for u Delete as appropria	150.	not-com;	pły″w	ith the specif	fied requirer	oents and is d	cerned acceptal	ble "						
ated by	<u> 1</u> 4	-le-	\sim			Appro	ved by :	ð	/					



Performa	nce Check of	f Salinity Meter												
Equipment Ref. No. : ET/EW	V/008/007	Manufacturer : YSI												
Model No. : <u>Pro 20</u>	30	Serial No. : <u>12H 101061</u>												
Date of Calibration : 14/10/2	2017	Due Date : <u>13/01/2018</u>												
Ref. No. of Salinity Stand	lard used (30ppt)	S/001/10												
Salinity Standard Value (ppt) Measured Salinity (ppt) Difference * (%)														
 Difference * (%) 														
(*) Difference (%) = (Measured S	šalinity – Salinity Sta	ndard value) / Salinity Standard value x 100												
Acceptance Criteria	Difference : -10 %	to 10 %												
The salinity meter complies and is deemed acceptable * national standards.	* / does not compl / unacceptable * for	y * with the specified requirements r use. Measurements are traceable to												
Checked by :	App	roved by :												



Form E/CE/0/12 Issue 8 (1/2) [05/13]

quipment Ref. No.	: ET/EV	W/008/009			Manufactu	irer	: YSI	
fodel No.	: Pro 20				Serial No.		: 16LL100	372
ate of Calibration	: 14/30/					1 Due Date	: 13/01/20	and the second se
		2017			Cantoralised	I Dave Dolle	1.0007/20	10
Temperature Verifi	cation							
Ref. No. of Referen	ce Thermom	eter :	ET/052	1/023				
Rcf. No. of Water B	ath :							
					Tem	perature (4C)		
Reference TI	hermometer	reading	Measure	ed	19.7	Corrected		20.0
	feter reading		Measure	ed	19.9	Difference		0.1
Standardization of s	odium thios	sulphate (N	Va_2S_2O_3) &	olution				
Reagent No. of Na28	S2O3 titrant		PE/012/4.5/0	001/17	Reagent No. of 0.	025N K2Cr2O7	CPE/012	/4.4/002/22
					Tria	11	Tr	ial 2
Initial Vol. of Na ₂ S ₂	O3 (ml)				0.0	and the second se		15
Final Vol. of Na2S2C					10.1	5	20	.25
Vol. of Na2S2O3 use					10.1	5	10	.10
Normality of Na2S2C		-			0.024	63	0.02	475
Average Normality (O3 solution	(N)			0.0246	9	
Acceptance criteria,						Less than ±	0.001N	
Calculation:	Normality (of Na ₂ S ₂ O ₂	N = 0.25 / i	ml Na ₂ S ₂ O	3 used			
Lineality Checking								
Determination of dis	central area	ion comfort	the Winklas	Titution				
Purging Time (min)	sonrea osga	en conten	ay or annas					
Trial			1	2 2	1	5 2		2
Initial Vol. of Na ₂ S ₂ 4	O1 (ml)		0.00	10.9		0.00	6.20	10.30
Final Vol. of Na ₂ S ₂ O			10.90	21.90		6.20	10.30	14.50
Vol. (V) of Na ₂ S ₂ O ₃	used (ml)		10.90	11.00		6.20	4.10	4.20
Dissolved Oxygen (I	00), mg/L		7.22	7.29		4.11	2.72	2.78
Acceptance criteria,	Deviation			+ 0.3mg/l	the state of the second s	n + 0.3mg/L		+ 0.3mg/L
Calculation:	DO (mg/L)	= V x N x	8000/298					
	DO.		····· 7		Tables (17) and	1.4	P-105	-
	1	meter read	ng, mg/L Averag		inkler Titration res	sult *, mg/L Average		(%) of DO itent
Purging time, min	and the second se	7.29	7.30	7.3		7.26	0.5	
	7,30		11.70			4.05		
Purging time, min 2 5	7.30	4.24	4.23	3.0	98 4.11	1 10.000	4	15
2		4.24 2.65	4.23	3.5		2.75	4.3	and the second second



Form E/CE/8/13 Issue 8 (212) [05/13]

	ł													
	DO meter re	ading, n	ıg/L			0.00								
Salinity Checking														
Reagent No. of NaCl	(10eet)		CPE/012/4.7/004/	II Reas	ent No. of NaC	1 (30ppt)	CPE/012/4.8/004/11							
Determination of dis														
Salinity (ppt)				10			30							
Trial			1		2	1	2							
Initial Vol. of Na ₃ S ₂ O ₃ (ml) 0.00 10.60 21.30 30.50 Final Val. of Na ₃ S ₂ O ₃ (ml) 0.00 10.60 21.30 30.50														
Final Vol. of Na ₂ S ₂ O ₃ (ml) 10.60 21.30 30.50 Vol. of Na ₂ S ₂ O ₃ (ml) 10.60 21.30 30.50 39.60														
Vol. (V) of Na ₂ S ₁ O ₅ used (ml) 10.60 10.70 9.20 9.10														
			7.03		7.09	6.10	6.03							
Dissolved Oxygen (DO), mg/L 7.03 7.09 6.10 6.03 Acceptance criteria, Deviation Less than + 0.3mg/L Less than + 0.3mg/L														
Calculation:	DO (mg/L)	= V x N	x 8000/298											
Salinity (ppt)	DQ n	octor rea	ding, mg/L	Winkler	Titration result	lt**, mg/L	Difference (%) of DO							
2 47 5	1	2	Average	1	2	Average	Content							
10	7.08	7.11	7.1	7.03	7.09	7.06	0.56							
30	6.12	6.0	3 6.1	6.10	6.03	6.07	0,49							
1) Difference Criteria 2) Linear regression 3) Zero checking: 0,1 4) Difference (%) of	coefficient : Img/L	>0.99					tometer : < 0.5 °C							
The equipment compl 'unneceptable [#] for us ' Delete as appropriat	9C,	iot-comj	ly ^d with the speci t	ied requiren	nents and is de	emed acceptab	de "							



Performar	nce Check of	f Salinity Meter												
Equipment Ref. No. : ET/EW	//008/009	Manufacturer : <u>YSI</u>												
Model No. : <u>Pro 20</u>	30	Serial No. : <u>16LL100372</u>												
Date of Calibration : 14/10/2	2017	Due Date : <u>13/01/2018</u>												
Ref. No. of Salinity Stand	lard used (30ppt)	S/001/9												
Colinity Standard Volue Measured Solinity														
Salinity Standard Value (ppt) Measured Salinity (ppt) Difference * (%)														
* Ditterence = (%)														
(*) Difference (%) = (Measured S	Salinity – Salinity Sta	ndard value) / Salinity Standard value x 100												
Acceptance Criteria	Difference : -10 %	to 10 %												
		y * with the specified requirements r use. Measurements are traceable to												
Checked by :	Арр	roved by :												



Appendix D2

Impact Marine Water Quality Monitoring Results

Mid-Ebb Tide



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	(mg/L)		d Oxygen tion (%)	Т	urbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Duration	Condition	(n	ר)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	23.2	30.8 30.9	30.9	7.32 7.35	7.34	7.23	102.2 102.6	102.4	4.01 4.05	4.03		5.6 5.7	5.7	
01/12/17	0930-0945	20/Cloudy	Middle	9.7	23.1	31.2 31.1	31.2	7.10 7.14	7.12	1.20	99.3 99.8	99.6	4.12 4.16	4.14	4.08	5.6 2.9	4.3	5.8
			Bottom	18.4	23.1	31.3 31.3	31.3	7.04 7.01	7.03	7.03	98.4 98.0	98.2	4.08 4.05	4.07		3.8 11.1	7.5	
			Surface	1.0	22.7	31.1 31.2	31.2	6.43 6.56	6.50	6.36	89.2 91.0	90.1	3.76 3.80	3.78		4.4 2.8	3.6	
04/12/17	1133-1151	24/Fine	Middle	9.1	22.9	31.2 31.2	31.2	6.26 6.17	6.22	0.50	87.3 86.1	86.7	3.91 3.95	3.93	3.92	4.9 3.6	4.3	4.3
			Bottom	17.2	23.2	31.4 31.5	31.5	6.02 6.10	6.06	6.06	84.4 85.6	85.0	4.04 4.05	4.05		4.1 6.2	5.2	
			Surface	1.0	22.3	31.0 31.0	31.0	7.32 7.39	7.36	7.24	100.8 101.6	101.2	3.97 4.01	3.99		4.0 3.7	3.9	
06/12/17	1230-1248	22/Fine	Middle	9.2	22.5	31.2 31.1	31.2	7.15 7.10	7.13	7.24	98.8 98.1	98.5	3.83 3.88	3.86	4.00	5.2 4.3	4.8	4.5
			Bottom	17.3	22.7	31.3 31.3	31.3	7.02 6.94	6.98	6.98	97.3 96.2	96.8	4.13 4.18	4.16		3.9 5.6	4.8	
			Surface	1.0	20.9	30.5 30.4	30.5	7.16 7.10	7.13	7.05	95.7 94.9	95.3	4.03 4.00	4.02		5.6 4.9	5.3	
08/12/17	1500-1519	20/Cloudy	Middle	9.1	21.1	30.6 30.6	30.6	7.00 6.93	6.97	7.05	93.8 92.9	93.4	3.91 3.95	3.93	4.04	1.9 3.4	2.7	4.0
			Bottom	17.2	21.3	30.8 30.7	30.8	6.72 6.78	6.75	6.75	90.3 91.1	90.7	4.15 4.21	4.18		2.9 5.4	4.2	
			Surface	1.0	21.0	31.1 31.1	31.1	7.96 8.08	8.02	7.91	107.1 108.8	108.0	2.11 2.14	2.13		2.8 2.4	2.6	
11/12/17	1800-1814	21/Fine	Middle	9.2	21.3	31.2 31.3	31.3	7.75 7.83	7.79	7.91	105.0 106.1	105.6	2.26 2.30	2.28	2.25	2.9 3.3	3.1	3.1
			Bottom	17.3	21.4	31.4 31.4	31.4	7.64 7.77	7.71	7.71	103.8 105.6	104.7	2.36 2.33	2.35		3.8 3.5	3.7	
			Surface	1.0	21.5	30.9 30.8	30.9	7.43 7.40	7.42	7.34	100.8 100.4	100.6	3.49 3.45	3.47		4.5 2.9	3.7	
13/12/17	0800-0815	19/Cloudy	Middle	9.7	21.7	31.0 31.1	31.1	7.24 7.27	7.26	1.34	98.6 99.0	98.8	3.37 3.34	3.36	3.46	3.8 4.1	4.0	4.0
			Bottom	18.4	21.8	31.2 31.1	31.2	7.04 7.08	7.06	7.06	96.1 96.6	96.4	3.58 3.55	3.57		3.9 5.0	4.5	

Mid-Ebb Tide



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	(mg/L)		d Oxygen tion (%)	Т	urbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Duration	Condition	n)	ר)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	20.6	30.6 30.7	30.7	7.13 7.09	7.11	7.07	94.9 94.4	94.7	3.84 3.80	3.82		4.2 4.5	4.4	
15/12/17	1000-1015	20/Cloudy	Middle	9.8	20.8	30.8 30.9	30.9	7.02 7.05	7.04	1.01	93.9 94.3	94.1	3.59 3.53	3.56	3.77	4.9 3.8	4.4	3.7
			Bottom	18.6	21.0	31.0 31.0	31.0	6.98 6.95	6.97	6.97	93.8 93.4	93.6	3.94 3.90	3.92		2.7 2.0	2.4	
			Surface	1.0	19.3	31.3 31.3	31.3	6.87 6.81	6.84	6.93	89.7 88.9	89.3	3.31 3.36	3.34		3.6 3.8	3.7	
18/12/17	1200-1219	16/Fine	Middle	9.3	19.5	31.4 31.5	31.5	7.05 7.00	7.03	0.93	92.4 91.7	92.1	3.17 3.10	3.14	3.35	2.8 3.0	2.9	3.0
			Bottom	17.6	19.7	31.7 31.7	31.7	6.63 6.55	6.59	6.59	87.1 86.2	86.7	3.56 3.60	3.58		1.0 3.8	2.4	
			Surface	1.0	18.1	31.0 31.1	31.1	8.15 8.10	8.13	8.26	103.5 102.9	103.2	3.87 3.91	3.89		6.2 5.2	5.7	
20/12/17	1230-1248	19/Fine	Middle	9.1	18.3	31.2 31.3	31.3	8.36 8.43	8.40	0.20	106.7 107.5	107.1	3.64 3.69	3.67	3.88	6.2 6.8	6.5	6.0
			Bottom	17.2	18.5	31.5 31.4	31.5	8.03 7.96	8.00	8.00	102.7 101.9	102.3	4.05 4.11	4.08		5.4 6.0	5.7	
			Surface	1.0	18.2	31.3 31.2	31.3	7.89 7.80	7.85	7.94	100.8 99.7	100.3	4.04 3.96	4.00		4.5 4.6	4.6	
22/12/17	1330-1350	19/Fine	Middle	9.1	18.3	31.4 31.4	31.4	8.00 8.06	8.03	7.94	102.4 103.1	102.8	3.88 3.83	3.86	4.02	3.2 3.3	3.3	3.7
			Bottom	17.1	18.5	31.5 31.5	31.5	7.67 7.60	7.64	7.64	98.5 97.6	98.1	4.18 4.21	4.20		2.6 3.7	3.2	
			Surface	1.0	17.8	30.6 30.5	30.6	7.83 7.76	7.80	7.72	98.7 97.8	98.3	3.88 3.84	3.86		4.8 4.7	4.8	
27/12/17	1800-1816	17/Cloudy	Middle	9.1	17.9	30.7 30.7	30.7	7.61 7.69	7.65	1.12	96.0 96.8	96.4	3.63 3.67	3.65	3.88	5.1 3.0	4.1	4.1
			Bottom	17.2	18.1	30.9 30.8	30.9	7.33 7.38	7.36	7.36	92.8 93.4	93.1	4.11 4.15	4.13		2.6 4.1	3.4	
			Surface	1.0	17.5	30.5 30.6	30.6	7.98 7.90	7.94	7.82	100.3 99.4	99.9	3.93 3.98	3.96		5.6 4.3	5.0	
29/12/17	0800-0820	18/Fine	Middle	9.2	17.6	30.8 30.8	30.8	7.73 7.67	7.70	1.02	97.2 96.5	96.9	4.07 4.01	4.04	4.05	4.4 5.2	4.8	4.7
			Bottom	17.3	17.8	30.9 31.0	31.0	7.45 7.52	7.49	7.49	94.0 94.8	94.4	4.16 4.12	4.14		4.3 4.2	4.3	

<u>Mid-Ebb Tide</u>



Monitoring Station : TKO-M4

Date	Sampling	Ambient Temp	Monitoring [Dopth (m)	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	ırbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	wonitoning t	Jeptin (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	23.3	30.9 30.9	30.9	7.44 7.47	7.46	7.36	104.2 104.6	104.4	3.98 3.92	3.95		5.3 6.4	5.9	
01/12/17	1000-1015	20/Cloudy	Middle	4.6	23.2	31.3 31.2	31.3	7.26 7.28	7.27	7.50	101.6 101.9	101.8	4.09 4.05	4.07	4.00	3.1 8.2	5.7	6.6
			Bottom	8.2	23.2	31.3 31.3	31.3	7.29 7.25	7.27	7.27	102.1 101.5	101.8	4.01 3.96	3.99		9.9 6.8	8.4	
			Surface	1.0	22.7	31.2 31.2	31.2	6.36 6.28	6.32	6.24	88.3 87.2	87.8	3.81 3.84	3.83		5.3 3.0	4.2	
04/12/17	1202-1222	24/Fine	Middle	5.0	22.8	31.3 31.4	31.4	6.11 6.19	6.15	0.24	85.1 86.2	85.7	4.06 4.10	4.08	3.97	4.3 4.4	4.4	4.6
			Bottom	8.9	23.0	31.6 31.6	31.6	5.95 6.04	6.00	6.00	83.2 84.5	83.9	3.99 4.01	4.00		5.5 4.9	5.2	
			Surface	1.0	22.3	31.0 30.9	31.0	7.28 7.22	7.25	7.15	100.3 99.5	99.9	4.06 4.02	4.04		5.0 8.4	6.7	
06/12/17	1258-1317	22/Fine	Middle	5.1	22.4	31.1 31.1	31.1	7.08 7.00	7.04	7.15	97.7 96.6	97.2	3.98 3.95	3.97	4.08	4.2 4.2	4.2	5.3
			Bottom	9.2	22.5	31.1 31.2	31.2	6.87 6.92	6.90	6.90	94.9 95.6	95.3	4.20 4.24	4.22		5.8 4.1	5.0	
			Surface	1.0	21.0	30.4 30.4	30.4	7.04 7.12	7.08	6.98	94.2 95.3	94.8	4.08 4.12	4.10		3.8 4.7	4.3	
08/12/17	1526-1546	20/Cloudy	Middle	5.1	21.1	30.5 30.4	30.5	6.91 6.85	6.88	0.90	92.6 91.8	92.2	3.93 3.87	3.90	4.07	5.6 6.6	6.1	5.8
			Bottom	9.1	21.2	30.6 30.5	30.6	6.74 6.69	6.72	6.72	90.6 89.9	90.3	4.24 4.20	4.22		7.1 7.0	7.1	
			Surface	1.0	21.1	31.0 31.1	31.1	7.85 7.97	7.91	7.74	105.8 107.4	106.6	2.30 2.34	2.32		2.7 1.1	1.9	
11/12/17	1825-1841	21/Fine	Middle	5.1	21.2	31.1 31.3	31.2	7.62 7.51	7.57	1.14	103.0 101.5	102.3	2.58 2.55	2.57	2.43	2.7 2.8	2.8	2.8
			Bottom	9.1	21.3	31.4 31.5	31.5	7.38 7.49	7.44	7.44	100.1 101.6	100.9	2.39 2.41	2.40		5.1 2.6	3.9	
			Surface	1.0	21.4	30.9 30.9	30.9	7.58 7.55	7.57	7.48	102.5 102.1	102.3	2.97 2.94	2.96		5.0 3.9	4.5	
13/12/17	0829-0844	19/Cloudy	Middle	4.4	21.8	30.9 31.0	31.0	7.37 7.40	7.39	7.48	100.5 100.9	100.7	3.21 3.17	3.19	3.07	4.3 4.3	4.3	4.7
			Bottom	7.8	21.8	31.1 31.1	31.1	7.28 7.24	7.26	7.26	99.4 99.9	99.7	3.08 3.05	3.07		5.5 4.9	5.2	

<u>Mid-Ebb Tide</u>



Monitoring Station : TKO-M4

Date	Sampling	Ambient Temp	Monitoring [Dopth (m)	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	ırbidity (NT	U)	Suspe	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	wontoning t	Jeptin (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	20.5	30.8 30.8	30.8	7.25 7.21	7.23	7.22	96.5 96.0	96.3	3.43 3.40	3.42		4.6 2.4	3.5	
15/12/17	1028-1043	20/Cloudy	Middle	4.6	20.9	30.9 31.0	31.0	7.20 7.23	7.22	1.22	96.6 97.0	96.8	3.62 3.65	3.64	3.57	4.2 4.4	4.3	4.0
			Bottom	8.2	20.9	31.0 31.0	31.0	7.04 7.02	7.03	7.03	94.5 94.2	94.4	3.68 3.65	3.67		4.7 3.7	4.2	
			Surface	1.0	19.2	31.2 31.3	31.3	6.94 6.90	6.92	6.88	90.5 90.0	90.3	3.25 3.20	3.23		4.0 3.7	3.9	
18/12/17	1229-1248	16/Fine	Middle	5.1	19.3	31.3 31.3	31.3	6.82 6.87	6.85	0.00	89.1 89.7	89.4	3.34 3.38	3.36	3.38	3.0 2.6	2.8	3.6
			Bottom	9.1	19.5	31.5 31.5	31.5	6.69 6.61	6.65	6.65	87.6 86.7	87.2	3.51 3.57	3.54		2.4 5.7	4.1	
			Surface	1.0	18.1	31.1 31.1	31.1	8.27 8.22	8.25	8.16	105.2 104.6	104.9	3.95 3.90	3.93		8.0 8.1	8.1	
20/12/17	1258-1317	19/Fine	Middle	5.2	18.2	31.2 31.2	31.2	8.11 8.02	8.07	0.10	103.3 102.2	102.8	4.07 4.02	4.05	4.04	5.6 6.1	5.9	6.6
			Bottom	9.3	18.4	<u>31.4</u> 31.3	31.4	8.43 8.48	8.46	8.46	107.7 108.4	108.1	4.16 4.13	4.15		6.1 5.4	5.8	
			Surface	1.0	18.2	31.3 31.3	31.3	7.74 7.70	7.72	7.66	98.9 98.4	98.7	4.10 4.06	4.08		2.5 2.5	2.5	
22/12/17	1356-1412	19/Fine	Middle	5.1	18.2	31.4 31.3	31.4	7.58 7.63	7.61	7.00	96.9 97.5	97.2	3.95 3.90	3.93	4.06	4.8 4.7	4.8	4.3
			Bottom	9.2	18.4	31.4 31.4	31.4	7.42 7.49	7.46	7.46	95.1 96.0	95.6	4.22 4.15	4.19		6.3 4.8	5.6	
			Surface	1.0	17.8	30.6 30.6	30.6	7.70 7.66	7.68	7.58	97.0 96.5	96.8	4.04 4.08	4.06		3.6 4.8	4.2	
27/12/17	1822-1840	17/Cloudy	Middle	5.2	17.9	30.7 30.6	30.7	7.45 7.50	7.48	7.50	94.1 94.7	94.4	3.86 3.91	3.89	4.04	4.4 2.9	3.7	3.9
			Bottom	9.3	18.0	30.8 30.8	30.8	7.27 7.21	7.24	7.24	91.9 91.1	91.5	4.20 4.14	4.17		3.8 3.9	3.9	
			Surface	1.0	17.6	30.5 30.5	30.5	7.86 7.90	7.88	7.76	98.9 99.4	99.2	4.03 4.00	4.02		7.3 2.6	5.0	
29/12/17	0829-0852	18/Fine	Middle	5.1	17.7	30.6 30.7	30.7	7.68 7.61	7.65	1.10	96.8 95.9	96.4	3.96 3.91	3.94	4.04	4.7 5.0	4.9	4.6
			Bottom	9.2	17.7	30.7 30.8	30.8	7.41 7.46	7.44	7.44	93.4 93.9	93.7	4.20 4.16	4.18		4.7 3.0	3.9	



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	(mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Suspe	nded Solids	s (mg/L)
Date	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	23.4	30.8 30.8	30.8	7.28 7.25	7.27	7.20	102.1 101.7	101.9	4.02 4.08	4.05		3.5 6.5	5.0	
01/12/17	1530-1545	20/Cloudy	Middle	9.9	23.2	31.2 31.1	31.2	7.11 7.15	7.13	7.20	99.5 100.1	99.8	3.96 3.95	3.96	4.04	7.0 8.1	7.6	6.1
			Bottom	18.8	23.1	31.3 31.4	31.4	7.02 7.04	7.03	7.03	98.1 98.4	98.3	4.10 4.13	4.12		6.6 4.7	5.7	
			Surface	1.0	23.0	31.0 31.1	31.1	6.80 6.77	6.79	6.75	94.8 94.4	94.6	3.68 3.71	3.70		3.2 2.7	3.0	
04/12/17	1600-1618	24/Fine	Middle	9.3	23.0	31.2 31.3	31.3	6.64 6.78	6.71	0.75	92.7 94.7	93.7	3.76 3.81	3.79	3.67	5.5 2.7	4.1	4.1
			Bottom	17.6	22.8	31.6 31.5	31.6	6.53 6.42	6.48	6.48	91.1 89.5	90.3	3.52 3.55	3.54		4.1 6.1	5.1	
			Surface	1.0	21.7	30.8 30.9	30.9	7.56 7.64	7.60	7.49	102.9 104.0	103.5	3.58 3.61	3.60		3.1 2.1	2.6	
06/12/17	0806-0824	17/Fine	Middle	9.4	21.9	30.9 31.0	31.0	7.31 7.44	7.38	7.49	99.9 101.6	100.8	3.66 3.69	3.68	3.68	3.4 4.0	3.7	3.2
			Bottom	17.8	22.0	31.1 31.1	31.1	7.25 7.32	7.29	7.29	99.3 100.3	99.8	3.75 3.80	3.78		2.4 4.2	3.3	
			Surface	1.0	20.6	30.2 30.2	30.2	7.32 7.25	7.29	7.22	97.3 96.5	96.9	3.90 3.94	3.92		2.8 2.7	2.8	
08/12/17	0930-0948	17/Cloudy	Middle	9.4	20.8	30.3 30.2	30.3	7.18 7.11	7.15	1.22	95.6 94.7	95.2	3.83 3.78	3.81	3.93	2.2 4.4	3.3	4.0
			Bottom	17.7	20.9	30.4 30.5	30.5	6.93 6.87	6.90	6.90	92.4 91.7	92.1	4.05 4.09	4.07		6.4 5.3	5.9	
			Surface	1.0	21.2	31.1 31.0	31.1	8.34 8.28	8.31	8.24	112.6 111.8	112.2	1.94 1.98	1.96		5.1 4.1	4.6	
11/12/17	1200-1218	22/Fine	Middle	9.4	21.4	31.3 31.3	31.3	8.14 8.19	8.17	8.24	110.2 110.9	110.6	2.04 2.10	2.07	2.08	3.3 4.0	3.7	3.5
			Bottom	17.8	21.6	31.5 31.4	31.5	8.08 8.01	8.05	8.05	109.7 108.8	109.3	2.23 2.19	2.21		2.1 2.5	2.3	
			Surface	1.0	21.7	30.8 30.7	30.8	7.64 7.60	7.62	7.50	103.9 103.4	103.7	3.24 3.38	3.31		3.3 3.2	3.3	
13/12/17	1400-1415	20/Cloudy	Middle	10.1	21.9	30.9 31.0	31.0	7.39 7.35	7.37	7.50	100.9 100.3	100.6	3.14 3.18	3.16	3.38	3.6 4.8	4.2	3.6
			Bottom	19.2	21.9	31.2 31.2	31.2	7.20 7.23	7.22	7.22	98.5 98.9	98.7	3.69 3.65	3.67		4.0 2.6	3.3	



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	20.8	30.7 30.8	30.8	7.34 7.30	7.32	7.24	98.1 97.5	97.8	3.43 3.48	3.46		2.9 3.9	3.4	
15/12/17	1430-1445	20/Cloudy	Middle	10.2	20.9	30.9 31.0	31.0	7.15 7.17	7.16	7.24	95.9 96.2	96.1	3.68 3.62	3.65	3.58	3.6 3.3	3.5	3.8
			Bottom	19.4	21.0	31.0 31.1	31.1	7.02 7.05	7.04	7.04	94.3 94.7	94.5	3.60 3.64	3.62		3.4 5.4	4.4	
			Surface	1.0	19.5	31.1 31.2	31.2	7.08 7.01	7.05	7.01	92.7 91.8	92.3	3.11 3.19	3.15		3.5 2.9	3.2	
18/12/17	1600-1617	17/Fine	Middle	9.5	19.6	31.3 31.3	31.3	6.94 6.99	6.97	7.01	91.1 91.7	91.4	3.27 3.22	3.25	3.27	3.3 1.0	2.2	3.0
			Bottom	17.9	19.8	31.5 31.4	31.5	6.73 6.80	6.77	6.77	88.6 89.4	89.0	3.40 3.44	3.42		3.0 4.3	3.7	
			Surface	1.0	17.7	30.8 30.7	30.8	8.31 8.44	8.38	8.47	104.9 106.6	105.8	3.56 3.59	3.58		4.2 6.3	5.3	
20/12/17	0807-0823	18/Fine	Middle	9.3	17.9	30.9 30.9	30.9	8.52 8.61	8.57	0.47	108.0 109.1	108.6	3.67 3.70	3.69	3.71	5.1 4.7	4.9	4.7
			Bottom	17.6	17.9	31.0 31.1	31.1	8.68 8.75	8.72	8.72	110.3 111.2	110.8	3.84 3.88	3.86		4.0 3.8	3.9	
			Surface	1.0	17.9	31.0 30.9	31.0	8.23 8.16	8.20	8.10	104.7 103.8	104.3	3.82 3.86	3.84		3.1 3.8	3.5	
22/12/17	0900-0919	17/Fine	Middle	9.3	18.1	31.2 31.1	31.2	8.04 7.98	8.01	0.10	102.6 101.8	102.2	3.70 3.63	3.67	3.85	3.3 3.3	3.3	3.2
			Bottom	17.5	18.3	31.3 31.3	31.3	7.73 7.81	7.77	7.77	98.9 100.0	99.5	4.03 4.07	4.05		1.8 4.0	2.9	
			Surface	1.0	18.0	30.4 30.4	30.4	8.08 8.00	8.04	7.92	102.1 101.2	101.7	3.76 3.70	3.73		4.5 3.0	3.8	
27/12/17	1300-1318	19/Cloudy	Middle	9.4	18.2	30.6 30.5	30.6	7.83 7.76	7.80	7.92	99.3 98.4	98.9	3.94 3.89	3.92	3.89	3.5 4.2	3.9	4.1
			Bottom	17.7	18.4	30.7 30.8	30.8	7.51 7.56	7.54	7.54	95.5 96.2	95.9	4.04 4.00	4.02		4.7 4.4	4.6	
			Surface	1.0	18.0	30.2 30.2	30.2	8.13 8.18	8.16	8.00	102.9 103.6	103.3	3.86 3.82	3.84		4.5 6.3	5.4	
29/12/17	1330-1352	22/Fine	Middle	9.4	18.2	30.4 30.3	30.4	7.87 7.80	7.84	8.00	99.9 99.1	99.5	3.64 3.70	3.67	3.85	3.9 3.0	3.5	4.1
			Bottom	17.8	18.4	30.6 30.6	30.6	7.65 7.59	7.62	7.62	97.5 96.7	97.1	4.05 4.00	4.03		2.5 4.6	3.6	



Monitoring Station : TKO-M4

Date	Sampling	Ambient Temp (°C) / Weather	Monitorin	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ed Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Duit	Duration	Condition	(m	ר)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	23.5	30.9 30.8	30.9	7.59 7.56	7.58	7.47	106.7 106.3	106.5	3.82 3.86	3.84		4.7 6.0	5.4	
01/12/17	1602-1616	20/Cloudy	Middle	4.9	23.3	31.2 31.2	31.2	7.34 7.37	7.36	7.47	102.9 103.3	103.1	3.90 3.85	3.88	3.89	5.6 6.3	6.0	5.8
			Bottom	8.8	23.2	31.2 31.3	31.3	7.27 7.24	7.26	7.26	101.8 101.4	101.6	3.98 3.95	3.97		4.6 7.3	6.0	
			Surface	1.0	23.0	31.2 31.4	31.3	6.71 6.59	6.65		93.7 92.0	92.9	3.73 3.77	3.75		5.4 5.5	5.5	
04/12/17	1629-1647	24/Fine	Middle	5.3	22.9	<u>31.4</u> 31.5	31.5	6.48 6.36	6.42	6.54	90.4 88.7	89.6	3.82 3.86	3.84	3.84	6.5 5.8	6.2	5.2
			Bottom	9.5	22.9	31.6 31.7	31.7	6.22 6.35	6.29	6.29	86.9 88.7	87.8	3.95 3.91	3.93		4.6 3.6	4.1	
			Surface	1.0	21.6	30.9 31.0	31.0	7.72 7.61	7.67	7.00	105.0 103.5	104.3	3.68 3.72	3.70		3.6 1.6	2.6	
06/12/17	0834-0852	17Fine	Middle	5.3	21.7	31.0 31.0	31.0	7.48 7.57	7.53	7.60	101.9 103.1	102.5	3.88 3.91	3.90	3.86	5.0 2.3	3.7	3.5
			Bottom	9.6	21.7	31.2 31.3	31.3	7.34 7.44	7.39	7.39	100.1 101.5	100.8	3.97 4.00	3.99		4.3 4.4	4.4	
			Surface	1.0	20.5	30.2 30.1	30.2	7.17 7.12	7.15	7.00	95.2 94.6	94.9	3.98 3.92	3.95		3.8 6.5	5.2	
08/12/17	0956-1016	17/Cloudy	Middle	5.3	20.6	30.3 30.2	30.3	7.06 7.00	7.03	7.09	93.9 93.0	93.5	3.85 3.89	3.87	3.98	6.6 4.0	5.3	5.2
			Bottom	9.5	20.8	30.3 30.3	30.3	6.95 6.84	6.90	6.90	92.7 91.2	92.0	4.10 4.13	4.12		4.0 6.5	5.3	
			Surface	1.0	21.1	31.1 31.1	31.1	8.17 8.10	8.14	0.07	110.1 109.2	109.7	2.03 2.00	2.02		1.0 1.7	1.4	
11/12/17	1228-1246	22/Fine	Middle	5.3	21.3	31.2 31.2	31.2	8.04 7.95	8.00	8.07	108.7 107.5	108.1	1.95 1.99	1.97	2.06	2.7 2.2	2.5	2.1
			Bottom	9.5	21.4	31.4 31.4	31.4	7.83 7.88	7.86	7.86	106.0 106.7	106.4	2.21 2.15	2.18		1.7 3.0	2.4	
			Surface	1.0	21.8	30.9 30.9	30.9	7.73 7.70	7.72	7 57	105.4 105.0	105.2	3.14 3.09	3.12		5.6 3.9	4.8	
13/12/17	1423-1438	20/Cloudy	Middle	4.9	21.9	31.0 31.1	31.1	7.42 7.44	7.43	7.57	101.3 101.6	101.5	3.03 3.08	3.06	3.14	4.6 1.4	3.0	4.4
			Bottom	8.8	21.9	31.1 31.2	31.2	7.51 7.54	7.53	7.53	102.7 103.2	103.0	3.26 3.21	3.24		4.7 6.0	5.4	



Monitoring Station : TKO-M4

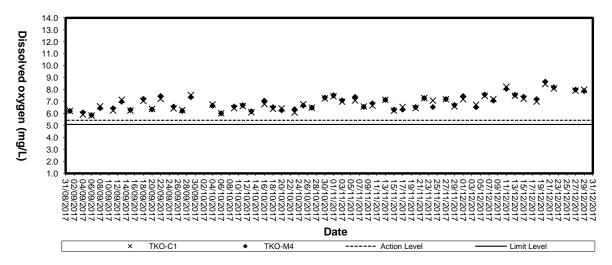
Date	Sampling	Ambient Temp (°C) / Weather	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ed Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	; (mg/L)
Duio	Duration	Condition	(n	ר)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	20.7	30.9 30.8	30.9	7.58 7.55	7.57	7.40	101.3 100.9	101.1	3.21 3.24	3.23		4.4 2.1	3.3	
15/12/17	1500-1515	20/Cloudy	Middle	4.9	20.9	31.1 31.0	31.1	7.26 7.22	7.24	7.40	97.5 97.0	97.3	3.49 3.46	3.48	3.47	4.9 2.4	3.7	3.7
			Bottom	8.8	21.0	31.1 31.1	31.1	7.29 7.25	7.27	7.27	98.1 97.6	97.9	3.74 3.70	3.72		4.2 4.2	4.2	
			Surface	1.0	19.5	31.1 31.1	31.1	7.16 7.10	7.13	7.04	93.8 93.0	93.4	3.14 3.09	3.12		2.2 1.5	1.9	
18/12/17	1625-1641	17/Fine	Middle	5.3	19.6	31.2 31.2	31.2	7.24 7.32	7.28	7.21	94.9 96.0	95.5	3.03 3.10	3.07	3.17	3.2 1.3	2.3	2.1
			Bottom	9.6	19.7	31.3 31.2	31.3	6.87 6.94	6.91	6.91	90.3 91.2	90.8	3.35 3.28	3.32		0.8 3.5	2.2	
			Surface	1.0	17.7	30.9 31.0	31.0	8.57 8.48	8.53	0.07	108.3 107.2	107.8	3.63 3.64	3.64		9.3 4.6	7.0	
20/12/17	0835-0852	18/Fine	Middle	5.4	17.8	31.0 31.1	31.1	8.75 8.87	8.81	8.67	110.9 112.4	111.7	3.71 3.76	3.74	3.71	7.6 2.7	5.2	6.5
			Bottom	9.7	17.9	31.2 31.2	31.2	8.56 8.46	8.51	8.51	108.8 107.5	108.2	3.73 3.78	3.76		5.2 9.3	7.3	
			Surface	1.0	17.8	30.9 30.9	30.9	8.06 8.11	8.09	0.00	102.4 103.0	102.7	3.95 3.90	3.93		2.7 3.8	3.3	
22/12/17	0928-0948	17/Fine	Middle	5.4	18.0	31.1 31.0	31.1	8.28 8.36	8.32	8.20	105.5 106.5	106.0	3.83 3.87	3.85	3.96	2.6 2.4	2.5	3.1
			Bottom	9.8	18.1	31.2 31.2	31.2	7.87 7.81	7.84	7.84	100.4 99.7	100.1	4.12 4.08	4.10		4.2 3.1	3.7	
			Surface	1.0	18.1	30.3 30.4	30.4	7.96 7.90	7.93	0.04	100.7 100.0	100.4	3.81 3.85	3.83		5.2 3.4	4.3	
27/12/17	1326-1343	19/Cloudy	Middle	5.4	18.2	30.5 30.5	30.5	8.11 8.07	8.09	8.01	102.8 102.3	102.6	3.75 3.69	3.72	3.87	4.1	3.4	4.1
			Bottom	9.8	18.3	30.6 30.7	30.7	7.77 7.72	7.75	7.75	98.7 98.1	98.4	4.02 4.07	4.05		3.7 5.8	4.8	
			Surface	1.0	18.1	30.1 30.2	30.2	8.06 7.98	8.02	7.00	102.2 101.3	101.8	3.79 3.84	3.82		4.7	5.1	
29/12/17	1402-1425	22/Fine	Middle	5.4	18.2	30.3 30.3	30.3	7.77	7.75	7.88	98.7 98.0	98.4	3.96 3.92	3.94	3.93	9.2 2.5	5.9	5.6
			Bottom	9.7	18.3	30.4 30.5	30.5	7.53 7.59	7.56	7.56	95.8 96.5	96.2	4.07 4.02	4.05		2.7 9.0	5.9	



Appendix D3

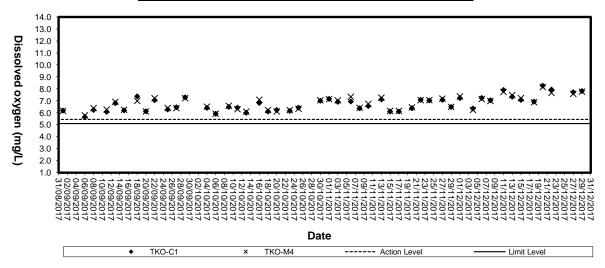
Graphical Plots of Impact Marine Water Quality Monitoring Data



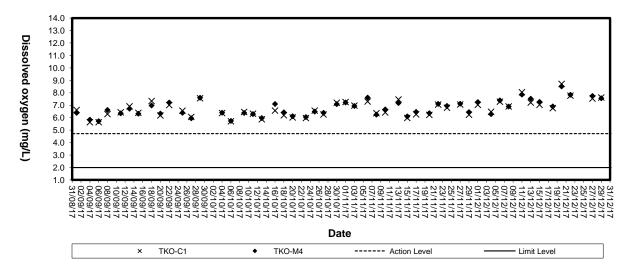


Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide

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

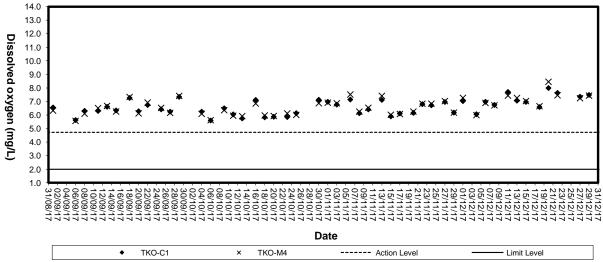




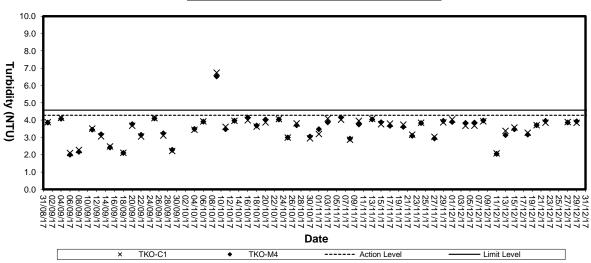


Dissolved Oxygen (Bottom) at Mid-Flood Tide



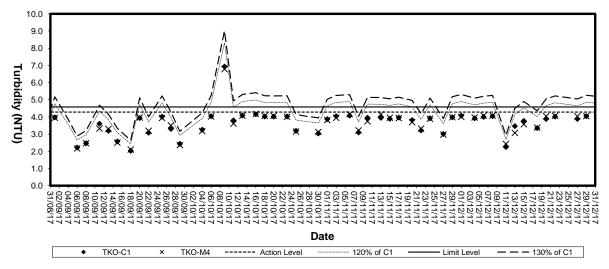




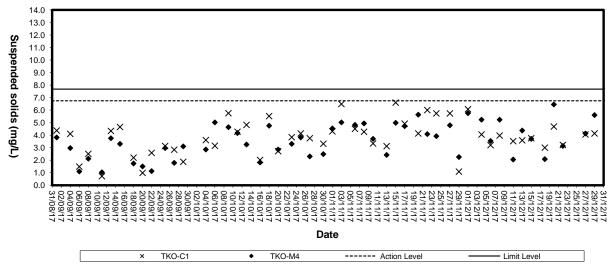


Turbidity (Depth-average) at Mid-Flood Tide

Turbidity(Depth-average) at Mid-Ebb Tide

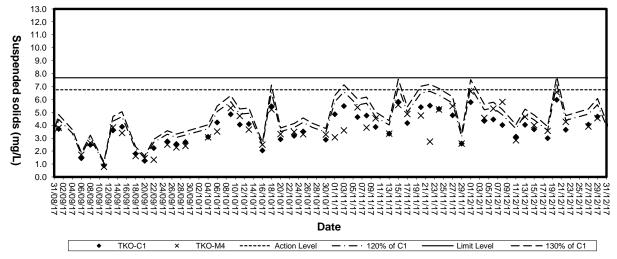






Suspended solids (Depth-average) at Mid-Flood Tide

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





Appendix E

Weather Condition

Day	Mean Pressure (hPa)	A	vir Temperat		Mean Dew Point	Mean Relative Humidity	Total Rainfall (mm)	Prevailing Wind Direction	Mean Wind Speed
		Absolute Daily Max (deg. C)	Mean (deg.C)	Absolute Daily Min (deg. C)	(deg. C)	(%)		(degrees)	(km/h)
1	***	24.6#	20.6	18.5#	15.1	71	0	60	6.2
2	* * *	24.4#	19.3	16.8#	13.8	72	0	50	5.1
3	* * *	24.2#	19.3	16.6#	15.3	79	0	60	4.4
4	* * *	24.7	19.3	15.6	13.8	72	0	60	5.8
5	***	21.5	18.1	15.4	12.3	69	0	50	5.4
6	* * *	22.7	18.5	15.9	13.0	71	0	10	5.6
7	* * *	23.0	18.5	15.8	12.4	68	0	30	5.9
8	* * *	21.2	17.2	13.7	4.1	42	0	50	11.2
9	* * *	19.3	14.1	10.3	5.4	58	0	60	4.6
10	***	22.3	16.3	11.7	9.6	67	0	340	3.3
11	***	23.3	18.3	14.6	8.5	54	0	360	4.9
12	***	21.3	18.2	16.2	11.7	66	0	70	6.1
13	***	18.8	18.2	17.6	14.1	77	0	60	8.9
14	***	21.5	19.1	17.7	14.6	75	0	60	7.3
15	* * *	22.1	19.1	17.6	15.6	81	0	50	7.1
16	* * *	18.8	15.1	11.5	7.9	63	0	340	9.8
17	* * *	14.7#	11.7	9.8#	4.4	61	0	50	9.4
18	* * *	17.7#	12.6	7.8#	2.4	51	0	50	7.1
19	* * *	19.0	13.9	9.3	-0.7	37	0	60	8.9
20	* * *	20.0	15.1	11.3	-2.2	31	0	40	10.4
21	* * *	18.8	15.0	11.4	2.5	45	0	70	8.1
22	* * *	21.6	16.7	13.1	8.9	62	0	10	6.9
23	* * *	21.9	18.4	16.4	13.7	75	0	60	2.6
24	***	25.5	19.9	15.0	9.5	55	0	50	6.7
25	* * *	21.1	17.5	15.0	4.7	46	0	20	5.7
26	* * *	21.0	17.1	14.7	11.6	71	0	10	5.5
27	* * *	21.0#	17.6	15.7#	12.4	73	0	60	6.6
28	***	21.5	18.2	16.3	13.5	75	0	10	5.6
29	* * *	23.0	18.9	15.7	14.2	75	0	60	5.6
30	* * *	24.7	19.3	15.8	13.3	69	0	20	5.9
31	* * *	23.1	17.9	14.7	9.6	60	0	50	5.9

Daily Extract of Meteorological Observations , December 2017 - Tseung Kwan O

*** unavailable

data incomplete

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



Appendix F

Event-Action Plans

		hods if	r remedial fication ed	ion to tance remedial fication od
	Contractor	Rectify any unacceptable practise Amend working methods if appropriate	Submit proposals for remedia actions to IC(E) within 3 working days of notification implement the agreed Amend proposal if Amend proposal if	Take immediate action to avoid further exceedance Submit proposals for nemedia actions to IC(E) within 3 working days of notification implement the agreed Amend proposal If Amend proposal If
		~ ~ ~ 5 2 2 8	⊷് പ് ഷ് പ് പ് ഷ്	≓ ನಿ ನೆ ಸೆ
	ER	-	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 property implemented
	Н	v: ⊢	두 N 6 는 목	- diei - 8
EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE ACTION	IC(E)	Ac mon Level 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 Discuss with ET and Contractor on poesible nemedial measures Advise the RR on the effectivaness of the proposed remedial measures Supervise implementation of remedial measures	LIMIT LEVEL. Check monitoring data submitted by the ET Leader Check Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectiveness of the previse the ermedial measures Supervise implementation of remedial measures
EV	Ц	+ ni	e > −	નં લંશં મંધર્ગ આ અ
	ET Leader	Identify source, investigate the causes of exceedance and propose remedial measures Inform ER, IC(E) and Contractor Repeat messurement 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 Increase monitoring frequency to daily Increase monitoring I exceedance stops, ceaste additional monitoring	
		ને લોળ ને	+ NH +4 6 F	ને ભોલે થયેલે
EVENT		. Exceedance for one sample	2. Exceedance for two or more consecutive samples	Exceedance for one sample

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ACTION ET Leader ACTION ER Contractor 2. Exceedance 1. Identify source, Investigata the causes of exceedance and propose namedial extreme 1. Discuss amongst ER, ET and Contractor on of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial of exceedance and propose namedial exercise 1. Confirm receipt of notification of fabre in writing avoid furthe exceedences working procedance and propose namedial exercise 2. Reve Contractor on frations 1. Take immediate action to evoid furthe exceedences and the Exceedence inding 3. Notify Contractor working grooted in properation inding 3. Notify Contractor or consultance in properation inding 3. Notify Contractor inding 3. Notify Contractor inding 3. Notify Contractor inding 6. Arrange meeting with ICE] and ER to consider with procedance to indice with procedances of Contractor's intervent in the remedial measures 3. Report in the factor intervent in the exceedances in the intervent in the intervent in the contractor's intervent in the intervent in	EVENT				EVENTIACTION PLAN FOR AIR QUALITY EXCEEDANCE	Ę	Y EXCEEDANCE			
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o or of exceedance and propose numedial measures the potential remedial actions measures 2. Nolify C(E), ER, EPD and Contractor measures 2. Nolify C(E), ER 2. Nolify C(E), ER 2. 6. Inding 3. Supervise the implemented measures 3. 1.	Exceedan	8	÷.	dentify source, investigate the causes	1. Discuss amongst ER, ET and Contractor on	÷	Confirm receipt of notification	÷	Take immediate action to	-
measures 2. Nolify IC(E), ER, EPD and Contractor 2. Review Contractor 2. Nolify C(E), ER, EPD and Contractor 2. Nolify IC(E), EPD and ER to contractor 3.	for two or		0	if exceedance and propose remedial	the potential nemedial actions		of failure in writing		avoid further exceedances	
Bits 2. Notify IC(E), ER, EPD and Contractor finding 3. In consultation with the IC(E), finding 1. In consultation with the IC(E), finding 3. Supervise the implemented finding 3. Supervise the implemented finding 3. In consultation with the IC(E), finding 3. Supervise the implemented finding 4. Ensure remedial measures finding 4. Ensure remedial measures finding 4. Ensure remedial measures finding 4. Ensure remedial measures finding 5. If exceedances confinues, finding 5. If exceedance is abled 5. If exceedance is abled 7. Assess effectiveness of Contractor's montiloring 7. Assess finding 7. Assess finding 5. If exceedance is abled 5. If exceedance is abled 5. If exceedance is abled <td>more</td> <td></td> <td>E</td> <td>nedsurbs</td> <td>Review Contractor's remedial actions</td> <td>evi</td> <td>Notify Contractor</td> <td>evi</td> <td>Submit proposals for remedial</td> <td>70</td>	more		E	nedsurbs	Review Contractor's remedial actions	evi	Notify Contractor	evi	Submit proposals for remedial	70
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EVENT									_
				ACTION	NO				
		ET Leader		IC(E)	L	ER		Contractor	
Level	મંત્રં જં જં	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 miligation effectiveness	r" el el	Review the amalysed results submitted by the ET. Review the proposed remedial measures by the Contractor and advise the ER accordingly. Supervise the implementation of remedial measures.	ને લોલે 4	Confirm receipt of notification of failure in writing. Notify the Contractor to propose Require the Contractor to propose remedial measures for the snelvase noise problem. Ensure remedial measures are property implemented.	, 4	Submit noise mitigation proposals to IC(E). Implement noise mitigation proposals.	
, Lmit	÷		÷	Discuss amongst the ER, the ET	÷	Confirm receipt of notification of fotune in unified	* <u>-</u>	Take immediate action to avoid futbar excentance	
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	ici		N	Review the Contractor's remedial	ાં ભ	Require the Contractor to propose	i	actions to IC(E) within 3	
	-	-		actions whenever necessary to		remedial measures for the	_	working days of notfication.	
	ψu			assure their effectiveness and		analysed noise problem.	ni	Implement the agreed	
	ń	working procedures to determine	e	sume the characteringly. Supervise the inclementation of	ŕ	property implemented.	4	Resubmit proposals if problem	
		possible miligation to be	;	remedial measures.	ьć	If ecceedances continue, consider		still not under control.	
						what activity of the work is	က်	Stop the relevant activity of	-
	ó	EDD et careas & actions taken for				responsible and right ration, use Contractor to shor that activity of		worke as determined by all Cry	
		the exceedances.				work until the exceedances is		abated.	_
	Ŀ,					abated.			
	_	Contractor's remedial actions and							-
		keep the IC(E), the EPD and the							
	a	EK informed of the results If avoandence due to the							
	ś				_				
	_	additional monitoring							

EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	ER		 Nolify EPD and other relevant 1. 0 	of governmental agencies in writing			2. Discuss with IEC, ET and	8	days of mitigation measures; Contractor on the mitigation	Require contractor to propose	Ń	king analysed problem if related to the mitigation measures	construction works	 Ensure remodial measures are ensure their effectiveness 		5. Assess the effectiveness of the	mitigation measure 5. 8		aton of measures .		tigation	ble time			
AND ACTION PLAN	Contractor	1		within 24 hours of identification of	exceedance				and ER within 3 working days of	the identification of an	encedance	Consider changes of working	method if exceedance is due to	the construction works	Discuss with ET, IEC and ER and	propose mitigation measures to	IEC and ER if exceedance	to the construction works within 4	working days of identification of	an exceedance	 Implement the sgreed mitigation 	measures within reasonable time	scale		
ENT			γ ²			-	ei		تريد			ú	8	8	¢		2		ş		<u>کر</u> 14		1ay		
EV	RT Laster		Identify source(s) of impact;	Repeat in-situ measurement to	confirm findings:			exceedance			working methods:			to the Contractor within 3 working	days of identification of	exceedance and advise	contractor if exceedance is due to	contractor's construction works	 Discuss miligation measures with 	Contractor if exceedance is due	to the construction works within 4	working days	 Repeat measurement on next day 	of exceedance if exceedance is	due to the construction works
		4		e i		ei			4			uş	യ		_				1-				ග්		
Event			Action level	being exceeded	by one	sampling day																			

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Identification of exceedance and advise contractor if and propose mitigation and advise contractor if exceedance is due to contractor's construction works works mitigation measures to EC and ER and propose mitigation measures within the spread arcs is the mitigation measure endence.			within 3 working days of		exceedance	÷	Ensure remedial measures	effectiveness and advise
and advise contractor if and propose mitigation escondance is due to contractor's construction works contractor's construction works with IEC and Contractor within 4 working days of contractor within EC and Contractor within 4 working of identification of an exceedance within ET and properent of an exceedance and exceedance are implemented; Prepare to increase the mollocing frequency to daily; Repeat measurement on next			identification of exceedance	ø	Discuss with ET, IEC and ER		are properly implemented	the ER accordingly
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works Discuss mitigation measures with IEC and Contractor within 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.			contractor's construction		within 4 working days of			mitigation measures.
Discuss mitigation measures with IEC and Contractor within 7. I 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.			works		identification of an			I
with IEC and Contractor within 7. 1 4 working of Identification of an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily; Repeat measurement on next day of exceedance.		<u>к</u>	Discuss mitigation measures		exceedance			
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an exceedance Ensure mitigation measures are implemented; Prepare to increase the monitoring frequency to daily, Repeat measurement on next day of exceedance.			4 working of Identification of		mitigation measures within			
			an exceedance		reasonable time scale			
		œ	Ensure mitigation measures					
			are implemented;					
		σ	Prepare to increase the					
day of exceedance.		6						
			day of exceedance.					



Event		EVEN	E	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	ATI	ER QUALITY EXCEEDANCI	ш	
	_			ACTION	z			
		ET Leader	Ц	Contractor		ER		IEC
Limit level		Repeat in-situ measurement		. Notify IEC and ER in writing:	÷	_	÷	Check monitoring data
being	_	to confirm findings;		within 24 hours of the		governmental agencies in		submitted by E1
exceeded by	Ň			identification of the	_	writing within 24 hours of	N	Confirm ET assessment
one sampling	e		_	exceedance	_	identification of exceedance		if exceedance is due /
dav	5		r,		ŝ	Discuss with IEC, ET and		not due to the works
600		identification of the	eó	-	_	Contractor on the proposed	ei	Discuss with ET, ER and
		exceedance		equipment;		mitigation measures;		Contractor on the
	4		÷	Ξ.	က်	Request Contractor to critically		-
		plant, equipment and	_	methods;		review the working methods;	٩ŕ	
		Contractor's working methods:	ю	Submit the results of the	Ý	Ensure remedial measures		milligation measures
	ú		_			are properly implemented	_	submitted by Contractor
	ί¢		_	within 3 working days of the	цó	Assess the effectiveness of	_	and advise the ER
	i .			identification of an		the implemented miligation		
	_	within 3 working days of		exceedance	_	measures.	ω	
		identification of exceedance	φ	 Discuss with ET, IEC and ER 				of the implemented
		and advise contractor if						mitigation measures
		exceedance is due to		measures to IEC and ER			_	
		contractor's construction		within 4 working days of the	_			
		works		identification of an	_			
	ř	Discuss mitigation measures	_	_				
	_	with IEC, ER and Contractor	~	Implement the agreed				
		within 4 working of		miligation measures within				
		identification of an	_	reasonable time scale	-			
	_	exceedance			_			8
	œ	Ensure mitigation measures						
	_	are implemented;			_			
	á							
		frequency to daily until no						
		exceedance of LIMIT Level.	-		1		ł	



				ACTION	N			
		ET Leader	L	Contractor	L	ER		IEC
Limit Level	-	Recest in-situ measurement	÷	Notify ER and IEC in writing	÷	Notify EPD and other relevant	÷	Check monitoring data
being		to confirm findings:		within 24 hours of the		governmental agencies in		submitted by ET
avranded hv	\$	Identify source(s) of impact:	_	identification of the		writing within 24 hours of	N	Confirm ET assessment
more than one	i e		_	exceedance and		Identification of exceedance		if exceedance is due /
and the user one	5		5	Rectify unacceptable practice:	ŝ	Discuss with IEC, ET and		not due to the works
consecutive compline date		Muttin 24 Floure Of	i e	Check all plant and		Contractor on the proposed	ę	Discuss with ER, ET and
edan fuurfuise			i	equipment:		mitigation messures;		Contractor on the
	4	Check monitoring data, all	٩	Consider changes of working	ભં	Request Contractor to critically		miligation measures.
	-	plant accibment and		methods:		review the working methods;	ŧ	Review proposals on
		Contractor's working methods:	-00	Submit the results of the	ശ്	Ensure remedial measures		mitigation measures
	u2	Cerv out investingion		investigation to IEC and ER		are properly implemented		submitted by Contractor
	śœ	Report the results of	_	within 3 working days of the	Ť	Assess the effectiveness of		and advise the ER
	i	investination to the Contractor		identification of an		the implemented mitigation		accordingly.
		within 3 working days of		exceedance	_	measures;	ю	Assess the effectiveness
	_	identification of exceedance	чó	Discuss with ET, IEC and ER	ъ	Consider and instruct, if		of the implemented
	_	and advise contractor if		and propose mitigation		necessary, the Contractor to		mitigation measures.
		exceedance is due to		messures to IEC and ER		slow down or to stop all or part		
		contractor's construction		within 4 working days;		of the marine work until no		
		works	ώ	Implement the agreed		exceedance of Limit Level.		
	۲.	Discuss mitigation measures	worther	mitigetion measures within				
		with IEC, ER and Contractor,		reasonable time scale				
	න්	Ensure mitigation measures	ř	As directed by the Engineer,				
		are implemented;		to slow down or to stop all or				
	ல்	Increase the monitoring		part of the marine work or				
		frequency to daily until no		construction actives.			_	
		exceedance of Limit Level for					_	
	_	two consecutive days.	_		_			



Appendix G

Works Programme

Three Months Rolling Programme (1-December-2017 to 28-February-2018)

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	Jan-18 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29
1	Section 1	1-Dec-17	28-Feb-18		
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-17	28-Feb-18		
1.3	Design, provision and operation of crushing plant	1-Dec-17	28-Feb-18		
1.4	Operation of the existing dewatering plant	1-Dec-17	28-Feb-18		
1.5	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	1-Dec-17	28-Feb-18		
1.6	Design, provision and operation of the expanded de-watering plant	1-Dec-17	28-Feb-18		
1.7	Breaking up the incoming precast concrete units	1-Dec-17	28-Feb-18		
2	Section 2	1-Dec-17	28-Feb-18		
2.1	Take over existing site faiclities	11-May-17	11-May-17		
2.2	Operation of Fill Bank, surveillance system and tipping halls	1-Dec-17	28-Feb-18		
2.3	Design and construction of 750mm U-channel and catchpits	1-Dec-17	28-Feb-18		
2.4	Design, construction and operation of New Secondary Site Office for the Engineer	1-Dec-17	28-Feb-18		
2.5	Raising up and replacement of 5 nos. of weighbridges at CREO	1-Dec-17	28-Feb-18		
2.6	Breaking up the incoming precast concrete units	1-Dec-17	28-Feb-18		
2.7	Design and construction of glass cullet storage compartment at Portion B7	1-Dec-17	5-Jan-18		
3	Section 3	1-Dec-17	28-Feb-18		
3.1	Design and construction of of seawalls at Zone B (approx. 900m)	1-Dec-17	28-Feb-18		
3.2	Design and construction of of seawalls at at Zone C (approx. 2000m)	1-Dec-17	28-Feb-18		
4	Section 3A	1-Dec-17	28-Feb-18		
4.1	Design, construction and operation of new berthing facilities at Zone B	1-Dec-17	28-Feb-18		
4.2	Design, construction and operation of new navigation chaneel and turning basin inassociated with the berthing facilities at Zone B	1-Dec-17	28-Feb-18		
4.3	Design and construction of seawalls at Zone B (approx. 1500m)	1-Dec-17	28-Feb-18		
5	Section 4	1-Dec-17	28-Feb-18		
5.1	Collection and delivery of Public Fill to the Designated Reclamation Sites in the Mainland	1-Dec-17	28-Feb-18		

30 31	Feb-18 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



Appendix H

Weekly ET's Site Inspection Record

CEDD Contract No.: CV/2015/07 Handling of Surplus Public Fill (20	CEDD Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank ETS-TESTCONSULT LTD;
Inspection Date	L1/2/19
Time	15 ⁻ 30
Weather	Sunny / Fine) / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy
Wind	calm / (ight) Breeze / Strong
Temperature	
Humidity	High / Moderate / w

Inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	~	flee	, Aut
Name:	7 12 Tou 9	Sin-Jung	
Title	R.U.	Jo.	VLOR JUN WON

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東業德勤測試麗間有限公司 ETS-TESTCONSULT LTD.

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

	Environmental Checklist	Ĕ	Implementation Stages*		Kemark
		Yes	A/N N/A	A	
Fug	Fugitive Dust Emission				
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	2			
4	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	7			
	Water sprays shall be provided and used to dampen materials.	>			
	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	7			
	All vehicles shall be restrict to a maximum speed of 10 km per hour.	7			
	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.	7			
	The designated site main haul road shall be paved or regular watering.	7			
	Frequent watering of work site shall be at least three times per day.	7			
	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	>			
	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	>			
	All plant and equipment should be well maintained e.g. without black smoke emission.	>			
÷	Open burning should be prohibited.	7			
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	7			
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	7			l
	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	>			
<u>.</u>	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	>			
	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	7			
	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).	7			
Nois	Noise Impact	No. I	States and		
	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	7			
	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	2			
2	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	2			
	Air compressors and hand held breakers should have noise labels.	2			
	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	2		-	
	Noisv equipment and mobile plant shall alwave he site away from NSRs	7			

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		lmp	Implementation	ion Remark
		Yes	No	N/A
Wat	Water Quality			「「「「「「」」」
•	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	7		
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	2		
۲	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	7		
	Manholes should be covered and sealed.	7		
•	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	7		
•	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	7		
•	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	7		
	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	7		
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	7		
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	2		
	Existing and newly 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.	7		
•	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.	7		
•	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	7		7
	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	7		
	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	7		
•	Oil interceptor shall be provided at work shop.	7		
	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	7		
	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	7		
: .	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	7		
•	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	7		
	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	7		
	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	7		-
•	Existing slit curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the slit curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The slit curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	7		
•	A waste collection vessel shall be deployed to remove floating debris.	7		

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東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD:

	Environmental Checklist	Idml	lementatio Stages*	Implementation Remark Stages*
		Yes	No N/A	A
Lê	Landscape and Visual			
•	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged shopes should be avoided.	7		
	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	7		
٠	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	2		
•	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	7		
Ö	Other Environmental Factors			
-	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	7		
•	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	~		
•	Any unused materials or those with remaining functional capacity should be recycled and stored properly.	7		
•	All generators, fuel and oil storage are within bundle areas.	7		
•	Oil leakage from machinery, vehicle and plant is prevented.	7		
	The Environmental Permit should be displaced conspicuously on site.	7		
•	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.	7		
•	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.	7		

Item						
	<u>8</u>	Summary of the Weekly Site Inspection:	pection:			
	Details of defective works or observations	Proposed Follow Up Action		Photo Ref. Fi	Further Action Required (Yes/No)	Follow up Date
1 Follow up action hall No.1 was rep	Follow up action to item 1 on 29/11/17, silt curtain near tipping hall No.1 was repaired.	1	171	171206_001	Ŷ	1
Remark						
1						
	-					
	Title	te te	Signature	Date		
Checked by	Linda Law Se	Senior Environmental Officer	12/2	09 D	06 December 2017	21

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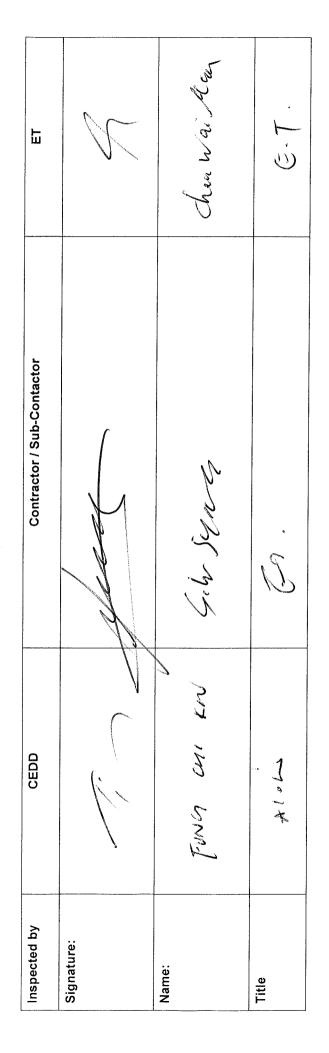


<u>Photo</u>	
	No.1) (Improved)

CEDD Contract No.: CV/2015/07



nspection Date	• •	13/ Dec/2017
Time	••	15:00
Neather	••	Sunny / Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy
Nind	••	Calm / Light /Breeze / Strong
[emperature		J_081
Humidity	•••	High /Moderate / Low



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		Ĩ	Implementation	Remark
	Environmental Checklist		Stages*	
Fua	Fuditive Dust Emission	Ies	S NO N/A	
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	~		
•	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	~		
	Water sprays shall be provided and used to dampen materials.	~		
•	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	>		
•	All vehicles shall be restrict to a maximum speed of 10 km per hour.	7		
■	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.	7		
¥	The designated site main haul road shall be paved or regular watering.	7		
-	Frequent watering of work site shall be at least three times per day.	7		
•	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	7		
-	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	2		
•	All plant and equipment should be well maintained e.g. without black smoke emission.	7		
•	Open burning should be prohibited.	>		
•	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	~		
•	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	7		
•	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	~		
	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	>		
	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	7		
•	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).	2		
Noi:	Noise Impact			
•	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	7		
•	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	~		
•	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	~		
•	Air compressors and hand held breakers should have noise labels.	~		
•	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	7		
	Noisy equipment and mobile plant shall always be site away from NSRs.	>		

CEDD Contract No.: CV/2015/07

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

		Imple	ementatio	Implementation Remark	
	Environmental Checklist	Yes	Stages*		
Wa	Water Quality	2			
•	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	>			
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	7			
	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	7			
•	Manholes should be covered and sealed.	2			
•	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	1			
•	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	٧			
	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	~			
•	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	2			
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	2			
•	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	7			
•	Existing and newly 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.	2			
•	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.	2			
•	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	>			
•	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	2			
•	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	>			
•	Oil interceptor shall be provided at work shop.	?			
	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	7			
•	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	7			
•	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	~			
•	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	>			
•	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	>			
•	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	>			
	Existing silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	7			
•	A waste collection vessel shall be deployed to remove floating debris.	>			

Page 3 of 5





		Imple	Implementation	n Remark	
	Environmental Checklist	S	Stages*		
		Yes	No N/A	A	
Ľ	Landscape and Visual				
•	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	~			
	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	7			T
-	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	>			
	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	>			
õ	Other Environmental Factors				
	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	~			
	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	7			1
	Any unused materials or those with remaining functional capacity should be recycled and stored properly.	>			
	All generators, fuel and oil storage are within bundle areas.	7			1
-	Oil leakage from machinery, vehicle and plant is prevented.	~			
-	The Environmental Permit should be displaced conspicuously on site.	7			
	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.	>			
•	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.	>			1

CEDD Contract No.: CV/2015/07

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

Summary of the Weekly Site Inspection:

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

 Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Photo Ref. Further Action Follow up Required Date	Follow up Date

Remark

I

Signature Date	LC. (2. 13 December 2017
Title	Senior Environmental Officer
Name	Linda Law
	Checked by

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CEDD Contract No.: CV/2015/07



Inspection Date	: 20/ DEC/2017		
Time	00:01		
Weather	: Sunny (Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy	zle / Rain / Storm / Hazy	
Wind	: Calm / Light / Breeze / Strong		
Temperature	:. 13°C		
Humidity	: High / Moderate / Low	,	
Inconcert by			t

Inspected by	CEDD	Contractor / Sub-Contactor	Ш
Signature:		Sing	K
Name:	YP Tow G	FILM JUING	Chen Wa. Hen
Title	Tow.	S.	Ć.T.

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	Environmental Checklist	Imple	Implementation Remark
		Yes	No N/A
Fugi	Fugitive Dust Emission		
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	2	
•	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	7	
-	Water sprays shall be provided and used to dampen materials.	2	
•	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	2	
-	All vehicles shall be restrict to a maximum speed of 10 km per hour.	7	
•	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.	~	
•	The designated site main haul road shall be paved or regular watering.	>	
-	Frequent watering of work site shall be at least three times per day.	7	
•	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	7	
•	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	~	
	All plant and equipment should be well maintained e.g. without black smoke emission.	2	
•	Open burning should be prohibited.	~	
•	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	>	
×	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	>	
•	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	~	
	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	~	
	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	~	
•	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).	2	
Nois	Noise Impact		
-	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	~	
	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	~	
•	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	7	
	Air compressors and hand held breakers should have noise labels.	7	
•	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	~	
•	Noisy equipment and mobile plant shall always be site away from NSRs.	>	

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東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

	Environmental Checklist	dul	lementat Stages*	tion	Implementation Remark Stages*
		Yes	٩	N/A	
Wat	Water Quality				
•	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	>			
•	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	>			
•	Temporary intercepting drains should be used at the stockpliing area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	>			
	Manholes should be covered and sealed.	~			
	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	>			
•	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	~			
F	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	>			
•	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	>			
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	~			
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	>			
•	Existing and newly 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.	~			
Ð	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.	>			
•	The section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	>			
•	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	7			
•		~			
•	Oil interceptor shall be provided at work shop.	~			
	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	~			
•	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	>			
•	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	~			
•	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	~			
•	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	2			
•	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	7		-	
	Existing silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.		>		Item 1
•	A waste collection vessel shall be deployed to remove floating debris.	>			

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CEDD Contract No.: CV/2015/07

		Implementat	Implementation Remark
		Yes No	N/A
Ľ	Landscape and Visual		
•	The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	7	
•	The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	7	
	Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	7	
•	The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	7	
0	Other Environmental Factors		
•	C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.	7	
	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	7	
•	Any unused materials or those with remaining functional capacity should be recycled and stored properly.	~	
•	All generators, fuel and oil storage are within bundle areas.	>	
•	Oil leakage from machinery, vehicle and plant is prevented.	7	
•	The Environmental Permit should be displaced conspicuously on site.	~	
•	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.	7	
•	To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse general refuse generated by the workforce.	٧	

Item Details of defective works or observations From 1 Details of defective works or observations Item 1 Silt curtain near tipping hall No.1 was damaged. To repair the silt curtain	Details of defective works or observations Details of defective works or observations	Summary of the Weekly Site Inspection: Proposed Follow Up Action To repair the silt curtain properly.	ion:			
t curtain r	ve works or observations Vo.1 was damaged.	Proposed Follow Up Ac To repair the silt curtain properly.				
1 Silt curtain near tipping hall No. Remark	Vo.1 was damaged.	To repair the silt curtain properly.		Photo Ref.	Further Action Required (Yes/No)	Follow up Date
Remark				171220_001	Yes	27/12/17
Name	Title		Signature /	Date	ite	
Checked by Fran	Frankie Tang ET Rei	ET Representative	A Contraction of the second se	20	20 December 2017	17
			D			

▲ ▲ 東業德勤測試顧問有限公司

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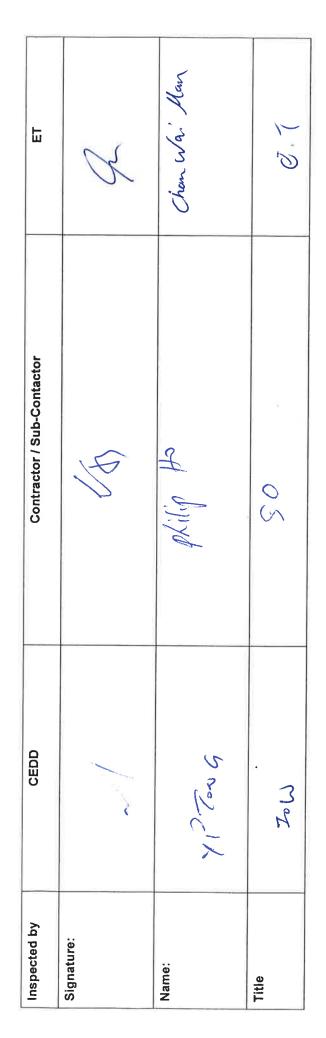
		20 12 2017 10:55	Photo 171220_001 (Silt curtain near tipping hall No.1)

CEDD Contract No.: CV/2015/07

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank



an onder of formers		
Inspection Date	6.00	27/0ec/2017
Time	626	(S: 00
Weather	1473	Sunny (Fine) / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy
Wind	5.00	Calm (Light) Breeze / Strong
Temperature	94	J.61
Humidity	525	High / Moderate /Low



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CEDD Contract No.; CV/2015/07

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD:

Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

Yes Yes No ifing area and the nearest ASRs at the TKO Industrial '		Environmental Checklist	Idul	Implementation Stages*	n Remark
'upprive Dast Emission 'upprive Dast Emission Under storys in the provided to prevent dust nuisance. Dest control / milgation measures shall be maintained torkware A buffer score of a least: 700m shall be maintained torkware Dest control / milgation measures shall be provided to prevent dust nuisance. Dest control / milgation measures shall be provided to prevent dust needed of a level higher and the allowed. Walter sprays shall be provided and used to dampon materials. Media reprays shall be provided and used to dampon materials. Note: sprays shall be provided and used to a maximum speed of 10 km per hour. Any vehicles shall be rearried to a maximum speed of 10 km per hour. Any vehicles shall be rearried to a maximum speed of 10 km per hour. Any vehicles shall be rearried to remaximum speed of 10 km per hour. Any vehicle shall be rearried to a maximum speed of 10 km per hour. Any vehicle shall be rearried to the previsite and shall be provided to prevering the statements. Any vehicle shall be rearried to the previsite the least three timese per day. Thereaun maximum speed of 10 km per hour. Thereaun maximum speed of 10 km per hour. Thereaun maximum speed of 10 km per hour. Thereaun maximum speed to remox any dusty materials from its body and wheels before leaving the fill back. Unter importay store suffaces. Reprive the store store should be proved by CEDD. Thereaun matherial from the compacy of the site shall be covered dys of material loored on power should be advected by other method approved by CEDD. Thereaun matherial should be solved by the method approved by CEDD. The entroparty store at a consportance to the state and the material loor or equation may and states. Thereaun the state accuration whole material be advected by other method approved by CEDD. Thereaun the state accurate the state and the state advected by other			Yes	No N/A	A
Dust control / miligation measures shall be provided to prevent dust nuisance. Dust control / miligation measures shall be provided to prevent dust nuisance. Auther scrays shall be provided and used to dampen materials and be edge of the strong. Jundeading and the marter of states recent on shall be more index to a strong and strong the provided to minimize the fugitive dust in the uniter astrong the prential to create dust shall not period and strong and strong the prential to create dust shall not period to a new more strong the prential to create dust shall not period to a level higher than the side and hauf mad shall be avained the strong the prential to create dust shall not be strong the prential to create dust shall be strong the prential to create dust shall not period to a level higher than the side and tail boards, and shall be owered by the strong the prential to create dust shall be provided at the entrance of work site. The designated she mean hauf mad shall be vashed to remove any dusty materials from its body and wheels before leaving the fill bank. The tensory stops at unit and summary specially those facing to the north of the site shall be environg strong the prential occurs. The tensory stops at the strong strong the second strong to the north of the site shall be environg strong the second strong to the north of the site shall be environg strong the second strong the second strong the second strong to the north of the site shall be environg strong the second strong to the north of the site shall be environg strong the second strong to the north of the site shall be environg strong the second	Fug	jitive Dust Emission			
A buffer zone of at least 10 mon shall be maintained between the edge of the stockpling are and the measet ASRs at the TKO Industrial Estate. Within the buffer zone, mo dusy matined shall be stockplied and used ing the stockplied and used ing the familer activities should be allowed. Water strays shall be provided and used to drampen matrials. Regular cleaning and watering the site bar exprise should be restrict to a maximum speed of 10 km per hour. Any whice with open blace carrying area used for morning metales. The loaded to a level higher than the side and fail boards, and shall be apvoid of minimize the fugitive dust small no coreated dust shall have properly titing side and tall boards. Matering the works maximum speed of 10 km per hour. The designated site main hauf road shall be paved or regular watering. Where washing faculties including high-pressue valer jet shall be paved for moving materials within the side and fail boards, and shall be regenerated to such that the effect and the provided to the maximum speed of morning materials when the care of the state state of the state state and the interaction of the site shall be at least three firms and tall part of work site. Every wells and have and the state state and the interaction of the site shall be at least three firms and tall parts. The designated site main hauf road supremist should be prohibited. The envoyent shall be at least three firms and the material state and should be prohibited. The termore and the mathematical state and the material state and the material state and state and the material state and should be prohibited. The envolves of states the latest state and the state before teaving the fill hank. The termore and the material state and state state and state state by composed by CEDD. When fill material states and stock and should be prohibited to the north of the site shall be andised of resented by adming the state state and stock and shou	•	Dust control / mitigation measures shall be provided to prevent dust nuisance.	7		
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Regular cleaning and watering the stall be provided to minimize the fugitive dust emissions. All vehicles with point and watering the stall be provided to minimize the fugitive dust emission. All vehicles with point and stall production area used for moving materials which has the potential to create dust shall not be loaded to a level higher than the side and fail boards, and shall be activity materials with mas the potential to create dust shall not be activity and shall be part than the side and tail boards, and shall be part the firms be day. The designated sile main haul road shall be part the firms be day and wheels before leaving the fill bank. If all boards, and tail boards, and tail boards, and shall be part the firms bedy and wheels before leaving the fill bank. Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site. Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank. Mill fail and equipment should be within be toronde by CEDD. The temporary stope surfaces. especially those facing to the north of the site shall be routeded at the entrance of work site. Every vehicle shall be equiped with bottom plates or other subble surfaces stabilizar approved by hydroseeding. vegtation fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides. The temporary stope surfaces. especially those facing to the north of the site shall be transfer by belt conveyor systems. Every vehicle shall be required with bottom plates or other subble surfaces stabilizar approved by hydroseeding. vegtation planing or seating with bottom plates to other subble be and sotherese.	3 .	Water sprays shall be provided and used to dampen materials.	7		
All verticles shall be restrict to a maximum speed of 10 km per hour. All verticles with point and carrying area used for moving materials which has the potential hor create dust shall have properly fitting side and fall boards, and shall be covered by a clean large/unit may the potential having the potential to create dust shall no core event by a clean large/unit and the locard shall be paved or regular watering). Frequent watering of work site shall be paved or regular watering. Frequent watering facilities including high-pressure water jet shall be provided at the entrance of work site. Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank. It all plant and equipment should be well maintained e.g. without black smoke emission. Open burning should be prohibiled. Cpen burning should be prohibiled. It has the covered by other marked by and whose other other subble such that the vertical fastance between the belt conveyor shall be not one of satisty. The best corrected by other marked by other ma		Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	7		
Any whicle with open load carrying area used for moving materials which has the potential to create dust shall have properly fitting side covered by a clean flappaulin. The designated site and table paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be paved or regular watering. The designated site main haur road shall be provided at the entrance of work site. The washing facilities including high-pressue water jet shall be provided at the entrance of work site. Every vehicle shall be washed to remove any during materials transforms is body and wheels before leaving the fill bank. All plant and equipment should be well maintained e.g. without black smoke ermission. Core nurring should be prohibited. The temporary sitops surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD. The belt scraper surfaces, especially those facing to the north of the site shall be convered by the material large and the real set with. Intrument, or other subable surface and 2 ale. Sinter strayed with the vertical distance between the belt conveyor shall be advised by a standard or standard by the north of the site shall be enclosed on top and 2 sides. The belt convey shall be advised by a standard approved by CEDD. When fill material is transform the site shall be convertical distance between the belt conveyor and the material landing or sealing with shol concrete large such the vertical distance between the belt conveyor and the material landing of the stack synthes should be solved by thore fact distance between the belt conveyor shall be advised for the ca	•	All vehicles shall be restrict to a maximum speed of 10 km per hour.	7		
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Handling of Surplus Public Fill (2016-2018) - Tseung Kwan O Area 137 Fill Bank

	Environmental Checklist		elementat Stages*	ation	Implementation Remark Stages*
		Yes	No	N/A	
Wat	Water Quality				
٠	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	>			
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	7			
	Temporary intercepting drains should be used at the stockpliing area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	7			
8 0 0	Manholes should be covered and sealed.	7			
	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	7			
3 9 %	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	7			
	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	7			
	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	7			
	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	7			
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	7			
(.	Existing and newly 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.	7			
	A wheel washing bay shall be provided at the site exit and wash-water shall have sand and sitt settled out or removed before being discharged into storm drains.	7			
	The section of construction road between wheel washing bay and the public road shall be paved with concrete, biturninous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	2			
	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be provided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	7			
	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	7			
	Oil interceptor shall be provided at work shop.	7			
	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	2			
	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	2			
	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	7			
	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	7			
	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	7			
841	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities:	7			
	Existing silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	7			
:•••	A waste collection vessel shall be deployed to remove floating debris.	~			

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	Environmental Checklist		Implementation Remark Stages*	Remark
		Yes	No N/A	
Lé	Landscape and Visual			
•	 The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided. 	7		
•	 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 	2		
2 • 2	 Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed. 	2		
•	 The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare. 	>		
õ	Other Environmental Factors			
200	 C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal. 	7		
())))	Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste.	>		
۰	 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 	7		
•	 All generators, fuel and oil storage are within bundle areas. 	7		
*	· Oil leakage from machinery, vehicle and plant is prevented.	7		
800	The Environmental Permit should be displaced conspicuously on site.	7		
	 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. 	7		
: •	To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from other general refuse general refuse generated by the workforce.	2		

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Summary of the Weekly Site Inspection:

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n Follc Dî	
Photo Ref. Further Action Follow up Required Date (Yes/No)	Ŝ
Photo Ref.	171227_001
Proposed Follow Up Action	. Man
Details of defective works or observations	Follow up the action to item 1 on 20/12/17, silt curtain near tipping hall No.1 was replaced.
Item	~

Remark

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Frankie Tang		Name	Title	Signature	Date
0	Checked by	Frankie Tang	ET Representative		27 December 2017

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CEDD Contract No.: CV/2015/07



<u>Photo</u>	
	Photo 171227_001 (Silt curtain near tipping hall No.1) (Improved)



Appendix I

Implementation Schedule of Mitigation Measures



Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank Contract No.: CV/2015/07

Environmental Mitigation Implementation Schedule

		Location		Implementation Status			
	Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable	
Ai	ir Quality						
•	Dust control / mitigation measures shall be provided to prevent dust nuisance.	All areas	\checkmark				
•	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	Northern Site Boundary	\checkmark				
•	Water sprays shall be provided and used to dampen materials.	All areas	\checkmark				
•	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	All areas					
•	All vehicles shall be restrict to a maximum speed of 10 km per hour.	All areas	\checkmark				
•	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.	Site Egress	\checkmark				
•	The designated site main haul rout shall be paved or regular watering.	All haul roads	\checkmark				
•	Frequent watering of work site shall be at least three times per day.	All areas	\checkmark				
•	Wheel washing facilities including high pressure water jet shall be provided at the entrance of work site.	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, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	All areas	\checkmark				
•	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	All areas	\checkmark				
•	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	C&DMSF	\checkmark				
•	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	C&DMFS	\checkmark				
•	The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the material landing point is maintained at no more than 1m.	C&DMFS	\checkmark				
	All plant and equipment should be well maintained e.g. without black smoke emission.	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				
No	pise Impact						
•	Approved method of working, 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				
•	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	All areas	\checkmark				
•	Air compressors and hand held breakers should have noise labels.	All areas	\checkmark				
•	Machines and plants that may be in intermittent use should be shut down between work months or should be throttled down to a minimum.	All areas	\checkmark				



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•	Noisy equipment and mobile plant shall always be site away from NSRs.	All areas	\checkmark			
		Location	Implementat	ion Status		
	Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable
W	ater Quality					
•	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	All areas	\checkmark			
•	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	All areas	\checkmark			
•	Temporary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	All areas	\checkmark			
•	Manholes should be covered and sealed.	All areas	\checkmark			
•	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	All areas	\checkmark			
•	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	Public fill stockpiling area	\checkmark			
•	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	C&DMFS	\checkmark			
•	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	All areas	\checkmark			
•	The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with water or protected by other method approved by CEDD.	Temporary Slopes	\checkmark			
•	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	Temporary Slopes	\checkmark			
•	Existing and newly 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 between wheel washing bay and the public road shall be paved with concrete, bituminous materials or hardcores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Wheel Washing facility	\checkmark			
•	Sewage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. 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			
•	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas and work shop.	All areas	\checkmark			
•	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	Barge Handling Area (BHA)	\checkmark			
•	The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	Barge Handling Area (BHA)	\checkmark			
•	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	Barge Handling Area (BHA)	\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			
•	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	Barge Handling Area (BHA)	\checkmark			
•	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	Along the seafront	\checkmark			
•	Existing silt curtain at the outward side of the basin near the Barging Handling Area throughout the period shall be repair, maintain and service when there is public fill intake by barges to the Fill Bank in accordance with PS Clause 1.68. The total length of the silt curtains shall not be less than 160m, and a gap of about 80m shall be left open for access of barges. The silt curtain shall be properly maintained such that it can also serve the function of refuse containment boom to confine floating refuse.	Along the seafront		\checkmark		



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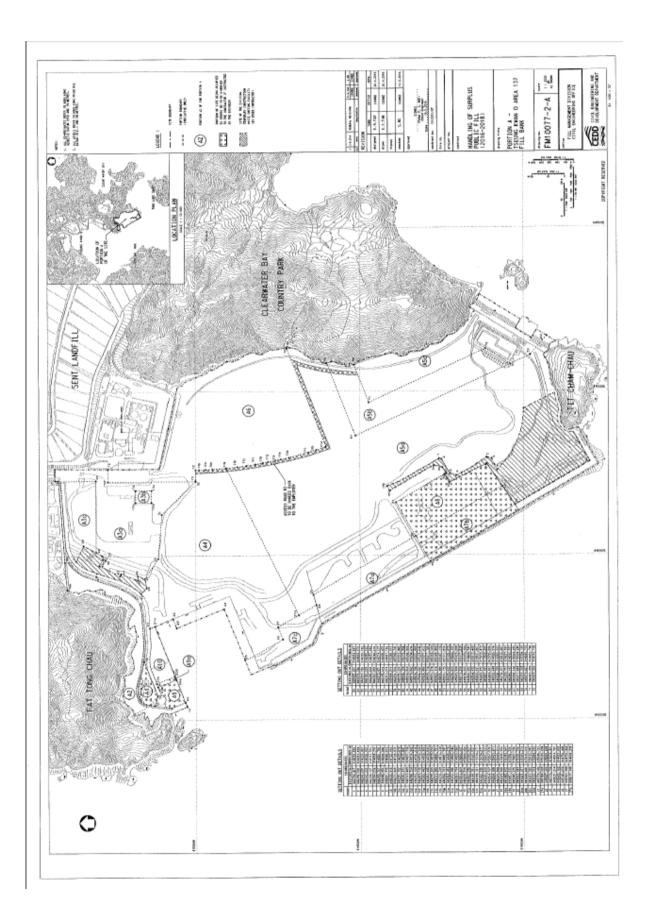
	Location	Implementation Status				
Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable	
Landscape and Visual						
• The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided.	All areas	\checkmark				
• The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.	Completed slopes	\checkmark				
• Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark green / brown) once completed.	Site boundary	\checkmark				
• The barging point and the C&DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact from glare.	All areas					
Other Environmental Factors						
C&D waste sorted from mixed C&D material shall be transfer to SENT landfill for disposal.	All areas	\checkmark				
Plan and stock construction materials carefully to minimise generation of waste.	All areas	\checkmark				
Any unused materials or those with remaining functional capacity should be recycled.	All areas	\checkmark				
All generators, fuel and oil storage are within bunded areas.	All areas	\checkmark				
Oil leakage from machinery, vehicle and plant is prevented.	All areas	\checkmark				
The Environmental Permit should be displaced conspicuously on site.	All areas					
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				
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					



Appendix J

Site General Layout plan







Appendix K

Monitoring Schedule for the Coming Month



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

Tseung Kwan O Area 137

Time Schedule for Impact Water Quality Monitoring (WQM), Impact Air Monitoring (1-hr TSP, 24-hr TSP and 24-hr RSP), Weekly Site Inspection (Weekly SI) and Impact Noise Monitoring (NM)

Sun	Mon	Tue	Wed	Thu	Fri	Sat
31 24 hr TSP 24-hr RSP	1/1	2	3 <u>1-hr TSPx2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (08:00 -09:00) Mid-flood (14:30 -15:30)	4	5 <u>1-hr TSP</u> <u>WQM</u> Mid-flood (09:00 -10:00) Mid-ebb (14:00 -15:00)	6 <u>24 hr TSP</u> <u>24-hr RSP</u>
7	8 <u>1-hr TSPx2</u> <u>WQM</u> Mid-flood (11:16 –12:16) Mid-ebb (17:01 -18:01)	9	10 <u>1-hr TSP</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (08:00 –09:00) Mid-flood (13:00-14:00)	11	12 24 hr TSP 24-hr RSP WQM Mid-ebb (08:33-09:33) Mid-flood (14:23-15:23)	13
14	15 <u>1-hr TSP</u> <u>NM</u> WQM Mid-ebb (11:00-12:00) Mid-flood (16:10-17-10)	16	17 <u>1-hr TSPx2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (12:11-13:11) Mid-flood (17:16-18:16)	18 <u>24 hr TSP</u> 24-hr RSP	19 <u>1-hr TSPx1</u> <u>WQM</u> Mid-flood (08:00-09:00) Mid-ebb (13:22 -14:22)	20
21	22 <u>1-hr TSPx2</u> <u>WQM</u> Mid-flood (09:42-10:42) Mid-ebb (15:27-16:27)	23	24 <u>1-hr TSPx1</u> <u>24 hr TSP</u> <u>24-hr RSP</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (11:06-12:06) Mid-ebb (17:22-18:22)	25	26 <u>1-hr TSPx1</u> <u>WQM</u> Mid-flood (12:38-13:38) Mid-ebb (19:00-20:00)	27
28	29 <u>1-hr TSPx1</u> <u>WQM</u> Mid-ebb (09:54-10:54) Mid-flood (15:20-16:20)	30 24 hr TSP 24-hr RSP	31 <u>1-hr TSPx2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (11:41-12:41) Mid-flood (17:10-18:10)	1/2	2/2 1-hr TSPx1 WQM Mid-flood (07:45-08:45) Mid-ebb (13:11-14:11)	3/2

January 2018



Appendix L

Complaint Log

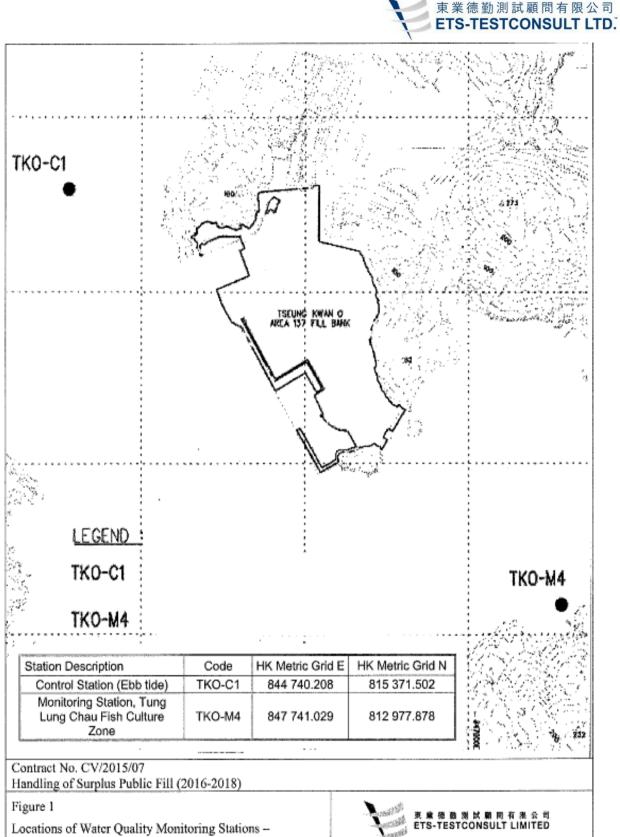


Complaint Logs

Log Ref.	Location	Received Date	Details of Complaint	Investigation / Mitigation Action	Status
001	Barge handling area (BHA) at Tseung Kwan O 137	15 May 2017	One complaint received on 15 May 2017, which was forwarded to ET on 11 August 2017, from CEDD (Complaint NCF- N08/RE/00014875-17 Sent By CSO[RN]3 [CASE#2- 3943858817 Int.Comm WS170513A57354] against illegal dumping at sea without permit in TKO137 fill bank.	Refer to the ET site investigation on 14 August 2017, the contractor clarified that the contractor conducted vessel loading test at Tseung Kwan O 137 Fill bank on 13 May 2017 and the material was then unloaded from the vessels. The contractor started to dump fill materials from 19 May 2017 after receiving the valid dumping permit.	
002	Tseung Kwan O 137 Fill Bank	12 Oct 2017	One complaint received on 12 October 2017, which was forwarded to ET on 18 October 2017, from public against dust emission at the fill bank and discharge of muddy water to the seafront.	 Refer to the ET weekly site inspection on 18 October 2017, no defective observation related to dust emission and discharge of water was recorded during the investigation. Details of Action(s) Taken by the Contactor: Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank; Mist spraying systems at the site entrance are operated properly; 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; All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet; 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; Silt curtains are provided at the outward side of the basin near the Fill Bank; Drainage systems are adequate and maintained to prevent flooding and overflow; Catchpits, sand and silt removal facilities and intercepting channels are maintained and functioning properly. 	Closed



Figures



Tseung Kwan O Area 137 Fill Bank

