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**TEST REPORT** 



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.53

(SEPTEMBER 2021)

n

Prepared by:

LAU, Wing Sum Assistant Environmental Officer

Checked by:

LAU, Chi Leung

Environmental Team Leader

Issue Date: 09 September 2022

Report No.: ENA14882

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Our Ref: PL-202209015

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

10 September 2022

Dear Mr. Lau,

## RE: Contract No. CV/2015/07 Handling of Surplus Public Fill (2016-2018) Revised Appendices of Monthly EM&A Report (No. 53) for September 2021 for the Tseung Kwan O Area 137 Fill Bank

Reference is made to your submission of revised Appendices D2 to D5 of the Monthly EM&A Report for September 2021 for the TKO Area 137 Fill Bank received by email on 9 September 2022. We are pleased to inform you that we have no adverse comment on the revised appendices.

Thank you for your attention. Please do not hesitate to contact us should you have any queries.

Yours faithfully,

Toang Jan Bearg

F. C. Tsang Independent Environmental Checker

cc. CEDD – Mr. P. C. LEUNG



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

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東業德勤測試顧問有限公司

### EXECUTIVE SUMMARY

This monthly Environmental Monitoring and Audit (EM&A) report No.53 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 September 2021.

#### Site Activities

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

- 1. Operation of the Public Fill Reception Facilities at TKOFB;
- 2. Delivery of public fill to Taishan at TKOFB;
- 3. Operation of dewatering plant and expanded dewatering plant at TKOFB;
- 4. Operation of Crushing plant at TKOFB;
- 5. Enhancement of Mobile Data Network at TKOFB (Installation, Operation and Maintenance);
- 6. Installation, Operation and Maintenance of Artificial Intelligent System for Crushing Plant Nos. 2, 3 and 4 (Model QJ241) at TKOFB;
- 7. Operation of the Integrated Public Fill Reception at TKOFB;
- 8. Operation and Maintenance of Wash House at TKOFB;
- 9. Enhancement and maintenance of Wheel Washing Facility at TKOFB;
- 10. Personnel Position Tracking and Proximity Detection System of Moving Plant at TKOFB;
- 11. Setting up a Digital Works Supervision System (DWSS) for TKOFB;
- 12. Carrying out of preliminary sorting of public fill for 3RS project at TKOFB;
- 13. Providing input for the GI works at TKOFB;
- 14. Installation of New RFID System for the pre-sorting works at TKOFB; and
- 15. Modification Works to MIC Office for New VR Cave System 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: 5 Occasions at 2 designated locations
- 1-hour TSP Monitoring: 16 Occasions at 2 designated locations
- Marine Water Quality Monitoring: 13 Occasions at 2 designated locations
- Weekly-site inspection: 5 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 complaints, 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.

#### 1.0 INTRODUCTION

*China Harbour – Zhen Hua Joint Ve*nture (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/N) (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 October 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 September 2021.

#### 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 m<sup>3</sup> 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	Leo Lam, T M Yeung, May Lau	Engineer's Representative	2762 5555	2714 0113
IEC (Acuity)	Mr. F C Tsang	IEC	2698 9097	2333 1316
Contractor (CHZH-JV)	Zhou Chang Ying	Senior Project Manager	9626 6299	2247 4108
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 Public Fill Reception Facilities at TKOFB;
- 2. Delivery of public fill to Taishan at TKOFB;
- 3. Operation of dewatering plant and expanded dewatering plant at TKOFB;
- 4. Operation of Crushing plant at TKOFB;
- 5. Enhancement of Mobile Data Network at TKOFB (Installation, Operation and Maintenance);
- 6. Installation, Operation and Maintenance of Artificial Intelligent System for Crushing Plant Nos. 2, 3 and 4 (Model QJ241) at TKOFB;
- 7. Operation of the Integrated Public Fill Reception at TKOFB;
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- 10. Personnel Position Tracking and Proximity Detection System of Moving Plant at TKOFB;
- 11. Setting up a Digital Works Supervision System (DWSS) for TKOFB;
- 12. Carrying out of preliminary sorting of public fill for 3RS project at TKOFB;
- 13. Providing input for the GI works at TKOFB;
- 14. Installation of New RFID System for the pre-sorting works at TKOFB; and
- 15. Modification Works to MIC Office for New VR Cave System 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 4.1 Air 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 4.2	Monitoring pa	arameters, duration,	frequency	y of air qu	uality mo	onitoring	

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

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 0.6m<sup>3</sup>/min and 1.7m<sup>3</sup>/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.

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

Monitoring Logation	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 crushing plants. And the site egress area provided wheel washing facilities; Road dampening, 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 IEC 61672 Type 1 specification, 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.

able 5.2 Duration, Frequencies and Parameters of Noise Monitoring			
Time Duration/min Parameters Frequency			
Day-time: 0700-1900 hrs on normal weekday	30	L <sub>eq</sub> , L <sub>10</sub> , L <sub>90</sub>	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, 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 5.4 Action and Limit Levels for noise monitoring

	g	
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 and crushing plant.

#### 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 6.1
 Locations of Marine Water Monitoring Stations

According to Environmental Permit (Permit no.:EP-134/2002/N) Condition 3.2, water quality survey/monitoring shall be conducted at control station C1a, monitoring stations M4a and M5 for the period from two weeks before commencement of operation of the additional 5 barging points to 4 weeks after cessation of their operation. The water quality survey/monitoring frequency and parameters at stations C1a, M4a and M5 shall be same as the requirements set out in the EM&A Manual and the monitoring results shall be incorporated in the monthly EM&A reports.

Due to "Hong Kong International Airport, Three Runway System Project Contract 3206 – Main Reclamation Works "(3RS project) operation of the additional barging point at TKO Area 137, the ET started monitoring events at the impact station M4a, M5 and the control station C1a from 14 May 2018 onwards.

Figure 4 shows the location of water control station C1a and water monitoring station M4a and M5.

Table 6.2 describes the locations of the additional marine water monitoring stations



Table 6.2 Locations of Additional Marine Water Monitoring Stations (3RS project)
--

		<u> </u>	
Station Description	Code	HK Metric Grid E	HK Metric Grid N
Control Station (Ebb tide)	C1a	845647	814146
	M4a	845922	813973
Impact Monitoring Station	M5	847005	813678

#### 6.3 Monitoring Parameters

Monitoring of the marine water quality parameters are listed in Table 6.3.

In-situ measurement	Laboratory analysis
Depth (m)	Suspended solids (mg/L)
Temperature (℃)	
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 6.4.

Table 6.4	Monitoring frequency of the marine water	
10010 0.1	mornitoring inequerity of the marine water	

· · · · · · · · · · · · · · · · · · ·				
Parameter	Frequency	No. of Location	No. of Depths	
Temperature		2		
Salinity		(TKO-C1 and TKO-	.3	
DO	3 days/week,	M4)	(Surface, mid-depth	
Turbidity	2 tides/day	and	& bottom)	
Suspended solids		(C1a, M4a and M5)		

#### 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, Turbidity and Temperature Measuring Equipment

A portable, weatherproof multiparameter water quality meter (YSI Pro DSS) which complete with cable, sensor and DC power source were used for measuring DO, turbidity, salinity, pH and temperature:

- a dissolved oxygen level in the range of 0 to 50 mg/L and 0-500 % saturation;
- a turbidity in range 0-4000 NTU;
- a salinity in range 0-70 ppt;
- a temperature of -5-70 degree Celsius

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

#### 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. At each sampling depth, duplicate readings of dissolved oxygen content and turbidity were taken. The probes were drop into water, two consecutive measurements of dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity and salinity were taken. The difference between the two readings of each set was more than 25% of the value of the first reading while a third measurement would be conducted to ensure data precision.

#### 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 6.5.

Table 6.5 Summary of		
Laboratory Analysis	Testing Procedure	Detection Limit
Total suspended solids	In house method based on APHA 19 <sup>th</sup> ed 2540D	1.0 mg/L

## Table 6.5Summary of testing procedures

#### 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. The DO sensor was calibrated by wet bulb method and a zero check in distilled water was performed with the turbidity and salinity sensor before the strat of measurement.

At each measurement/sampling depth, two consecutive measurements of dissolved oxygen (DO), dissolved oxygen saturation (DOS), turbidity and salinity were taken. For DO, DOS, Turbidity and Salinity, measurements were conducted three days per week at both mid-ebb and mid-flood tides at three depths (i.e. 1m below surface, mid depth and 1m from seabed). 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 to be carried out.

Table 6.6 shows the equipment used for in-situ monitoring of water quality. The calibration certificates are attached in Appendix D1.



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Table 6.6         Details of Marine Water Quality Monitoring Equipment (In-site measurement)				
Parameter	Model	Date of Calibration	Due Date	Equipment No.
Coordinate of Monitoring stations	Garmin eTrex 10			ET/EW/005/09
Dissolved Oxygen (Saturation), Temperature, Salinity, Turbidity	YSI Pro DSS Multiparameter Water Quality Meter	03/08/21	02/11/21	ET/EW/008/011*
Water Depth	Speedtech SM-5			ET/EW/002/08

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

#### 6.6 Action and Limit Level

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

Table 6.7	Water Quality Action and Limit Levels	
Parameter	Action Level	Limit Level
DO (mg/L)	Surface & Middle	Surface & Middle
	<5.45 mg/L (5%-ile of baseline data)	<5.10 mg/L (1%-ile of baseline data)
	<u>Bottom</u>	<u>Bottom</u>
	<4.72 mg/L (5%-ile of baseline data)	<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

The water quality Action and Limit Levels (3RS project) are presented in the table below.

 Table 6.8
 Water Quality Action and Limit Levels (3RS project)

10010 010			
Parameter	Action Level	Limit Level	
DO (mg/L)	<u>Surface &amp; Middle</u> <5.5 mg/L <u>Bottom</u> <5.2 mg/L	<u>Surface &amp; Middle</u> <4.00 mg/L (1%-ile of baseline data) <u>Bottom</u> <2.00 mg/L	
SS (mg/L) (Depth- averaged)	>4.9 mg/L or >120% of the upstream control station's SS at the same tide on the same day	>5.2 mg/L or >130% of the upstream control station's SS at the same tide on the same day	
Turbidity (NTU) (Depth- averaged)	>3.9NTU or >120% of the upstream control station's turbidity at the same tide on the same day	>4.2 NTU or >130% of the upstream control station's turbidity at the same tide on the same day	

#### 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:



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			September 202	21		
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 ▼		

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. The summary of marine water quality exceedances is shown in Table 6.10.

		Summary										
	Station	Exceedance	DO		Turbidity		S	S	Total			
	Station	Level	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb		
	Action	0	0	0	0	0	0	0	0			
	TKO-C1	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			

 Table 6.10
 Summary of Impact Marine Water Quality Exceedances

The impact water quality measurement results (3RS project) are detailed in Appendix D4. Appendix D5 presents the water quality monitoring data and graphical presentations of monitoring results. The summary of marine water quality exceedances (3RS project) is shown in Table 6.11.

Station	Exceedance	D	0	Turbidity		SS		Total	
Station	Level	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb
C1a	Action	0	0	0	0	0	0	0	0
Cla	Limit	0	0	0	0	0	0	0	0
M4a	Action	0	0	0	0	0	0	0	0
IVI4a	Limit	0	0	0	0	0	0	0	0
M5	Action	0	0	0	0	0	0	0	0
IVIO	Limit	0	0	0	0	0	0	0	0

 Table 6.11
 Summary of Impact Marine Water Quality Exceedances (3RS project)

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, five weekly site inspections were conducted (01, 08, 15, 21 and 29 September 2021). Table 7.1 presents the key findings of weekly ET site inspection in this reporting period.

Table 7.1	Key Findings of Weekl	y ET Site Audits in this re	porting 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
	Stagnant water was observed near excavator.	To clean the stagnant water properly	Stagnant water was cleaned.	Closed
01 September 2021	General refuse were observed near workshop.	To clean the general refuse properly.	General refuse were cleaned.	Closed
	Oil stain were observed near Workshop	To clean the oil stain properly		Follow-up
08	Oil stain were observed near Workshop	To clean the oil stain properly	Oil stain were cleaned.	Closed
September 2021	Water was overflowed by the generator near vehicle- washing basin.	To clean the stagnant water properly		Follow-up
15 September	Water was overflowed by the generator near vehicle- washing basin.	To clean the stagnant water properly	Stagnant water was cleaned.	Closed
2021	Water barriers were damaged near A3 pier.	To maintain water barriers properly		Follow-up
	Water barriers were damaged near A3 pier.	To maintain water barriers properly	Water barriers were maintained	Closed
21 September 2021	Chemical materials were discovered in the container of staff near wet mud platform.	To remove the chemical materials properly		Follow-up
	Stagnant water was observed on the drip tray near dewatering plant.	To clean the stagnant water properly		Follow-up
29 September	Chemical materials were discovered in the container of staff near wet mud platform.	To remove the chemical materials properly	Chemical materials were removed.	Closed
2021	Stagnant water was observed on the drip tray near dewatering plant.	To clean the stagnant water properly	Stagnant water was cleaned.	Closed

#### 7.1.2 EPD's Site Inspection

EPD's site inspection was carried out at TKO137 Fill Blank on 01 September 2021.

#### 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.

#### 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 and the Monthly Summary Waste Flow Table is shown in Appendix K.

	o of Wable generated i	
Waste Type	Actual Amount	Disposal Locations
Public Fill ('000m <sup>3</sup> )	0	TKO 137 Fill Bank
C&D Waste ('000kg)	32.58	SENT Landfill / Refuse Collection Point
Chemical Waste (kg/L)	0 (L)	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



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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.

#### 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				ising and permit status
Description	Permit No.	Valid	Period	Section
		From	То	
Environmental Permit	EP- 134/2002/ N	20/08/19	01/01/20 22	<ul> <li>Site clearance</li> <li>Construction of a temporary storm water system</li> <li>Stockpiling of 6 million m3 of public fill</li> <li>Setting up two barging points for transporting the stockpiled public fill by barges</li> <li>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</li> <li>Construction of operation of a construction and Demolition Material Sorting Facility (C&amp;DMSF)</li> <li>Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin</li> <li>Remove the temporary fill bank</li> </ul>
Chemical Waste Producer	5919-839- C4181-01	19/04/17		<ul> <li>Spent battery cell containing heavy metals and spent lubricating oil</li> </ul>
Effluent Discharge License	WT000291 78-2017	27/09/17	30/09/22	<ul> <li>Effluent, Surface Run-off, and all other wastewater discharges from screen and sedimentation tank</li> </ul>
Marine Dumping Permit	EP/MD/22- 022	20/07/21	30/09/21	<ul> <li>Approval for dumping 499,999 tons (approximately equal to 277,777 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</li> </ul>
Billing Account for Waste Disposal	7027643	22/05/17		
Notification Pursuant to Section 3(3) 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 complaints, notification of summon and successful prosecution were 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 N).

Complaints	logged	Summons	served	Successful prosecution received			
September 2021	Cumulative	September 2021	Cumulative	September 2021	Cumulative		
0	12	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 complaints, 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, provision of automatic water sprinklers at the crushing plants and automatic wheel washing facilities, dampening of haul roads and stockpiling areas.

#### **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, crushing plant, 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;
- Provide continuously water spraying system for crushing plant including receiving point and unloading point;
- Provide enclosed conveyor belt for transporting the crushed material directly to the unloading point
- Provide dust screen fenced for crushing plant, and the receiving point of crushing facility would be situated inside an enclosure with one side opening for vehicular access;
- 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.
- Proper schedule of noisy operation and use of quiet machineries on site.

#### 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

- 1. Operation of the public fill reception facilities at TKOFB;
- 2. Delivery of public fill to Taishan at TKOFB;
- 3. Operation of dewatering plant and expanded dewatering plant at TKOFB;
- 4. Operation of Crushing Plant at TKOFB;



Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank ENA14882 Monthly EM&A Report No.53

- 5. Operation of Additional Filter Press at expanded dewatering plant at TKOFB;
- 6. Operation of Integrated Public Fill Reception Platform at TKOFB;
- 7. Construction and Maintenance of the Drainage Systems along the Concrete Paved Road at TKOFB to Temporary Construction Waste Sorting Facility;
- 8. Enhancement of Mobile Data Network at TKOFB (Installation, Operation and Maintenance);
- 9. Setting up a Digital Works Supervision System (DWSS) for TKOFB;
- 10. Installation, Operation and Maintenance of Artificial Intelligence System for Crushing Plant Nos. 2,3 and 4 (Model QJ241) at TKOFB;
- 11. Upgrading the CCTV surveillance system at TKOFB;
- 12. Modification and Operation of the Wash House at TKOFB;
- 13. Carrying out preliminary sorting of Public Fill for 3RS project at TKOFB;
- 14. Modification works of AI system in MIC Office;
- 15. Installation of new RFID system for the pre-sorting works at TKOFB;
- 16. Providing input for piezometer measurement of the GI works at TKOFB;
- 17. Construction and installation of 2 nos. Wash House at TKOFB

#### 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;
- Dust generated from dump trucks traffic;
- Regular checking of the drainage system;
- Flood prevention; and
- Noise from operation of the crushing plant.

#### 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 spraving 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;
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding in the Fill Bank.
- To prevent untreated wastewater directly discharge into nullahs; and
- To provide desilting facilities such as granular rock filter and geotextile filter at nullah.

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.

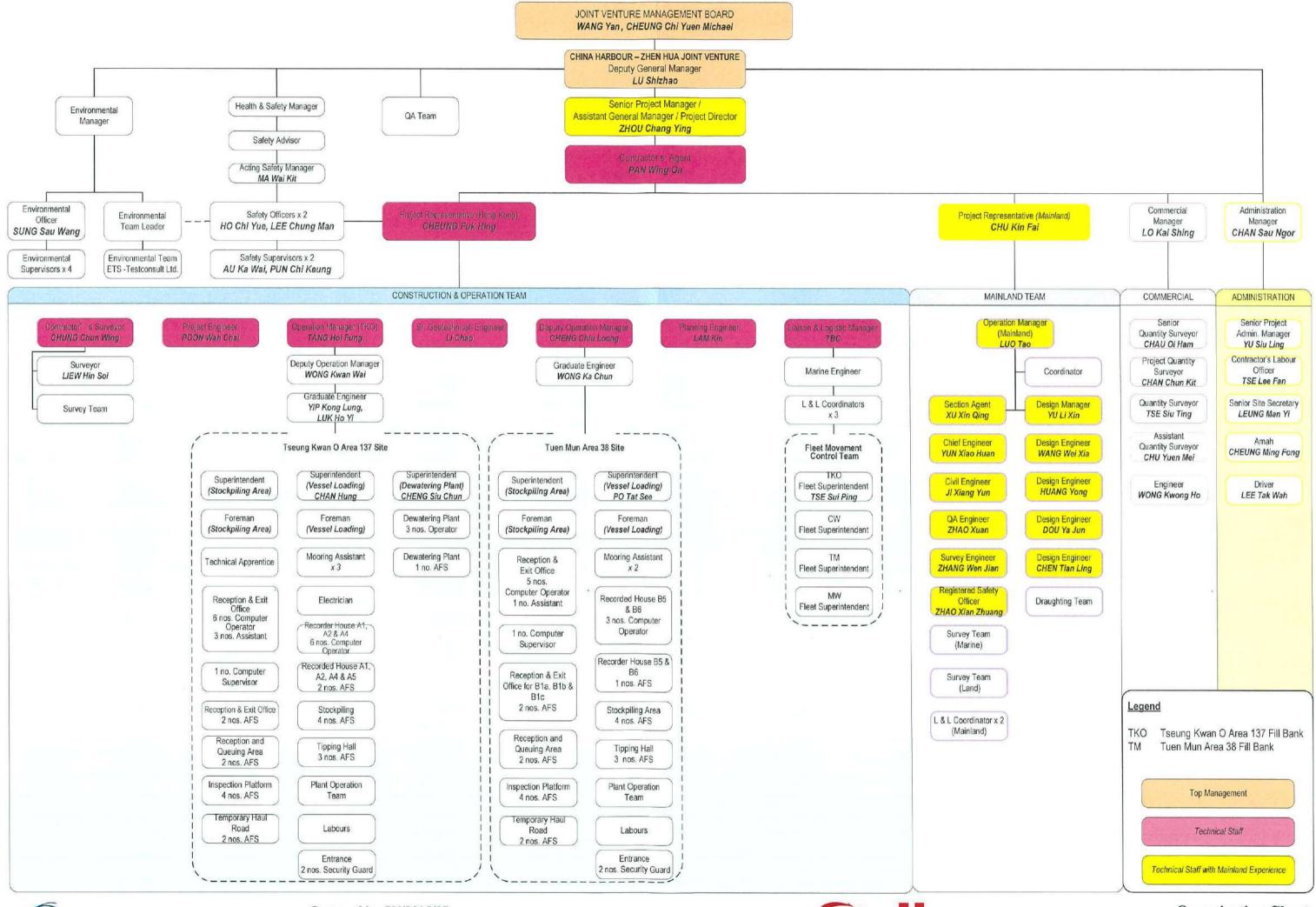
#### 12.3 Monitoring Schedule for the Coming Month

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



Appendix A

**Project Organization Chart** 





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



Organization Chart Rev.25



Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipment



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

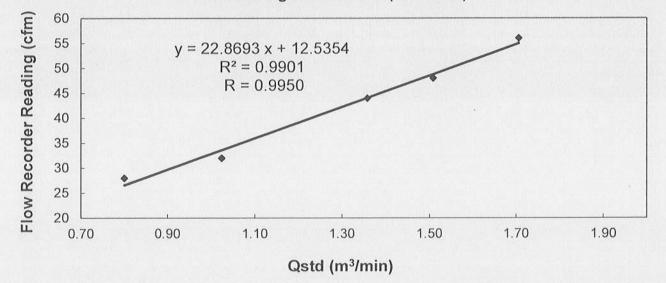
T: +852 2695 8318 F: +852 2695 3944 E: etl@ets-testconsult.com W: www.ets-testconsult.com

## TEST REPORT

<u>Calibration Report</u> of High Volume Air Sampler

Manufacturer	:	Andersen G1051	Date of Calibration			21 July 2021						
Serial No.	:	1176 (ET/EA/003/05)	September 2	021								
Method	:	based on Operations Manual for the 5-point calibration using standard calibration kit nanufactured by Tisch TE-5025 A										
Results	:	Flow recorder reading (cfm)	51	47	45	35	29					
		Qstd (Actual flow rate, m <sup>3</sup> /min)	1.71	1.50	1.36	1.03	0.71					
		Pressure : 756.81 mm H	lg	Temp. :	303	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

LAU, Chi Leung

LAU, Chi Leung (Environmental Team Leader)



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

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## TEST REPORT

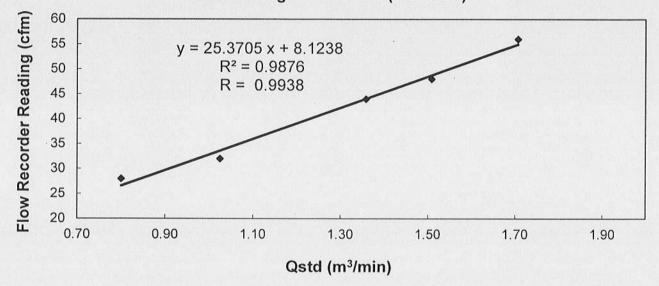
#### **Calibration Report**

of

**High Volume Air Sampler** 

Manufacturer	:	Andersen G1051	oration	: <u>20 S</u>	eptember 2	021						
Serial No.	:	1176 (ET / EA / 003 / 05) Calibration Due Date : 19 November										
Method	:	ased on Operations Manual for the 5-point calibration using standard calibration kit nanufactured by Tisch TE-5025 A										
Results	:	Flow recorder reading (cfm)	50	48	43	34	28					
		Qstd (Actual flow rate, m <sup>3</sup> /min)	1.70	1.51	1.37	1.02	0.80					
		Pressure : 757.56 mm H	g	Temp. :	302	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 :

LIAO, Yun Chao (Technician)

Checked by LAU, Chi Leung

LAU, Chi Leung (Environmental Team Leader)

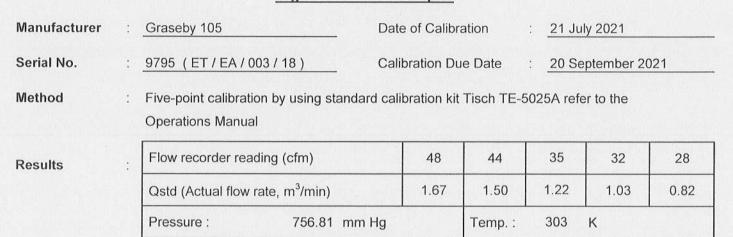


8/F Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan Street, Fo Tan, Hong Kong

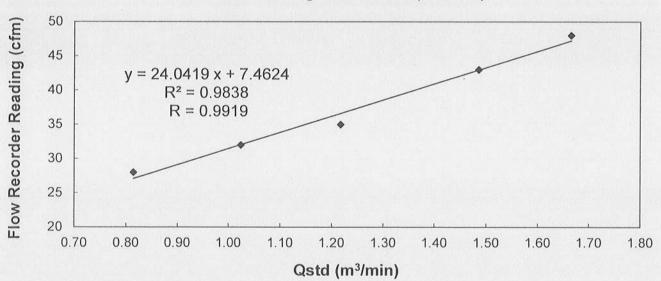
T: +852 2695 8318 F: +852 2695 3944 E: etl@ets-testconsult.com W: www.ets-testconsult.com

## **TEST REPORT**

<u>Calibration Report</u> of High Volume Air Sampler



## 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 Mấn (Technician) Checked by :

LAU, Chi Leung (Environmental Team Leader)



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

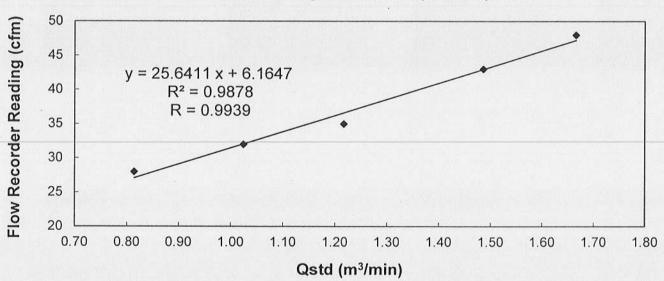
T: +852 2695 8318 F: +852 2695 3944 E: etl@ets-testconsult.com W: www.ets-testconsult.com

## TEST REPORT

## <u>Calibration Report</u> of <u>High Volume Air Sampler</u>

Manufacturer	:	Graseby 105	Date of Calibr	ation	: <u>20 Se</u>	20 September 2021		
Serial No.	:	9795 (ET/EA/003/18)	Calibration Du	ue Date	: <u>19 No</u>	vember 20	21	
Method	:	Five-point calibration by using standa Operations Manual	rd calibration kit	Tisch TE-	5025A refe	er to the	•	
Results	:	Flow recorder reading (cfm)	49	45	36	33	28	
		Qstd (Actual flow rate, m <sup>3</sup> /min)	1.66	1.49	1.23	1.04	0.83	
		Pressure : 757.56 mm	Hg	Temp. :	302	к	uv. Periodian	

## 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 :

LIAO, Yun Chao (Technician) Checked by

LAU, Chi Leung (Environmental Team Leader)

n v i r Cal. Date:	<u> </u>	ent rtiju	cate Calibration		on Informat		Di Janua	ALIBRATION UE DATE: My 11, 2022
Operator:	Jim Tisch Model #:	TE COOCA	Calil	brator S/N:	3863	Pa:	750.1	mm Hg
Calibration	Run	TE-5025A Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)	
	1	1	2	1	1.4540	3.2	2.00	
	2	3	4	1	1.0210 0.9090	6.4 8.0	4.00	
	4	7	8	1	0.8700	8.8	5.50	
	5	9	10	1	0.7190	12.8	8.00	
	[		[	Data Tabula	tion			
	Vstd	Qstd	$\sqrt{\Delta H \left(\frac{Pa}{Pstd}\right)}$	)( <u>Tstd</u> )		Qa	$\sqrt{\Delta H (Ta/Pa)}$	
	(m3)	(x-axis)	(y-ax		Va	(x-axis)	(y-axis)	
	0.9860	0.6781	1.40		0.9957	0.6848	0.8899	
	0.9818	0.9616	1.99		0.9915	0.9711	1.2585	
	0.9786	1.1249	2.33		0.9883	1.1359	1.4757	
	0.9733	1.3538	2.81		0.9829	1.3671	1.7798	
		m=	2.081			m=	1.30351	
	QSTD	b= r=	-0.00		QA	b= r=	-0.00577 0.99993	
	L			Calculatio		•		
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/Ta			ΔVol((Pa-ΔF	?)/Pa)	
		Vstd/∆Time				Va/∆Time		
			For subsequ	lent flow ra	te calculatio	15:		
	Qstd=	1/m (( \\ \DH(	Pa ) Tstd Pstd Ta	-))-b)	Qa=	1/m (( √ΔH	(Ta/Pa))-b)	:
		Conditions						
Tstd: Pstd:	298.15	<u>°K</u> mm Hg				RECA	LIBRATION	
ΔH: calibrate ΔP: rootsme	l or manome ter manom	<b>(ey</b> ter reading (i eter reading	(mm Hg)		40 Code Appendix {	of Federal R 3 to Part 50,	nual recalibration Regulations Part 5 Reference Meth	50 to 51, od for the
	arometric pi	perature (°K) ressure (mm		Determination of Susp			spended Particulate Matter in here, 9.2.17, page 30	

sch Environmental, Inc.

15 South Miami Avenue

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www.tisch-env.com TOLL FREE: (877)263-7610 FAX: (513)467-9009

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Appendix B2

Impact Air Quality Monitoring Results

## Summary of 24-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egress

Sta	art	Fin	ish	Elapse	e Time	Sampling	Flow Rate (m <sup>3</sup> /min.)		Average	Filter W	Conc. (μg/m³)	
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m <sup>3</sup> /min.)	Initial	Final	Conc. (µg/m)
3/9/2021	10:00	4/9/2021	10:00	24071.74	24095.74	24.00	1.0622	1.0622	1.0622	2.7222	2.8675	95
9/9/2021	08:00	10/9/2021	8:00	24098.74	24122.74	24.00	1.0622	1.0622	1.0622	2.7344	2.9179	120
15/9/2021	09:39	16/9/2021	9:39	24125.74	24149.74	24.00	1.1038	1.1038	1.1038	2.7374	2.9075	107
21/9/2021	08:00	22/9/2021	8:00	24152.74	24176.74	24.00	1.0856	1.0856	1.0856	2.7314	2.8862	99
27/9/2021	13:30	28/9/2021	13:30	24179.74	24203.74	24.00	1.0856	1.0856	1.0856	2.7243	2.8978	111

### Monitoring Station : TKO-A2a

Location : CREO

Start		Finish		Elapse Time		Sampling	Flow Rate (m <sup>3</sup> /min.)		Average	Filter Weight (g)		
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m <sup>3</sup> /min.)	Initial	Final	Conc. (µg/m³)
3/9/2021	10:00	4/9/2021	10:00	26165.61	26189.61	24.00	0.9386	0.9386	0.9386	2.7340	2.8570	91
9/9/2021	08:00	10/9/2021	8:00	26192.61	26216.61	24.00	0.8949	0.8949	0.8949	2.7458	2.8888	111
15/9/2021	09:45	16/9/2021	9:45	26219.61	26243.61	24.00	0.8511	0.8511	0.8511	2.7214	2.8440	100
21/9/2021	08:00	22/9/2021	8:00	26246.61	26270.61	24.00	0.9411	0.9411	0.9411	2.7500	2.8774	94
27/9/2021	13:43	28/9/2021	13:43	26273.61	26297.61	24.00	0.9805	0.9805	0.9805	2.7436	2.8820	98

## Summary of 1-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egress Site Egress

Start		Finish		Elapse Time		Sampling	Flow Rate (m <sup>3</sup> /min.)		Average	Filter Weight (g)		Conc. (μg/m³)
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m³/min.)	Initial	Final	ουπο. (μg/m )
1/9/2021	13:10	1/9/2021	14:10	24070.74	24071.74	1.00	1.0076	1.0076	1.0076	2.7494	2.7619	207
6/9/2021	09:12	6/9/2021	10:12	24095.74	24096.74	1.00	1.0466	1.0466	1.0466	2.7227	2.7351	197
6/9/2021	13:00	6/9/2021	14:00	24096.74	24097.74	1.00	1.0466	1.0466	1.0466	2.7383	2.7518	215
8/9/2021	10:02	8/9/2021	11:02	24097.74	24098.74	1.00	1.0466	1.0466	1.0466	2.7319	2.7451	210
10/9/2021	08:45	10/9/2021	9:45	24122.74	24123.74	1.00	1.0466	1.0466	1.0466	2.7212	2.7333	193
10/9/2021	10:00	10/9/2021	11:00	24123.74	24124.74	1.00	1.0466	1.0466	1.0466	2.7306	2.7442	217
13/9/2021	13:00	13/9/2021	14:00	24124.74	24125.74	1.00	1.0856	1.0856	1.0856	2.7447	2.7602	238
17/9/2021	09:29	17/9/2021	10:29	24149.74	24150.74	1.00	1.0466	1.0466	1.0466	2.7328	2.7467	221
17/9/2021	10:38	17/9/2021	11:38	24150.74	24151.74	1.00	1.0466	1.0466	1.0466	2.7228	2.7374	232
20/9/2021	13:44	20/9/2021	14:44	24151.74	24152.74	1.00	1.0076	1.0076	1.0076	2.7409	2.7532	203
24/9/2021	08:57	24/9/2021	9:57	24176.74	24177.74	1.00	1.0466	1.0466	1.0466	2.7227	2.7351	197
24/9/2021	10:31	24/9/2021	11:31	24177.74	24178.74	1.00	1.0466	1.0466	1.0466	2.7315	2.7448	212
24/9/2021	13:00	24/9/2021	14:00	24178.74	24179.74	1.00	1.0466	1.0466	1.0466	2.7488	2.7642	245
29/9/2021	08:55	29/9/2021	9:55	24203.74	24204.74	1.00	1.0076	1.0076	1.0076	2.7471	2.7597	208
29/9/2021	10:02	29/9/2021	11:02	24204.74	24205.74	1.00	1.0076	1.0076	1.0076	2.7319	2.7456	227
29/9/2021	13:00	29/9/2021	14:00	24205.74	24206.74	1.00	1.0076	1.0076	1.0076	2.7402	2.7548	241

Monitoring Station : TKO-A2a

Location : CREO

Start		Finish		Elapse Time		Sampling	Flow Rate (m <sup>3</sup> /min.)		Average	Filter Weight (g)		
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m <sup>3</sup> /min.)	Initial	Final	Conc. (µg/m <sup>3</sup> )
1/9/2021	13:20	1/9/2021	14:20	26164.61	26165.61	1.00	0.9805	0.9805	0.9805	2.7379	2.7493	194
6/9/2021	09:23	6/9/2021	10:23	26189.61	26190.61	1.00	0.9805	0.9805	0.9805	2.7318	2.7427	185
6/9/2021	13:00	6/9/2021	14:00	26190.61	26191.61	1.00	0.9805	0.9805	0.9805	2.7443	2.7561	201
8/9/2021	10:05	8/9/2021	11:05	26191.61	26192.61	1.00	1.0199	1.0199	1.0199	2.7484	2.7606	199
10/9/2021	08:49	10/9/2021	9:49	26216.61	26217.61	1.00	0.9411	0.9411	0.9411	2.7125	2.7227	181
10/9/2021	10:05	10/9/2021	11:05	26217.61	26218.61	1.00	0.9411	0.9411	0.9411	2.7417	2.7527	195
13/9/2021	13:00	13/9/2021	14:00	26218.61	26219.61	1.00	0.9805	0.9805	0.9805	2.7294	2.7426	224
17/9/2021	09:39	17/9/2021	10:39	26243.61	26244.61	1.00	0.9805	0.9805	0.9805	2.7285	2.7409	211
17/9/2021	10:42	17/9/2021	11:42	26244.61	26245.61	1.00	0.9805	0.9805	0.9805	2.7259	2.7388	219
20/9/2021	13:47	20/9/2021	14:47	26245.61	26246.61	1.00	1.0199	1.0199	1.0199	2.7244	2.7361	191
24/9/2021	09:02	24/9/2021	10:02	26270.61	26271.61	1.00	0.9411	0.9411	0.9411	2.7230	2.7333	182
24/9/2021	10:35	24/9/2021	11:35	26271.61	26272.61	1.00	0.9411	0.9411	0.9411	2.7436	2.7547	197
24/9/2021	13:00	24/9/2021	14:00	26272.61	26273.61	1.00	0.9411	0.9411	0.9411	2.7257	2.7387	230
29/9/2021	09:00	29/9/2021	10:00	26297.61	26298.61	1.00	0.9805	0.9805	0.9805	2.7305	2.7416	189
29/9/2021	10:10	29/9/2021	11:10	26298.61	26299.61	1.00	0.9805	0.9805	0.9805	2.7442	2.7567	212
29/9/2021	13:00	29/9/2021	14:00	26299.61	26300.61	1.00	0.9805	0.9805	0.9805	2.7266	2.7399	226



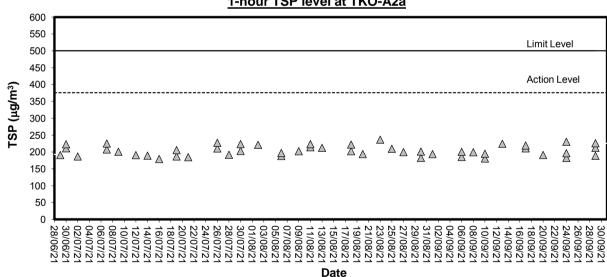


Appendix B3

## **Graphical Plots of Impact Air Quality Monitoring Data**



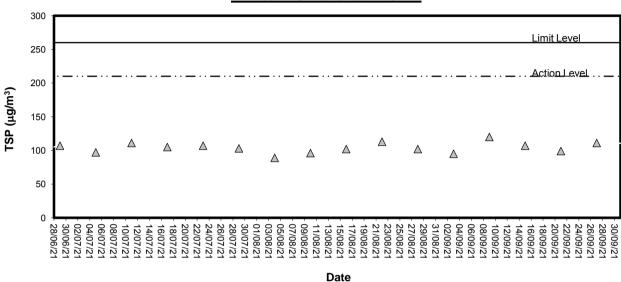
600 550 Limit Level 500 450 Action Level 400 TSP (μg/m<sup>3</sup>) 350 300 250  ${\textcircled{\baselineskip}{$\mathbb{A}$}} \ {\textcircled{\baselineskip}{$\mathbb{A}$}} \ {\textcircled{\baselineskip}{$\mathbb{A}$}}} \ {\textcircled{\baselineskip}{$\mathbb{A}$}}} \ {\textcircled{\baselineskip}{$\mathbb{A}$}} \ {\textcircled{\baseline$  ${\bf A}_{{\bf a}}$  $\stackrel{\triangle}{\Leftrightarrow}$  ${}^{\vartriangle}{}^{\textcircled{}}{\bigtriangleup}{}^{\vartriangle}{}^{\vartriangle}$  ${}^{\textcircled{}}_{\vartriangle}$  $\bigtriangleup$  $\vartriangle\vartriangle\vartriangle$  $\bigtriangleup \bigtriangleup$  $\mathbb{A}$ A  $\mathbb{A}$  $A \Delta$  $A \land A$ 200  $\wedge$ 150 100 50 0 30/09/21 28/09/21 22/09/21 22/09/21 22/09/21 22/09/21 12/09/21 12/09/21 12/09/21 12/09/21 12/09/21 12/09/21 12/09/21 12/09/21 22/09/21 22/08/21 22/08/21 22/08/21 22/08/21 22/08/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 12/07/21 30/06/21 28/06/21 Date



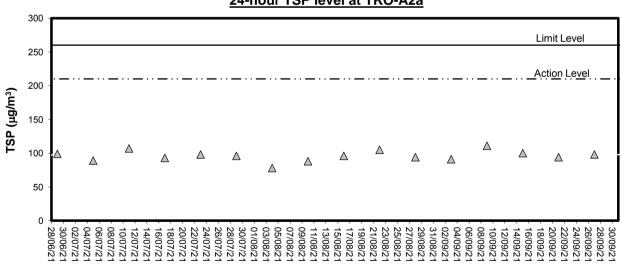
1-hour TSP level at TKO-A2a

1-hour TSP level at TKO-A1





# 24-hour TSP level at TKO-A1



Date

# 24-hour TSP level at TKO-A2a



Appendix C1

Calibration Certificates for Impact Noise Monitoring Equipment



Hong Kong Calibration Ltd. 香港校正有限公司

# **Calibration Certificate**

Certificate No	. 009926		Pag	e 1 of 3 Pages
Customer :	ETS-Testconsult Limited	•		
Address :	8/F., Block B, Veristrong Indu	strial Centre, 34-36	Au Pui Wan St., F	Fotan, Hong Kong.
Order No. :	Q04004		Date of recei	pt : 6-Oct-20
Item Testec	1			
Description	: Sound Level Meter			
Manufacturer	: Rion		I.D.	: ET/EN/003/16
Model	: NL-52		Serial No.	: 00253765
Test Condif	tions			
Date of Test :	15-Oct-20		Supply Volta	ge :
Ambient Tem	perature: (23 ± 3)°C			• nidity : (50 ± 25) %
Test Specif	ications	- 12 - 12 - 12 - 14 - 14 - 14 - 14 - 14		· , , , , , , , , , , , , , , , , , , ,
Calibration che Ref. Document	ick. t/Procedure: Z01, IEC 61672.			
Test Result	S			
All results were	within the IEC 61672 Type 1 s	pecification. (where	applicable)	
	shown in the attached page(s)		,, ,	
Main Test equi	pment used:			
Equipment No.	Description	<u>Cert. No.</u>		Traceable to
S017	Multi-Function Generator	C190926		SCL-HKSAR
S240	Sound Level Calibrator	003053		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 :	Appro	ved by :	Alan Chu	<u></u>
3	<b>.</b>		Alah Qhu	
This Certificate is issued by.	Date:	15-Oct-20		
Hong Kong Calibration Ltd.				
Unit 88, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai C	hung, NT,Hong Kong.			
Tel: 2425 8801 Fax: 2425 8646				
The copyright of this certificate is owned by Hong Kong Calibration Ltd It may not be	e reproduced except in full.			E



Hong Kong Calibration Ltd. 香港校正<sub>有限公司</sub>

# **Calibration Certificate**

Certificate No. 009926

Page 2 of 3 Pages

Results :

Acoustical signal test

1. Self-generated noise: 22.9dBA

# 2. Reference Sound Pressure Level

	UUT S	etting	·····		
Range (dB)	Frequency Weighting	Time Weighting	Octave Filter	Applied Value (dB)	UUT Reading (dB)
20~130	A	F	OFF	94.0	94.1
	-	S	OFF		94.1
	C	F	OFF		94.1
	Z	F	OFF	-	94.1
	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

# **Electrical signal tests**

# 3. Electrical signal tests of frequency weightings (A weighting)

Frequency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5 Hz	-39.7	- 39.4 dB, ± 2 dB
63 Hz	-26.4	- 26.2 dB, ± 1.5 dB
125 Hz	-16.4	- 16.1 dB, ± 1.5 dB
250 Hz	-8.8	- 8.6 dB, ± 1 dB
500 Hz	-3.3	- 3.2 dB, ± 1.4 dB
l kHz	0.0 (Ref)	0 dB, ± 1.1 dB
2 kHz	+1.2	$+$ 1.2 dB, $\pm$ 1.6 dB
4 kHz	0.1+	$+ 1.0  dB, \pm 1.6  dB$
8 kHz	-1.0	- 1.1 dB, + 2.1 dB ~ -3.1 dB
16 kHz	-8.0	- 6.6 dB, + 3.5 dB ~ - 17.0 dB

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

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# **Calibration Certificate**

Certificate No. 009926

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 I Spec.
A	94.0	94.0 (Ref.)		± 0.4 dB
C	94.0	94.0	0.0	
Z	94.0	94.0	0.0	

# 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 : 1 004 hPa.
- 4. Microphone model: UC-59, S/N: 07824.
- 5. Preamplifier model: NH-25, S/N: 43795
- 6. Firmware Version: 1.5
- 7. Power Supply Check: OK
- 8. The UUT was adjusted with the supplied sound calibrator at the reference sound pressure level before the calibration.

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

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Hong Kong Calibration Ltd. 香港校正有限公司

# **Calibration Certificate**

Certificate No.	009927		Page	1 of	2 Pages
Customer :	ETS-Testconsult Limited				
Address :	8/F., Block B, Veristrong Indu	strial Centre, 34-36 Au	ı Pui Wan St., Fo	an, Hong	Kong.
Order No. :	Q04004		Date of receipt	t:	6-Oct-20
Item Tested					
Description :	Sound Level Calibrator				
Manufacturer :	Rion		I.D.	: ET/E	EN/002/01
Model :	NC-73		Serial No.	: 1019	96943
Test Conditi	ons				
Date of Test :	15-Oct-20		Supply Voltage	e :	
Ambient Temp	erature : (23 ± 3)°C		Relative Humi	dity:(50 ±	: 25) %
Test Specifi	cations				
Calibration chec	ck.				
Ref. Document	Procedure : F21, Z02.				
Test Results	3				
All results were	within the manufacturer's spec	vification.			
	shown in the attached page(s)				
Main Test equir	oment used:				
Equipment No.		<u>Cert. No.</u>		Traceable	<u>e to</u>
S014	Spectrum Analyzer	005018		NIM-PRC	& SCL-HKSAR
S240	Sound Level Calibrator	003053		NIM-PRC	& SCL-HKSAR
S041	Universal Counter	001622		SCL-HKS	SAR
S206	Sound Level Meter	007031		SCL-HKS	SAR
will not include allo overloading, mis-ha	this Calibration Certificate only relate wance for the equipment long term dri andling, or the capability of any other I age resulting from the use of the equi	It, variations with environm aboratory to repeat the mea pment.	ental changes, vibrau asurement. Hong Ko	ng Calibration	n Ltd. shall not be liable
	the settle settless are transchip to I	stornational System of Linit	is (SI), or by reference	e to a natural	i constant.

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 :	Approved by :	
Elva Chong	Alan Chu	
This Certificate is issued by: Hong Kong Calibration Ltd.	Date: 15-Oct-20	
Unit 88, 24/F , Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, N Tel: 2425 8801 Fax: 2425 8646	IT,Hong Kong.	
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Hong Kong Calibration Ltd. 香港校正有限公司

# **Calibration Certificate**

### Certificate No. 009927

Page 2 of 2 Pages

Results :

# 1. Level Accuracy (at 1 kHz)

UUT Nominal Value	Measured Value	Mfr's Spec.
94.0 dB	94.1 dB	$\pm 1 \text{ dB}$

Uncertainty :  $\pm 0.2 \text{ dB}$ 

## 2. Frequency Accuracy

UUT Nominal Value	Measured Value	Mfr's Spec.
1 kHz	0.984 kHz	±2%

Uncertainty : ± 0.1 %

- 3. Level Stability : 0.0 dB Uncertainty : ± 0.01 dB
- 4. 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 : 1 004 hPa

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

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Appendix C2

Impact Noise Monitoring Results



# Day-time Noise Monitoring

# Monitoring Location: TKO-N1 (Site Egress)

Data	Start Sampling Time	Noise Level dB (A)		Wind	Weather	Major Noise			
Date	(hh:mm)	L <sub>eq(30min)</sub>	L <sub>10</sub>	L <sub>90</sub>	Speed (m/s)	Condition	Condition	Condition	Source
06/09/2021	08:53	71.9	74.6	66.2	0.2	Cloudy	Vehicle passing by		

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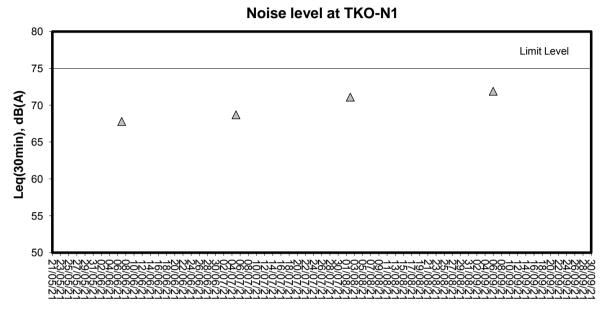


Appendix C3

**Graphical Plots of Impact Noise Monitoring Data** 



# Noise Monitoring (Day-time)



Date



Appendix D1

Calibration Certificates for Impact Marine Water Quality Monitoring Equipments



#### Performance Check / Calibration of Multiparameter Water Quality Meter YSI Equipment Ref. No. : ET/EW/008/011 Manufacturer : Pro DSS Serial No. 18M101760 Model No. . 2/11/2021 Calibration Due Date Date of Calibration : 3/8/2021 :

#### <u>Results</u>

#### 1. Temperature

(Method Reference: Section 6 of internation Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reading of Reference Thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	
21.4	21.6	+0.2	
25.0	25.1	+0.1	
28.6	28.7	+0.1	

Tolerance Limit (°C): ± 2.0

#### 2. pH

#### (Method Reference: APHA 19ed 4500-H<sup>+</sup> B)

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.00	4.02	+0.02
6.86	6.89	+0.03
9.18	9.17	-0.01

Tolerance Limit (pH unit): ± 0.10

#### 3. Conductivity

#### (Method Reference: APHA 19ed 2510 B)

Expected Reading (µS/cm)	Displayed Reading (µS/cm)	Tolerance (%)
146.9	148.0	+0.7
1412	1452	+2.8
12890	13116	+1.8
58760	61388	+4.5

Tolerance Limit (µS/cm): ± 10.0%

#### 4. Salinity

#### (Method Reference: APHA 19ed 2520 B)

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)
10.0	9.55	-4.5
20.0	18.63	-6.8
30.0	28.75	-4.2

Tolerance Limit (g/L): ± 10.0%



Equipment Ref. No. : ET/EW/008/01	1 Manufacturer	: <u>YSI</u>
Model No. : Pro DSS	Serial No.	: 18M101760
Date of Calibration : 3/8/2021	Calibration Du	e Date : 2/11/2021
5. Dissolved Oxygen Method Reference: APHA 19ed 4500-O Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.52	1.58	+0.06
4.33	4.40	+0.07
6.26 Folerance Limit (mg/L): ± 0.20	6.29	+0.03
Expected Reading (NTU) 10 40	Displayed Reading (NTU) 10.2 42.1	Tolerance (%) +2.0 +5.2
100	104.2	+4.2
400 Tolerance Limit (NTU): ± 10.0%	407.6	+1.9
Tolerance Limit (NTU): ± 10.0%	407.6	
Tolerance Limit (NTU): ± 10.0% The equipment complies <sup>#</sup> / <del>does not com</del>		



Appendix D2

Impact Marine Water Quality Monitoring Results

#### Monitoring Station : TKO-C1



Date	Time	Ambient Temp	Monitorii	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	red Oxygen	ı (mg/L)		d Oxygen tion (%)	Tı	urbidity (NT	ſU)	Susper	nded Solids	s (mg/L)
Date	Time	(°C) / Weather Condition	(r	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
		27	Surface	1.0	26.7	28.1 28.1	28.1	7.47 7.45	7.46		109.2 108.9	109.1	1.26 1.28	1.27		2.7 2.8	2.8	
2/9/2021	15:00:28	21	Middle	9.7	25.6	29.8	29.8	6.92	6.94	7.20	100.2	100.4	1.40	1.41	1.48	2.5	2.5	3.1
2/0/2021	10.00.20	/ Fine				29.8 31.5		6.95 6.55		0.50	100.5 94.5		1.42 1.73		1.40	2.5 3.5		
			Bottom	19.4	24.8	31.5	31.5	6.51	6.53	6.53	93.8	94.2	1.77	1.75		4.7	4.1	
		27	Surface	1.0	27.5	32.0 32.0	32.0	7.21 7.25	7.23	7.00	109.1 109.6	109.4	0.59 0.61	0.60		6.3 6.0	6.2	
4/9/2021	16:00:17		Middle	9.5	25.7	32.3 32.3	32.3	6.78 6.75	6.77		99.8 99.5	99.7	0.89 0.85	0.87	0.84	5.2 5.0	5.1	6.1
		/ Fine	Bottom	19.0	24.9	34.6 34.6	34.6	6.43 6.41	6.42	6.42	94.6 94.3	94.5	1.02	1.04		7.2 6.7	7.0	
		28	Surface	1.0	27.9	31.8 31.9	31.8	7.27 7.29	7.28		110.7 111.0	110.9	0.34 0.31	0.33		4.3 4.9	4.6	
7/9/2021	17:00:04	-	Middle	9.7	26.6	32.5 32.5	32.5	6.78 6.75	6.77	7.02	101.4 101.2	101.3	0.76	0.78	0.73	6.5 6.7	6.6	5.5
		/ Fine	Bottom	19.4	25.7	34.4	34.4	6.36	6.34	6.34	94.7	94.4	1.07	1.09	-	5.3	5.2	
			Surface	1.0	28.4	34.4 32.3	32.3	6.32 7.33	7.32		94.1 112.8	112.6	1.11 1.10	1.09		5.0 5.4	5.7	
0/0/0001	0.44.40	28				32.3 34.9		7.30 6.77		7.04	112.4 103.5		1.07 1.25		1.00	5.9 6.7		
9/9/2021	8:11:18	/ Fine	Middle	9.7	27.1	34.9 35.1	34.9	6.75 6.38	6.76		103.0 95.6	103.3	1.21 1.59	1.23	1.30	5.9 5.4	6.3	5.5
		, T IIIC	Bottom	19.4	25.8	35.2	35.1	6.36	6.37	6.37	95.3	95.5	1.57	1.58		3.7	4.6	
		27	Surface	1.0	27.0	31.0 31.0	31.0	7.13 7.16	7.15	6.79	106.5 106.7	106.6	0.96 0.93	0.95		5.6 5.2	5.4	
11/9/2021	8:30:07		Middle	9.6	25.8	32.2 32.2	32.2	6.46 6.42	6.44	0.75	95.2 94.6	94.9	1.17 1.21	1.19	1.18	5.7 5.4	5.6	5.2
		/ Fine	Bottom	19.3	24.7	33.2 33.2	33.2	6.18 6.16	6.17	6.17	89.9 89.6	89.8	1.40 1.38	1.39		4.2 4.8	4.5	
		07	Surface	1.0	27.1	29.5	29.5	6.93	6.92		102.8	102.6	1.61	1.63		1.4	1.6	
13/9/2021	10:30:39	27	Middle	9.7	25.8	29.5 30.4	30.4	6.90 6.56	6.54	6.73	102.3 95.7	95.4	1.64 1.84	1.82	1.82	1.7 2.1	2.1	2.2
		/ Fine	Bottom	19.5	24.7	30.4 31.3	31.3	6.52 6.24	6.23	6.23	95.1 89.7	89.5	1.80 2.01	2.02	-	2.1 3.2	3.0	
						31.3 28.9		6.22 6.95		0.20	89.3 103.5		2.03 1.19			2.7 2.1		
		27	Surface	1.0	27.5	28.9 30.6	28.9	6.91 6.44	6.93	6.69	102.7 94.3	103.1	1.21 1.44	1.20	-	2.6 2.0	2.4	-
15/9/2021	14:30:04	/ Fine	Middle	9.7	26.0	30.6 31.8	30.6	6.47	6.46		94.6 89.3	94.5	1.40	1.42	1.40	1.9	2.0	2.5
		/ Fille	Bottom	19.3	24.8	31.8	31.8	6.18 6.16	6.17	6.17	88.9	89.1	1.60	1.59		3.0 3.1	3.1	
		27	Surface	1.0	27.9	31.7 31.7	31.7	7.22 7.26	7.24	6.99	109.9 110.3	110.1	0.30 0.27	0.29		6.2 6.6	6.4	
17/9/2021	15:30:46		Middle	9.6	26.2	33.3 33.3	33.3	6.74 6.72	6.73	0.99	100.6 100.1	100.4	0.65 0.67	0.66	0.64	5.2 5.6	5.4	5.7
		/ Fine	Bottom	19.2	24.7	34.3 34.3	34.3	6.38 6.35	6.37	6.37	93.4 92.9	93.2	0.98	0.96		5.0 5.4	5.2	
			Surface	1.0	27.6	29.9	29.9	7.54	7.53		113.0	112.7	1.74	1.73		2.4	2.5	
20/9/2021	16:15:39	27	Middle	9.7	25.8	29.9 30.1	30.1	7.51 6.93	6.95	7.24	112.4 100.9	101.2	1.71 2.11	2.13	2.07	2.6 3.0	3.1	2.8
20/3/2021	10.10.00	/ Fine				30.1 31.2		6.96 6.57			101.5 93.3		2.15 2.36		2.07	3.1 2.9		-
			Bottom	19.4	24.0	31.2 31.3	31.2	6.55 7.56	6.56	6.56	92.9 117.0	93.1	2.34 0.44	2.35		3.0 5.2	3.0	
		29	Surface	1.0	29.1	31.3	31.3	7.52	7.54	7.35	116.4	116.7	0.47	0.46	-	4.7	5.0	_
23/9/2021	9:01:28		Middle	9.6	27.9	33.5 33.5	33.5	7.18 7.15	7.17		110.3 109.7	110.0	0.78 0.76	0.77	0.77	8.7 7.5	8.1	5.3
		/ Fine	Bottom	19.2	26.2	34.7 34.7	34.7	6.62 6.64	6.63	6.63	99.6 99.9	99.8	1.07 1.11	1.09		2.5 3.0	2.8	
		28	Surface	1.0	28.2	29.8 29.9	29.8	6.97 6.94	6.96		105.5 105.2	105.4	1.21 1.24	1.23		2.4 2.1	2.3	
25/9/2021	8:30:23		Middle	9.5	26.6	30.3 30.3	30.3	6.60	6.62	6.79	97.5 98.3	97.9	1.56	1.55	1.54	1.5	1.6	1.9
		/ Fine	Bottom	19.1	25.8	32.4	32.4	6.64 6.22	6.21	6.21	91.8	91.6	1.82	1.84		1.5	1.9	
			Surface	1.0	28.7	32.5 29.7	29.7	6.20 6.87	6.86		91.3 104.8	104.7	1.86 1.27	1.25		2.2 3.0	3.0	-
07/0/00-		28				29.7 31.0		6.85 6.41		6.64	104.6 95.2		1.23 1.66			3.0 2.5		
27/9/2021	8:21:01	/ Fine	Middle	9.7	26.7	31.0 31.2	31.0	6.44 6.15	6.43		95.5 89.5	95.4	1.68 1.89	1.67	1.60	2.2	2.4	2.4
		/ 1 1110	Bottom	19.3	25.4	31.2	31.2	6.19	6.17	6.17	90.1	89.8	1.85	1.87		2.0	1.8	
		•	1	1.0	28.9	28.9	28.9	7.32	7.31		111.5	111.3	2.07	2.06	1	1.3	1.2	
		29	Surface	1.0	20.3	28.9	20.0	7.29		7 08	111.1		2.05			1.0		
30/9/2021	15:14:16	29	Surface Middle	9.6	27.7	28.9 29.8 29.8	29.8	7.29 6.88 6.84	6.86	7.08	111.1 103.2 102.6	102.9	2.05 2.33 2.37	2.35	2.38	1.0 2.0 1.5	1.8	1.5

#### Monitoring Station : TKO-M4



Monitoring		TKO-M4 Ambient Temp				Salinit	y (ppt)	Dissolv	ved Oxyger	(ma/L)		d Oxygen	Ти	urbidity (NT	ັບາ	Susper	nded Solids	s (ma/L)
Date	Time	(°C) / Weather Condition	Monitorir (n		Temp (°C)	Value	Average	Value	Average	Depth-	Satura Value	tion (%) Average	Value	Average	Depth-	Value	Average	Depth-
		Condition	0.6	1.0	00.5	29.2	-	6.95		average	101.9	-	1.32	-	average	2.9		average
		27	Surface	1.0	26.5	29.2	29.2	6.97 6.52	6.96	6.73	102.2	102.1	1.30	1.31		2.6	2.8	
2/9/2021	16:22:14		Middle	4.4	25.7	30.4 30.4	30.4	6.48	6.50		94.9 94.2	94.6	1.51 1.54	1.53	1.49	2.9 2.7	2.8	2.7
		/ Fine	Bottom	8.7	24.7	31.8 31.8	31.8	6.22 6.25	6.24	6.24	89.8 90.0	89.9	1.66 1.63	1.65		2.3 2.6	2.5	
		27	Surface	1.0	27.4	32.9	32.9	7.56	7.55		114.9	114.6	0.44	0.46		6.1	6.0	
4/9/2021	17:27:16	21	Middle	4.4	25.6	32.9 33.4	33.4	7.53 7.04	7.05	7.30	114.2 104.1	104.3	0.48	0.68	0.69	5.8 7.5	7.3	6.0
4/0/2021	17.27.10	/ Fine				33.4 34.9		7.06 6.66			104.4 97.8		0.66		0.00	7.1 5.1		0.0
			Bottom	8.8	24.7	34.9	34.9	6.62	6.64	6.64	97.2	97.5	0.94	0.93		4.6	4.9	
		28	Surface	1.0	27.8	30.7 30.7	30.7	7.58 7.61	7.60	7.21	114.5 114.8	114.7	0.25 0.28	0.27		3.7 3.7	3.7	
7/9/2021	18:06:11		Middle	4.4	26.5	32.6 32.6	32.6	6.84 6.82	6.83	7.21	102.2 101.9	102.1	0.64	0.63	0.60	6.3 6.0	6.2	5.5
		/ Fine	Bottom	8.8	25.6	33.2	33.2	6.43	6.41	6.41	94.9	94.6	0.94	0.92		7.3	6.8	
			Surface	1.0	28.2	33.2 31.6	31.6	6.39 7.16	7.15		94.2 109.5	109.3	0.90 0.66	0.65		6.2 5.9	5.9	
		28				31.6 32.3		7.14 6.53		6.83	109.0 97.9		0.64			5.9 4.8		-
9/9/2021	9:33:26		Middle	4.4	26.8	32.3	32.3	6.50	6.52		97.4	97.7	0.80	0.79	0.82	3.5	4.2	5.3
		/ Fine	Bottom	8.7	25.7	34.9 34.9	34.9	6.11 6.07	6.09	6.09	91.2 90.5	90.9	1.01 1.05	1.03		6.9 5.0	6.0	
		27	Surface	1.0	26.8	32.0 32.0	32.0	7.38 7.41	7.40		110.4 110.9	110.7	0.67 0.69	0.68		5.2 5.9	5.6	
11/9/2021	9:39:01		Middle	4.4	25.6	32.1	32.1	6.74	6.72	7.06	98.9	98.6	0.91	0.93	0.92	7.2	7.4	6.4
		/ Fine	Dettern	0.7	04.0	32.1 34.1		6.70 6.33	6.00	6.00	98.3 92.4	00.0	0.95 1.15			7.5 6.4	<u> </u>	-
			Bottom	8.7	24.6	34.1 29.5	34.1	6.31 7.28	6.32	6.32	91.9 107.6	92.2	1.12	1.14		6.1	6.3	
		27	Surface	1.0	26.9	29.5	29.5	7.24	7.26	6.98	107.0	107.3	1.38 1.35	1.37		2.5 2.7	2.6	
13/9/2021	11:57:35		Middle	4.4	25.6	30.1 30.1	30.1	6.72 6.69	6.71		97.5 97.0	97.3	1.65 1.61	1.63	1.64	2.7 3.0	2.9	2.3
		/ Fine	Bottom	8.7	24.8	32.3	32.3	6.44	6.43	6.43	93.3 92.9	93.1	1.91	1.92		1.3 1.5	1.4	
			Surface	1.0	27.4	32.3 29.1	29.1	6.41 7.28	7.26		92.9 108.3	107.9	1.93 1.07	1.05		3.1	2.9	
		27				29.1 30.2		7.24 6.64		6.95	107.5 96.7		1.03			2.6 5.2	1	
15/9/2021	15:23:03	/ Fire	Middle	4.3	25.8	30.2	30.2	6.62	6.63		96.3	96.5	1.28	1.29	1.28	5.9	5.6	4.0
		/ Fine	Bottom	8.7	24.6	31.4 31.4	31.4	6.36 6.39	6.38	6.38	91.4 91.8	91.6	1.49 1.52	1.51		3.5 3.8	3.7	
		27	Surface	1.0	27.7	30.8 30.8	30.8	7.02 7.05	7.04		105.9 106.2	106.1	0.39	0.41		4.4 4.5	4.5	
17/9/2021	16:57:25		Middle	4.3	25.9	32.7	32.7	6.43	6.42	6.73	95.1	95.1	0.68	0.67	0.64	7.3	7.2	6.2
		/ Fine	Bottom	8.6	24.8	32.7 33.8	33.8	6.41 6.15	6.13	6.13	95.0 89.9	89.6	0.66 0.83	0.85		7.0 7.1	7.1	
						33.9 29.5		6.11 7.34		0.15	89.2 109.9		0.87			7.1		
		27	Surface	1.0	27.7	29.5	29.5	7.36	7.35	7.05	110.3	110.1	1.40	1.39		1.4	1.4	
20/9/2021	17:23:16		Middle	4.4	26.1	30.7 30.7	30.7	6.77 6.74	6.76		99.4 98.8	99.1	1.61 1.63	1.62	1.62	2.8 3.2	3.0	2.1
		/ Fine	Bottom	8.7	24.0	31.3 31.3	31.3	6.33 6.29	6.31	6.31	89.9 89.4	89.7	1.88 1.84	1.86		1.9 1.8	1.9	
			Surface	1.0	28.8	32.6	32.6	7.41	7.43		115.0	115.3	0.42	0.41		4.8	4.1	
00/0/0001	10:10:00	29	Middle	4.4	27.7	32.6 33.9	33.9	7.44 6.85	6.83	7.13	115.6 105.2	-	0.40	0.68	0.00	3.4 6.6	6.1	
23/9/2021	10:19:36	/ Fine	wildule	4.4	21.1	33.9 34.8	33.9	6.81 6.33	0.03		104.4 95.1	104.8	0.69 0.92	0.66	0.66	5.5 6.8	0.1	5.5
		/ Tine	Bottom	8.7	26.1	34.8	34.8	6.31	6.32	6.32	94.7	94.9	0.89	0.91		5.8	6.3	
		28	Surface	1.0	28.1	30.2 30.2	30.2	7.27 7.24	7.26	7.04	110.1 109.8	110.0	1.15 1.13	1.14		2.2 1.9	2.1	
25/9/2021	9:46:03		Middle	4.4	26.5	31.5 31.5	31.5	6.85 6.81	6.83	7.04	101.7 101.1	101.4	1.37 1.33	1.35	1.34	1.0 1.2	1.1	1.6
		/ Fine	Bottom	8.9	25.7	32.9	32.9	6.46	6.45	6.45	95.4	95.2	1.51	1.53		1.2	1.5	
						32.9 28.9		6.44 7.27			94.9 110.2		1.54 1.46			1.8 2.3		
		28	Surface	1.0	28.6	28.9	28.9	7.24	7.26	6.94	109.7	110.0	1.48	1.47		2.6	2.5	
27/9/2021	9:29:02		Middle	4.4	26.5	30.6 30.7	30.6	6.65 6.61	6.63		98.3 97.7	98.0	1.65 1.69	1.67	1.65	1.9 2.5	2.2	2.2
		/ Fine	Bottom	8.8	25.4	31.9 31.9	31.9	6.31 6.34	6.33	6.33	92.2 92.5	92.4	1.80 1.83	1.82		1.6 2.2	1.9	
			Surface	1.0	28.8	29.9	29.9	7.60	7.58		116.2	115.8	2.16	2.18		1.6	1.5	
30/9/2021	16:35:52	29	Middle	4.3	27.5	29.9 30.6		7.56 6.90	6.91	7.25	115.4 103.7	103.9	2.19 2.32	2.31	2.33	1.3 1.0	1.0	1.3
30/3/2021	10.33.32	/ Fine				30.6 31.6	30.6	6.92 6.55			104.0 97.0		2.30 2.47		2.00	1.0 1.4		1.3
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Bottom	8.7	26.3	31.6	31.6	6.52	6.54	6.54	96.4	96.7	2.47	2.49		1.4	1.3	

#### Monitoring Station : TKO-C1



Deta	Tim-	Ambient Temp	Monitori	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Tu	ırbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Time	(°C) / Weather Condition		n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
		07	Surface	1.0	26.5	28.3 28.3	28.3	7.26 7.29	7.28		105.9	106.1	1.46 1.44	1.45	u. e. uge	3.1	3.6	
2/9/2021	9:11:38	27	Middle	9.6	25.4	28.3 30.0	30.0	6.70	6.72	7.00	106.3 96.8	97.0	1.44	1.69	1.70	4.0 4.0	3.9	3.7
2/9/2021	9.11.50	/ Fine	Middle			30.0 30.6		6.73 6.31			97.1 90.3		1.70 1.98		1.70	3.8 3.4		- 3.7
			Bottom	19.2	24.6	30.6	30.6	6.29	6.30	6.30	90.0	90.2	1.94	1.96		3.8	3.6	
		27	Surface	1.0	27.6	30.9 30.9	30.9	7.05 7.03	7.04	6.77	106.3 105.8	106.1	0.70 0.73	0.72		4.7 4.8	4.8	
4/9/2021	9:31:17		Middle	9.4	25.6	31.8 31.8	31.8	6.51 6.48	6.50	0.77	95.4 94.9	95.2	0.99 0.95	0.97	0.97	4.3 6.8	5.6	5.4
		/ Fine	Bottom	18.9	24.8	33.5	33.5	6.25	6.27	6.27	91.2	91.4	1.22	1.23		6.2	5.9	
			Surface	1.0	28.2	33.5 30.8	30.8	6.29 7.14	7.13		91.6 108.6	108.3	1.24 0.42	0.44		5.6 4.0	4.3	
		28				30.8 32.4		7.11 6.52		6.83	108.0 97.8		0.46			4.6 3.9		-
7/9/2021	11:00:17	15	Middle	9.6	26.8	32.4	32.4	6.56	6.54		98.4	98.1	0.87	0.86	0.83	3.9	3.9	4.6
		/ Fine	Bottom	19.2	25.9	33.6 33.6	33.6	6.17 6.15	6.16	6.16	91.8 91.3	91.6	1.21 1.19	1.20		5.8 5.2	5.5	
		28	Surface	1.0	28.6	31.7 31.7	31.7	7.19 7.17	7.18		110.7 110.2	110.5	1.21 1.19	1.20		4.2 3.2	3.7	
9/9/2021	14:00:35		Middle	9.6	27.1	32.8	32.8	6.57	6.59	6.88	99.3	99.5	1.32	1.34	1.41	5.5	5.9	5.5
		/ Fine	Bottom	19.1	26.0	32.9 34.6	34.6	6.60 6.14	6.12	6.12	99.7 92.0	91.7	1.35 1.67	1.69		6.3 6.8	6.8	
			BOLLOIN	19.1		34.6 31.7		6.10 6.95		0.12	91.3 104.5		1.70 1.12	1.09		6.8 4.4	0.0	
		27	Surface	1.0	27.2	31.7	31.7	6.98	6.97	6.64	104.8	104.7	1.09	1.11		3.9	4.2	_
11/9/2021	14:30:02		Middle	9.5	26.0	32.3 32.3	32.3	6.30 6.32	6.31		93.2 93.5	93.4	1.28 1.30	1.29	1.32	5.7 6.6	6.2	4.7
		/ Fine	Bottom	19.0	24.9	33.4 33.4	33.4	5.94 5.90	5.92	5.92	86.8 86.0	86.4	1.59 1.55	1.57		3.7 3.7	3.7	
			Surface	1.0	26.9	28.5	28.5	6.78	6.80		99.7	99.9	1.77	1.76		3.6	3.6	
12/0/2021	16:20:28	27	Middle	9.6	25.7	28.6 29.7	29.7	6.81 6.43	6.42	6.61	100.1 93.2	93.1	1.75 1.98	2.00	2.01	3.5 3.2	3.2	2.8
13/9/2021	16:30:28	/ Fine	Middle			29.7 31.5	29.7	6.40 6.01	0.42		92.9 86.4		2.02 2.29		2.01	3.1 1.8		2.8
		71110	Bottom	19.2	24.6	31.5	31.5	6.05	6.03	6.03	87.0	86.7	2.25	2.27		1.6	1.7	
		27	Surface	1.0	27.4	28.9 28.9	28.9	6.78 6.82	6.80	6.52	100.7 100.2	100.5	1.34 1.32	1.33		3.7 3.4	3.6	
15/9/2021	9:15:12		Middle	9.5	25.8	29.7 29.7	29.7	6.25 6.23	6.24	0.52	90.8 90.5	90.7	1.60 1.63	1.62	1.57	5.7 5.8	5.8	4.0
		/ Fine	Bottom	19.0	24.7	30.1	30.1	5.97	5.96	5.96	85.3	85.0	1.77	1.75		2.4	2.8	
			Surface	1.0	27.7	30.1 30.5	30.5	5.94 7.08	7.07		84.7 106.7	106.4	1.73 0.47	0.49		3.1 7.0	7.1	
		27	Surface			30.5 31.3		7.05 6.41		6.74	106.1 94.3		0.50 0.81			7.2 7.4		-
17/9/2021	9:46:32		Middle	9.5	26.0	31.4	31.3	6.43	6.42		94.4	94.4	0.77	0.79	0.79	7.9	7.7	6.3
		/ Fine	Bottom	19.0	24.8	32.7 32.7	32.7	6.12 6.08	6.10	6.10	88.9 88.2	88.6	1.08 1.10	1.09		4.4	4.2	
		27	Surface	1.0	27.8	30.7 30.7	30.7	7.35 7.38	7.37		111.0 111.3	111.2	1.86 1.89	1.88		1.6 1.7	1.7	
20/9/2021	10:15:35		Middle	9.6	25.9	31.5	31.5	6.66	6.64	7.00	97.9	97.7	2.45	2.43	2.32	2.9	3.3	2.2
		/ Fine				31.5 32.3		6.62 6.29		6.00	97.5 90.0		2.41 2.67			3.6 1.5		
			Bottom	19.2	24.1	32.3 30.8	32.3	6.27 7.38	6.28	6.28	89.8 114.3	89.9	2.64 0.56	2.66		2.0 3.5	1.8	
		29	Surface	1.0	29.3	30.8	30.8	7.36	7.37	7.17	114.2	114.3	0.58	0.57		2.4	3.0	
23/9/2021	13:30:12		Middle	9.5	28.0	32.9 32.9	32.9	6.95 6.98	6.97		106.7 106.9	106.8	0.91 0.88	0.90	0.92	3.4 2.7	3.1	2.5
		/ Fine	Bottom	19.0	26.4	33.1 33.1	33.1	6.34 6.30	6.32	6.32	94.8 94.1	94.5	1.26 1.30	1.28		1.3 1.6	1.5	
			Surface	1.0	28.4	30.4	30.4	6.83	6.82		104.0	103.8	1.30	1.31		2.6	2.9	
		28				30.4 32.4		6.80 6.40		6.61	103.6 95.9		1.32 1.64			3.1 3.3		-
25/9/2021	14:00:03	/ Fine	Middle	9.4	26.7	32.4 33.8	32.4	6.42 6.00	6.41		96.2 89.3	96.1	1.68 1.94	1.66	1.63	3.8	3.6	2.8
		/ Fille	Bottom	18.9	25.9	33.8	33.8	6.04	6.02	6.02	89.3 89.8	89.6	1.94	1.93		2.3 1.5	1.9	
		28	Surface	1.0	28.9	29.6 29.6	29.6	6.77 6.74	6.76	<b>6</b> -1	103.5 103.0	103.3	1.33 1.36	1.35		1.7 2.3	2.0	
27/9/2021	14:31:21		Middle	9.5	26.7	31.5	31.5	6.25	6.27	6.51	93.1	93.4	1.74	1.76	1.71	1.0	1.4	2.0
		/ Fine	Bottom	19.0	25.5	31.5 32.8	32.8	6.29 6.08	6.07	6.07	93.7 89.4	89.2	1.78 2.01	2.02		1.8 2.4	2.5	•
						32.8 27.2		6.06 7.16		5.07	89.0 107.7		2.03 2.22			2.5 1.4		
			Surface	1.0	28.7		27.2	7.10	7.14		107.1	107.4	2.25	2.24		2.2	1.8	
		28	Gundoo			27.2				6.86								-
30/9/2021	9:43:08	28	Middle	9.4	27.4	27.2 29.4 29.4	29.4	6.59 6.55	6.57	6.86	98.2 97.8	98.0	2.48 2.44	2.46	2.54	2.0 1.5	1.8	1.5

#### Monitoring Station : TKO-M4



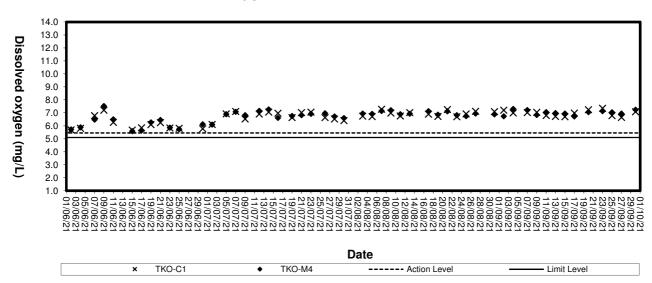
		Ambient Temp			Temp	Salinit	y (ppt)	Dissolv	ed Oxyger	ı (mg/L)		d Oxygen tion (%)	Τι	ırbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Time	(°C) / Weather Condition	Monitoring [	Depth (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- averag
			Surface	1.0	26.4	28.1	28.1	6.65	6.63		96.7	96.4	1.40	1.42		3.1	3.4	
2/9/2021	10:42:38	27	Middle	4.3	25.5	28.1 29.4	29.4	6.61 6.30	6.31	6.47	96.0 90.9	91.1	1.43 1.60	1.59	1.58	3.6 3.2	3.2	3.4
2,0,2021	10112.00	/ Fine	Bottom	8.5	24.6	29.4 30.3	30.3	6.32 6.06	6.05	6.05	91.2 86.5	86.3	1.58 1.76	1.74	1.00	3.1 4.1	3.6	0.1
			Surface	1.0	27.5	30.3 31.3	31.3	6.03 7.22	7.23		86.0 108.9	109.1	1.72 0.53	0.55		3.0 6.4	6.4	
4/9/2021	11:05:18	27	Middle	4.2	25.5	31.3 33.4	33.4	7.24 6.86	6.85	7.04	109.2 101.2	101.0	0.56 0.74	0.72	0.78	6.4 7.3	7.2	6.2
		/ Fine	Bottom	8.4	24.6	33.4 34.7	34.7	6.84 6.51	6.49	6.49	100.8 95.3	95.0	0.70	1.08		7.0	5.0	
			Surface	1.0	27.9	34.7 31.7	31.7	6.47 7.39	7.38		94.7 112.4	112.3	1.09 0.32	0.34		5.3 4.8	4.7	
7/9/2021	12:11:08	28	Middle	4.3	26.5	31.7 33.1	33.1	7.37 6.65	6.64	7.01	112.1 99.6	99.5	0.36	0.70	0.69	4.5 3.7	- 3.6	5.1
		/ Fine	Bottom	8.5	25.7	33.1 34.2 34.2	34.2	6.62 6.18 6.22	6.20	6.20	99.3 91.9 92.5	92.2	0.69 1.00 1.03	1.02		3.5 7.3 6.7	7.0	
		28	Surface	1.0	28.2	32.3 32.3	32.3	6.99 6.96	6.98		92.5 107.3 106.8	107.1	0.70	0.72		5.7 5.3	5.5	
9/9/2021	15:24:06	20	Middle	4.2	26.9	33.6 33.6	33.6	6.31 6.35	6.33	6.65	95.5 95.9	95.7	0.95	0.97	0.95	6.5 7.5	7.0	6.2
		/ Fine	Bottom	8.5	25.7	34.6 34.6	34.6	5.88 5.91	5.90	5.90	87.6 88.1	87.9	1.18	1.17		6.0 5.9	6.0	
		27	Surface	1.0	26.9	32.8 32.8	32.8	7.24	7.23		109.0 108.7	108.9	0.86	0.88		5.6 5.3	5.5	
11/9/2021	15:41:02		Middle	4.3	25.7	33.1 33.1	33.1	6.55 6.59	6.57	6.90	96.8 97.4	97.1	1.04	1.05	1.06	6.3 5.9	6.1	5.4
		/ Fine	Bottom	8.6	24.7	34.5 34.5	34.5	6.15 6.12	6.14	6.14	90.1 89.5	89.8	1.28	1.26		4.1	4.7	
		27	Surface	1.0	26.8	28.6 28.6	28.6	7.10	7.09		104.2 103.6	103.9	1.56 1.52	1.54		2.1 1.8	2.0	
13/9/2021	17:51:19		Middle	4.3	25.5	30.2 30.2	30.2	6.50 6.53	6.52	6.80	94.2 94.6	94.4	1.73 1.76	1.75	1.78	2.8 2.8	2.8	2.8
		/ Fine	Bottom	8.6	24.7	31.6 31.6	31.6	6.29 6.25	6.27	6.27	90.6 90.1	90.4	2.05 2.08	2.07		3.6 3.4	3.5	
		27	Surface	1.0	27.3	29.6 29.6	29.6	7.16 7.14	7.15	6.82	106.6 106.3	106.5	1.19 1.16	1.18		6.7 6.3	6.5	
15/9/2021	10:22:11		Middle	4.2	25.9	31.4 31.4	31.4	6.47 6.50	6.49	0.82	95.0 95.5	95.3	1.35 1.33	1.34	1.39	2.3 2.9	2.6	4.3
		/ Fine	Bottom	8.5	24.7	32.3 32.3	32.3	6.18 6.14	6.16	6.16	89.4 88.8	89.1	1.64 1.67	1.66		4.0 3.8	3.9	
		27	Surface	1.0	27.5	31.3 31.3	31.3	6.88 6.86	6.87	6.52	103.7 103.4	103.6	0.50	0.52		5.4 4.8	5.1	
17/9/2021	11:10:40		Middle	4.2	25.9	33.4 33.4	33.4	6.15 6.19	6.17		91.4 91.8	91.6	0.77	0.78	0.79	7.6	7.7	6.0
		/ Fine	Bottom	8.3	24.6	34.7 34.7	34.7	5.91 5.93	5.92	5.92	86.5 86.8	86.7	1.09	1.07		4.8 5.5	5.2	
		27	Surface	1.0	27.8	29.8 29.8	29.8	7.14	7.13	6.78	107.3 106.8	107.1	1.51	1.49		2.0	2.1	
20/9/2021	11:23:05	( <b>Fine</b>	Middle	4.2	26.2	31.4 31.4	31.4	6.44 6.40	6.42		95.1 94.3	94.7	1.77	1.76	1.75	2.9 2.2	2.6	2.2
		/ Fine	Bottom	8.4	23.9	32.1 32.1	32.1	6.16 6.13	6.15	6.15	87.8 87.3	87.6	2.02	2.01		2.2 1.8	2.0	
		29	Surface	1.0	29.0	31.3 31.3 32.7	31.3	7.29	7.30	6.95	112.7 113.2 100.4	113.0	0.34	0.36		3.1 2.2 1.4	2.7	
23/9/2021	14:55:34	/ Fine	Middle	4.3	27.7	32.7 32.7 34.4	32.7	6.58 6.62 6.04	6.60		100.4 101.2 90.6	100.8	0.78 0.75 1.03	0.77	0.72	1.4 1.8 4.0	1.6	2.6
		/11116	Bottom	8.5	26.1	34.4 29.5	34.4	6.01 7.01	6.03	6.03	90.1 106.1	90.4	1.05	1.04		3.3 1.9	3.7	
		28	Surface	1.0	28.3	29.5 29.5 30.6	29.5	7.04	7.03	6.83	106.1 106.3 98.2	106.2	1.29	1.28		1.9 1.6 2.0	1.8	
25/9/2021	15:07:02	/ Fine	Middle	4.3	26.4	30.6 32.8	30.6	6.62 6.27	6.64		97.6 92.4	97.9	1.44	1.42	1.46	2.0 2.1 2.8	2.1	2.2
			Bottom	8.5	25.6	32.8 29.6	32.8	6.29 7.06	6.28	6.28	92.5 107.6	92.5	1.66	1.67		2.7	2.8	
		28	Surface	1.0	28.7	29.6 31.5	29.6	7.08	7.07	6.73	107.7 95.2	107.7	1.53	1.52		2.1	1.9	
27/9/2021	15:45:22	/ Fine	Middle	4.3	26.6	31.5 32.8	31.5	6.36 6.17	6.38	<i>c</i> .:-	94.4 90.4	94.8	1.70 1.95	1.72	1.73	2.3 2.4	2.2	2.2
			Bottom	8.6	25.3	32.8 28.9	32.8	6.14 7.40	6.16	6.16	90.0 112.4	90.2	1.97	1.96		2.5	2.5	
		28	Surface	1.0	28.7	28.9 29.2	28.9	7.37	7.39	7.01	111.9 99.1	112.2	2.31 2.50	2.33		1.2	1.3	
30/9/2021	11:09:23	/ Fine	Middle	4.2	27.4	29.2 30.4	29.2	6.62 6.28	6.64		98.7 92.2	98.9	2.54 2.68	2.52	2.51	1.3	1.5	1.4
		,	Bottom	8.4	26.2	30.4	30.4	6.26	6.27	6.27	91.9	92.1	2.66	2.67		1.5	1.6	



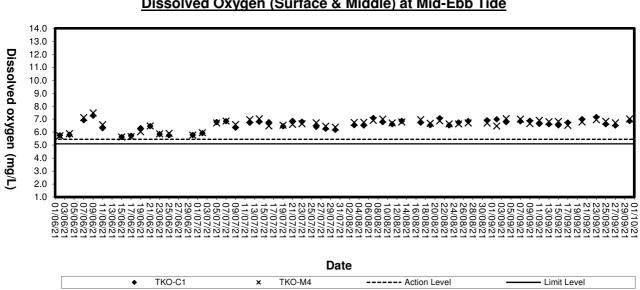
Appendix D3

**Graphical Plots of Impact Marine Water Quality Monitoring Data** 



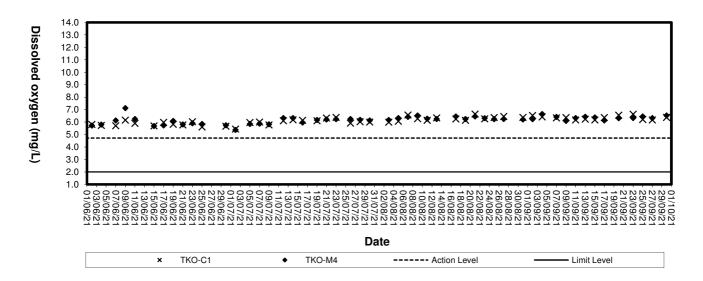


Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



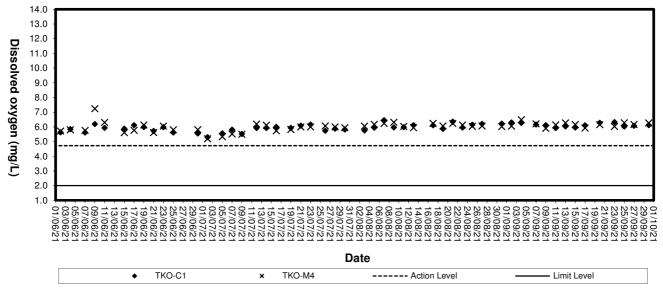
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



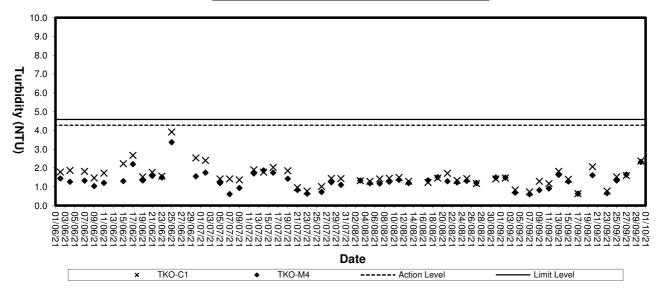


# Dissolved Oxygen (Bottom) at Mid-Flood Tide



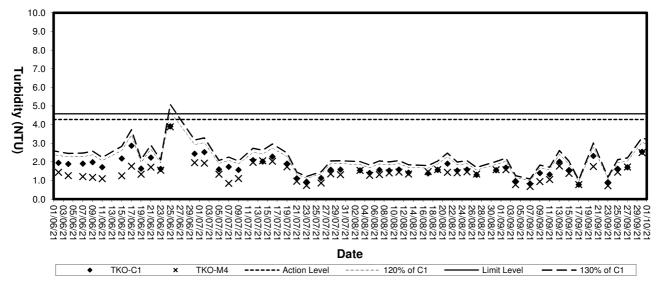




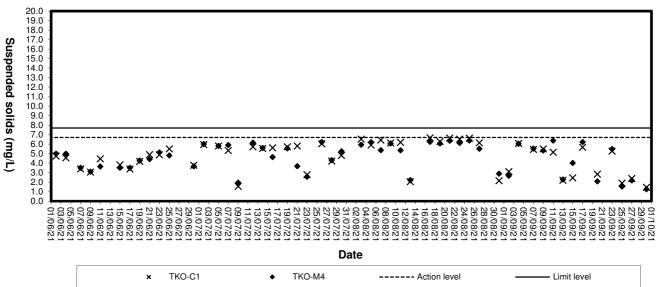


Turbidity (Depth-average) at Mid-Flood Tide

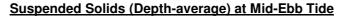
Turbidity(Depth-average) at Mid-Ebb Tide

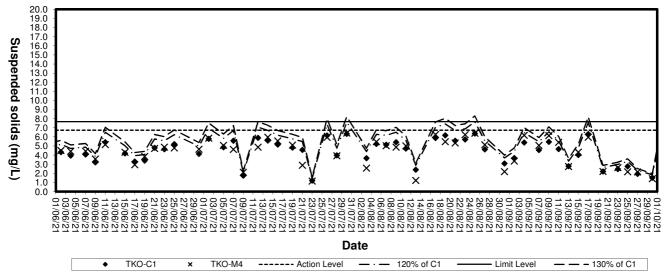






Suspended solids (Depth-average) at Mid-Flood Tide







Appendix D4

Impact Marine Water Quality Monitoring Results (3RS Project)

#### Monitoring Station : TKO-C1a



	Station .	Ambient Temp				Salinit	ty (ppt)	Dissolv	ed Oxyger	n (ma/L)		d Oxygen	Т	urbidity (NT	<b>.</b> U)	Susper	nded Solids	s (ma/L)
Date	Time	(°C) / Weather Condition	Monitoriı (r	ng Depth n)	Temp (°C)	Value	Average	Value	Average	Depth- average	Saturat Value	ion (%) Average	Value	Average	Depth- average	Value	Average	Depth- average
		27	Surface	1.0	26.6	29.3 29.3	29.3	7.38 7.36	7.37	average	108.4 108.3	108.4	1.41 1.45	1.43	average	3.0 3.3	3.2	avera
2/9/2021	15:21:10	21	Middle	9.8	25.6	31.1	31.1	6.75	6.73	7.05	98.5	98.2	1.63	1.62	1.64	4.6	4.7	3.7
		/ Fine	Bottom	19.5	24.7	31.2 32.5	32.5	6.71 6.49	6.48	6.48	97.9 94.0	93.8	1.60 1.85	1.86		4.7 3.1	3.3	-
			Surface	1.0	27.4	32.5 31.8	31.8	6.46 7.12	7.13		93.6 107.5	107.8	1.87 0.73	0.72		3.5 5.4	5.4	
		27				31.8 33.2		7.14 6.55		6.83	108.0 96.9		0.71 0.88			5.4 4.6		-
4/9/2021	16:22:18	/ Fine	Middle	9.7	25.7	33.3 33.2	33.2	6.52 6.28	6.54		94.5 91.5	95.7	0.91 1.11	0.90	0.90	4.7 4.4	4.7	4.8
		, T IIIC	Bottom	19.3	24.8	33.2	33.2	6.24	6.26	6.26	90.7	91.1	1.07	1.09		4.1	4.3	
		28	Surface	1.0	28.0	31.0 31.0	31.0	7.36 7.33	7.35	6.99	111.7 111.1	111.4	0.59 0.57	0.58		3.6 4.0	3.8	_
7/9/2021	17:17:02		Middle	9.8	26.7	32.7 32.8	32.7	6.64 6.61	6.63		99.6 99.2	99.4	0.89 0.85	0.87	0.89	5.5 5.3	5.4	4.6
		/ Fine	Bottom	19.6	25.8	33.6 33.6	33.6	6.38 6.40	6.39	6.39	94.7 94.9	94.8	1.22	1.21		4.9 4.2	4.6	
		28	Surface	1.0	28.3	32.8 32.8	32.8	7.05 7.07	7.06		108.7 109.0	108.9	0.88 0.86	0.87		2.7 3.0	2.9	
9/9/2021	8:31:15	_	Middle	9.8	27.0	33.9 33.9	33.9	6.44 6.40	6.42	6.74	97.8 97.0	97.4	1.03	1.05	1.06	4.4	4.6	4.1
		/ Fine	Bottom	19.7	25.7	34.4	34.4	6.12	6.14	6.14	91.1	91.4	1.27	1.26		4.3	4.8	
			Surface	1.0	26.9	34.4 31.9	31.9	6.15 6.91	6.93		91.6 103.6	103.8	1.24 1.07	1.08		5.3 4.6	4.4	
11/9/2021	8:47:01	27	Middle	9.8	25.8	31.9 32.2	32.2	6.94 6.33	6.34	6.63	104.0 93.3	93.4	1.09 1.33	1.32	1.29	4.1 5.0	5.3	4.5
11/9/2021	0.47.01	/ Fine				32.2 33.6		6.35 6.08			93.4 88.7		1.30 1.48		1.25	5.6 4.3		4.5
			Bottom	19.6	24.8	33.6 29.6	33.6	6.04 7.14	6.06	6.06	88.0 106.0	88.4	1.44 1.73	1.46		3.6 1.7	4.0	
		27	Surface	1.0	27.1	29.7	29.6	7.12	7.13	6.95	105.5	105.8	1.75	1.74		1.8	1.8	-
13/9/2021	10:52:37		Middle	9.8	25.9	30.6 30.6	30.6	6.79 6.75	6.77		99.3 98.7	99.0	1.63 1.67	1.65	1.77	3.2 3.4	3.3	2.5
		/ Fine	Bottom	19.6	24.7	31.5 31.5	31.5	6.48 6.45	6.47	6.47	93.3 92.9	93.1	1.90 1.93	1.92		2.3 2.6	2.5	
		27	Surface	1.0	27.5	29.7 29.7	29.7	7.08 7.11	7.10		105.8 106.5	106.2	1.37 1.35	1.36		2.1 2.1	2.1	
15/9/2021	14:47:32		Middle	9.8	26.1	30.9 30.9	30.9	6.59 6.55	6.57	6.83	96.8 96.1	96.5	1.66 1.68	1.67	1.62	3.1 3.3	3.2	3.1
		/ Fine	Bottom	19.5	24.9	31.1 31.1	31.1	6.22 6.24	6.23	6.23	89.7 89.8	89.8	1.84	1.82		4.4	3.9	-
			Surface	1.0	27.8	30.6	30.6	7.11	7.10		107.3	107.1	0.49	0.48		5.5	5.6	
17/9/2021	15:52:28	27	Middle	9.8	26.1	30.6 31.9	31.9	7.09 6.55	6.57	6.84	106.9 96.8	97.1	0.46 0.88	0.87	0.65	5.7 3.0	3.3	4.1
THOLEDET	10.02.20	/ Fine	Bottom	19.5	24.7	31.9 32.2	32.2	6.59 6.26	6.25	6.25	97.3 90.5	90.3	0.85	0.60	0.00	3.6 3.5	3.4	
						32.2 28.7		6.23 7.17		0.23	90.1 106.6		0.13			3.3 3.0		
		27	Surface	1.0	27.5	28.7 30.8	28.7	7.19 6.68	7.18	6.93	107.1 97.8	106.9	1.65 1.98	1.67		3.4 2.3	3.2	-
20/9/2021	16:30:16	( <b>Fine</b>	Middle	9.8	25.9	30.8	30.8	6.66	6.67		97.7	97.8	1.96	1.97	1.95	2.5	2.4	2.2
		/ Fine	Bottom	19.6	23.9	31.3 31.3	31.3	6.31 6.35	6.33	6.33	89.5 90.1	89.8	2.22 2.20	2.21		1.0 1.0	1.0	
		29	Surface	1.0	29.1	30.2 30.2	30.2	7.39 7.37	7.38	6.94	113.8 113.6	113.7	0.62	0.60		1.7 2.0	1.9	
23/9/2021	9:21:24		Middle	9.8	27.7	32.8 32.8	32.8	6.52 6.49	6.51	0.94	99.5 99.2	99.4	0.97 0.99	0.98	0.95	2.3 1.6	2.0	2.5
		/ Fine	Bottom	19.5	26.3	33.4 33.4	33.4	6.23 6.27	6.25	6.25	93.2 93.6	93.4	1.28 1.25	1.27		4.2 3.2	3.7	
		28	Surface	1.0	28.2	30.5 30.5	30.5	7.03	7.02		106.8	106.6	1.36	1.37		3.1	3.2	
25/9/2021	8:46:01	20	Middle	9.7	26.7	31.2	31.2	6.53	6.54	6.78	106.3 97.1	97.3	1.54	1.52	1.56	3.2 1.8	2.1	2.6
		/ Fine	Bottom	19.4	25.7	31.2 32.7	32.7	6.55 6.16	6.14	6.14	97.4 90.8	90.5	1.50 1.79	1.78		2.3 2.9	2.6	-
						32.7 28.1		6.12 7.14		5.14	90.1 107.8	107.7	1.76 1.43			2.2 2.5	2.0	
		28	Surface	1.0	28.6	28.2 29.7	28.1	7.11 6.55	7.13	6.84	107.5 96.3		1.45 1.59	1.44		2.3 2.5		-
27/9/2021	8:39:09	/ Fine	Middle	9.9	26.5	29.7 30.5	29.7	6.57 6.20	6.56		96.8 90.0	96.6	1.62	1.61	1.67	2.4	2.5	2.4
		/ 1 1110	Bottom	19.8	25.5	30.5	30.5	6.23	6.22	6.22	90.3	90.2	1.94	1.96		2.4	2.3	<u> </u>
		29	Surface	1.0	28.9	29.2 29.2	29.2	7.04 7.01	7.03	6.80	107.4 107.1	107.3	2.29 2.25	2.27		2.4 1.9	2.2	
30/9/2021	15:32:14		Middle	9.7	27.8	30.4 30.5	30.4	6.58 6.56	6.57	5.00	99.3 99.0	99.2	2.56 2.53	2.55	2.51	1.3 1.6	1.5	2.5
		1	-	1		31.8	1	6.15	1		91.6		2.70	1	1	4.2	1	1

#### Monitoring Station : TKO-M4a



Data	Time	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Tu	irbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Time	(°C) / Weather Condition	(r		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
		27	Surface	1.0	26.6	28.9 28.9	28.9	7.56 7.52	7.54		110.8 110.3	110.6	1.49 1.47	1.48		3.3 3.5	3.4	
2/9/2021	15:41:11		Middle	9.2	25.8	30.8 30.8	30.8	7.08 7.05	7.07	7.30	103.5 102.9	103.2	1.54 1.58	1.56	1.66	3.3 3.3	3.3	3.4
		/ Fine	Bottom	18.5	24.6	31.5	31.5	6.63	6.62	6.62	95.3	95.2	1.91	1.93	-	3.0	3.5	-
			Surface	1.0	27.5	31.5 30.5	30.5	6.61 6.96	6.95		95.0 104.5	104.3	1.94 0.80	0.79		3.9 3.4	3.7	
		27				30.5 32.1		6.93 6.30		6.63	104.1 92.8		0.78			3.9 6.4		
4/9/2021	16:45:17	/ Fine	Middle	9.2	25.8	32.1 33.7	32.1	6.34 6.07	6.32		93.5 88.8	93.2	1.03 1.18	1.02	0.99	5.4 3.1	5.9	4.2
		, T IIIC	Bottom	18.3	24.9	33.7	33.7	6.05	6.06	6.06	88.4	88.6	1.15	1.17		2.9	3.0	
		28	Surface	1.0	28.0	31.8 31.8	31.8	7.09 7.05	7.07	6.75	108.1 107.5	107.8	0.44 0.46	0.45		3.9 4.0	4.0	
7/9/2021	17:32:01		Middle	9.2	26.7	33.7 33.7	33.7	6.45 6.42	6.44		97.3 96.7	97.0	0.70 0.73	0.72	0.74	6.2 5.2	5.7	4.7
		/ Fine	Bottom	18.4	25.7	34.8 34.8	34.8	6.18 6.16	6.17	6.17	92.2 92.0	92.1	1.06	1.04		4.7 4.3	4.5	
		28	Surface	1.0	28.4	31.4 31.4	31.4	7.41 7.45	7.43		113.5 113.9	113.7	0.92 0.95	0.94		4.1 3.8	4.0	
9/9/2021	8:49:33		Middle	9.2	26.9	33.4	33.4	6.66	6.65	7.04	100.7	100.4	1.17	1.18	1.18	3.5	4.0	3.5
		/ Fine	Bottom	18.3	25.7	33.5 34.2	34.2	6.63 6.26	6.27	6.27	100.0 93.1	93.2	1.19 1.40	1.42		4.4 2.6	2.6	-
				1.0	27.1	34.2 30.9	30.9	6.28 7.02	7.01		93.3 104.9	104.7	1.44 0.99			2.6 5.0	5.3	
		27	Surface			30.9 31.2		7.00 6.44		6.73	104.5 94.5		1.02 1.20	1.01	-	5.5 4.2		
11/9/2021	9:03:04	/ Fine	Middle	9.2	25.9	31.2 32.7	31.2	6.47 6.22	6.46		94.8 90.4	94.7	1.17	1.19	1.18	4.2	4.2	4.6
		/11110	Bottom	18.4	24.8	32.8	32.7	6.20	6.21	6.21	90.1	90.3	1.32	1.34		4.3	4.5	
		27	Surface	1.0	27.1	28.7 28.7	28.7	6.99 6.95	6.97	6.71	103.2 102.6	102.9	1.52 1.55	1.54		2.0 1.5	1.8	
13/9/2021	11:13:14		Middle	9.3	26.0	31.0 31.0	31.0	6.47 6.44	6.46	0.71	95.0 94.4	94.7	1.93 1.91	1.92	1.87	1.6 1.3	1.5	1.6
		/ Fine	Bottom	18.5	24.8	31.6 31.6	31.6	6.11 6.13	6.12	6.12	88.2 88.3	88.3	2.16 2.12	2.14		1.7 1.3	1.5	
		27	Surface	1.0	27.5	29.7 29.7	29.7	6.96 6.99	6.98		104.0 104.5	104.3	1.28 1.26	1.27		4.2 4.0	4.1	
15/9/2021	15:01:01		Middle	9.3	26.0	30.7 30.7	30.7	6.40 6.36	6.38	6.68	93.8 93.2	93.5	1.56	1.54	1.53	4.2	4.5	4.3
		/ Fine	Bottom	18.6	24.8	31.6	31.6	6.04	6.03	6.03	87.2	87.1	1.77	1.78	-	4.4	4.5	
			Surface	1.0	27.8	31.6 30.5	30.5	6.02 7.32	7.30		86.9 110.4	110.1	1.79 0.37	0.38		4.5 3.7	3.5	
17/9/2021	16:14:00	27	Middle	9.2	25.9	30.5 32.9	32.9	7.28 6.60	6.59	6.94	109.8 97.8	97.5	0.39 0.55	0.53	0.62	3.3 4.0	3.7	4.4
17/9/2021	16.14.00	/ Fine				32.9 33.2		6.57 6.29			97.2 91.4		0.51 0.92		0.62	3.4 5.8		4.4
			Bottom	18.4	24.7	33.2 28.2	33.2	6.31 7.00	6.30	6.30	91.6 104.1	91.5	0.95 1.54	0.94		6.4 1.8	6.1	
		27	Surface	1.0	27.7	28.2	28.2	6.96	6.98	6.71	103.5	103.8	1.52	1.53	-	2.4	2.1	-
20/9/2021	16:46:26		Middle	9.1	26.0	29.1 29.1	29.1	6.45 6.42	6.44		93.7 93.1	93.4	1.82 1.86	1.84	1.80	2.1 2.2	2.2	1.9
		/ Fine	Bottom	18.2	24.1	30.6 30.6	30.6	6.10 6.12	6.11	6.11	86.5 86.8	86.7	2.04 2.01	2.03		1.6 1.5	1.6	
		29	Surface	1.0	29.0	31.2 31.3	31.2	7.50 7.47	7.49	7.05	115.9 115.6	115.8	0.77 0.75	0.76		2.5 2.2	2.4	
23/9/2021	9:42:17		Middle	9.2	27.8	32.7 32.7	32.7	6.63 6.60	6.62	7.05	101.3 100.8	101.1	1.03 1.06	1.05	1.00	2.3 2.0	2.2	2.7
		/ Fine	Bottom	18.5	26.2	34.0 34.0	34.0	6.35 6.31	6.33	6.33	95.1 94.5	94.8	1.21 1.17	1.19		3.0 4.2	3.6	-
		00	Surface	1.0	28.1	29.9	29.9	6.88	6.87		104.0	104.0	1.42	1.44		2.3	2.2	
25/9/2021	9:03:01	28	Middle	9.2	26.5	29.9 31.8	31.8	6.86 6.49	6.47	6.67	103.9 96.5	96.3	1.45 1.71	1.73	1.68	2.0 2.5	2.6	2.1
		/ Fine	Bottom	18.3	25.6	31.8 32.5	32.5	6.45 6.19	6.21	6.21	96.1 91.1	91.3	1.75 1.88	1.86		2.6 1.3	1.5	-
						32.5 28.5		6.23 6.95		0.21	91.5 105.3		1.84 1.67			1.7 3.2		
		28	Surface	1.0	28.7	28.5 29.8	28.5	6.99 6.28	6.97	6.62	105.9 92.4	105.6	1.64 1.88	1.66		2.9 2.2	3.1	-
27/9/2021	8:54:01	/ Fine	Middle	9.3	26.5	29.8 30.6	29.8	6.26 5.95	6.27		92.1 86.1	92.3	1.86	1.87	1.86	1.8	2.0	2.4
		/1110	Bottom	18.5	25.3	30.6	30.6	5.92	5.94	5.94	85.8	86.0	2.07	2.06		2.1	2.1	
		29	Surface	1.0	29.1	28.0 28.0	28.0	7.20 7.22	7.21	6.93	109.5 109.6	109.6	2.33 2.31	2.32		1.0 1.0	1.0	
30/9/2021	15:54:39		Middle	9.2	27.8	29.6 29.6	29.6	6.66 6.63	6.65	5.50	100.0 99.6	99.8	2.74 2.70	2.72	2.71	1.2 1.4	1.3	1.3
		/ Fine				30.9		6.28			93.2	92.9	3.09	3.08	1	1.6	1.7	1

#### Monitoring Station : TKO-M5



		Ambient Temp	Monitorir	na Depth	Temp	Salinit	ty (ppt)	Dissolv	ed Oxyger	n (mg/L)		d Oxygen tion (%)	Tu	irbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Time	(°C) / Weather Condition	(n		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
		27	Surface	1.0	26.8	29.1 29.1	29.1	7.11 7.14	7.13	6.00	104.7 105.1	104.9	1.64 1.60	1.62		4.1 3.8	4.0	
2/9/2021	16:03:28		Middle	6.4	25.7	30.9 30.9	30.9	6.51 6.53	6.52	6.82	95.0 95.2	95.1	1.92 1.94	1.93	1.87	2.8	3.4	3.5
		/ Fine	Bottom	12.7	24.7	32.0 32.0	32.0	6.14 6.10	6.12	6.12	88.7 88.1	88.4	2.07 2.04	2.06		2.8	3.1	
		27	Surface	1.0	27.6	30.8 30.8	30.8	7.30	7.32		110.0 110.4	110.2	0.66	0.68		3.0	2.6	
4/9/2021	17:05:17		Middle	6.3	25.8	31.9 31.9	31.9	6.65 6.69	6.67	6.99	97.8 98.4	98.1	0.98	0.96	0.95	5.7 5.1	5.4	4.2
		/ Fine	Bottom	12.5	24.7	32.6 32.6	32.6	6.18 6.16	6.17	6.17	89.5 89.3	89.4	1.21	1.22		4.9	4.6	-
		28	Surface	1.0	28.1	30.7 30.7	30.7	7.41	7.42		112.5 112.6	112.6	0.79	0.81		4.5	4.8	
7/9/2021	17:49:02		Middle	6.4	26.8	32.4 32.4	32.4	6.59 6.56	6.58	7.00	98.8 98.4	98.6	1.03	1.02	1.02	5.3 5.2	5.3	4.3
		/ Fine	Bottom	12.8	25.9	33.1 33.1	33.1	6.25 6.21	6.23	6.23	92.7 92.0	92.4	1.24	1.22		2.6	3.0	1
		28	Surface	1.0	28.3	32.4 32.4	32.4	7.23	7.22		111.2 110.7	111.0	1.17	1.15		4.8	4.5	
9/9/2021	09:11:08		Middle	6.3	27.1	33.7 33.7	33.7	6.50 6.54	6.52	6.87	98.7 99.2	99.0	1.39	1.38	1.38	5.4	5.4	4.4
		/ Fine	Bottom	12.6	25.8	34.9 34.9	34.9	6.19 6.17	6.18	6.18	92.6 92.3	92.5	1.62	1.61		2.8 3.6	3.2	-
		27	Surface	1.0	27.2	31.7 31.7	31.7	7.32	7.34		110.1 110.4	110.3	1.24	1.23		4.8	4.5	
11/9/2021	09:21:02	27	Middle	6.3	26.0	33.3 33.3	33.3	6.64 6.60	6.62	6.98	98.8 98.0	98.4	1.39	1.40	1.40	4.5	4.5	3.9
		/ Fine	Bottom	12.6	24.8	34.8 34.8	34.8	6.23 6.20	6.22	6.22	91.6 91.3	91.5	1.59	1.57		2.5	2.8	-
		27	Surface	1.0	27.2	29.6 29.6	29.6	7.39 7.36	7.38		109.8 109.4	109.6	1.96	1.94		2.4 2.0	2.2	
13/9/2021	11:35:19		Middle	6.3	25.8	30.1 30.1	30.1	6.75 6.77	6.76	7.07	98.3 98.6	98.5	2.26	2.25	2.19	1.1	1.2	1.5
		/ Fine	Bottom	12.6	24.6	31.3 31.3	31.3	6.36 5.32	5.84	5.84	91.3 90.7	91.0	2.37	2.39		1.2 1.0 1.3	1.2	-
		27	Surface	1.0	27.7	30.1 30.1	30.1	7.15	7.14		107.5 106.9	107.2	1.63	1.64		5.3	5.6	
15/9/2021	15:17:03		Middle	6.3	26.1	31.5 31.5	31.5	6.50 6.53	6.52	6.83	95.9 96.3	96.1	2.01	1.99	1.93	6.6 6.5	6.6	4.6
		/ Fine	Bottom	12.6	24.8	32.4 32.4	32.4	6.27 6.31	6.29	6.29	90.9 91.3	91.1	2.17	2.16		1.9 1.6	1.8	-
		27	Surface	1.0	28.0	31.3 31.3	31.3	6.97 6.94	6.96		106.0 105.4	105.7	0.82 0.84	0.83		3.2 4.0	3.6	
17/9/2021	16:36:45		Middle	6.4	26.1	32.3 32.3	32.3	6.44 6.42	6.43	6.69	95.4 95.3	95.4	1.09	1.08	1.05	4.6	4.3	4.6
		/ Fine	Bottom	12.8	24.8	33.9 33.9	33.9	6.01 5.97	5.99	5.99	87.9 87.3	87.6	1.22	1.24		6.1 5.6	5.9	
		27	Surface	1.0	27.8	29.0 29.0	29.0	7.22	7.21		108.0 107.7	107.9	1.83	1.85		3.4 3.1	3.3	
20/9/2021	17:03:14		Middle	6.2	26.2	29.5 29.4	29.4	6.56 6.52	6.54	6.88	95.8 95.1	95.5	2.08 2.04	2.06	2.08	1.4 1.4	1.4	1.9
		/ Fine	Bottom	12.4	24.1	30.3 30.3	30.3	6.23 6.20	6.22	6.22	88.2 87.9	88.1	2.35 2.31	2.33		1.3 1.0	1.2	
		29	Surface	1.0	29.2	30.6 30.6	30.6	7.26 7.22	7.24		112.1 111.5	111.8	1.11 1.09	1.10		4.7 5.5	5.1	
23/9/2021	10:01:39		Middle	6.3	27.9	31.8 31.8	31.8	6.45 6.42	6.44	6.84	98.2 97.8	98.0	1.24 1.27	1.26	1.24	2.1 2.2	2.2	3.2
		/ Fine	Bottom	12.7	26.4	32.7 32.7	32.7	6.08 6.06	6.07	6.07	90.7 90.3	90.5	1.39 1.35	1.37		2.5 2.0	2.3	1
		28	Surface	1.0	28.3	30.5 30.5	30.5	7.17 7.15	7.16	6.07	109.1 108.8	109.0	1.57 1.55	1.56		3.0 3.3	3.2	
25/9/2021	09:28:00		Middle	6.3	26.8	31.8 31.8	31.8	6.57 6.60	6.59	6.87	98.2 98.5	98.4	1.97 1.93	1.95	1.89	3.1 3.3	3.2	3.2
		/ Fine	Bottom	12.7	25.9	33.7 33.7	33.7	6.30 6.34	6.32	6.32	93.8 94.2	94.0	2.13 2.16	2.15		3.3 3.2	3.3	
		28	Surface	1.0	28.7	30.3 30.3	30.3	7.30 7.32	7.31	6.00	111.7 111.8	111.8	1.82 1.86	1.84		1.7 1.5	1.6	
27/9/2021	09:11:00		Middle	6.4	26.6	31.5 31.5	31.5	6.51 6.53	6.52	6.92	96.8 97.1	97.0	2.03 2.00	2.02	2.03	1.9	2.1	1.8
		/ Fine	Bottom	12.7	25.5	32.8 32.8	32.8	6.26 6.22	6.24	6.24	92.1 91.5	91.8	2.24 2.21	2.23		1.8 1.8	1.8	1
		29	Surface	1.0	29.1	27.4 27.4	27.4	6.95 6.91	6.93	0.00	105.3 104.9	105.1	2.56 2.59	2.58		1.4	1.7	1
			Middle	6.3	27.7	28.7	28.7	6.33 6.30	6.32	6.62	94.4 94.1	94.3	2.96 2.94	2.95	2.93	2.6	2.8	3.0
30/9/2021	16:13:41		inidalo			28.7		0,50			94.1					2.9		

#### Monitoring Station : TKO-C1a



lionitoring	Station :						6.00				Dissolve	d Oxygen	-		\			
Date	Time	Ambient Temp (°C) / Weather	Monitorin (r		Temp (°C)	Salinit	y (ppt)		ed Oxyger	i (mg/L) Depth-	Saturat	ion (%)		rbidity (NT	U) Depth-		nded Solids	s (mg/L) Depth-
		Condition		,	( 0)	Value	Average	Value	Average	average	Value	Average	Value	Average	average	Value	Average	average
		27	Surface	1.0	26.6	28.5 28.5	28.5	7.16 7.14	7.15	6.84	104.7 104.4	104.6	1.48 1.51	1.50		3.4 3.0	3.2	
2/9/2021	9:35:03		Middle	9.7	25.4	30.6 30.6	30.6	6.50 6.54	6.52	0.04	94.3 94.8	94.6	1.79 1.77	1.78	1.78	4.0 5.0	4.5	3.4
		/ Fine	Bottom	19.3	24.5	31.9 31.9	31.9	6.28 6.25	6.27	6.27	90.4 89.8	90.1	2.09	2.07		2.8 2.3	2.6	
		27	Surface	1.0	27.5	31.0 31.0	31.0	6.99 6.96	6.98		105.2 104.8	105.0	0.94	0.95		4.7	4.8	
4/9/2021	9:54:21		Middle	9.5	25.7	32.8 32.8	32.8	6.41 6.43	6.42	6.70	94.6 94.7	94.7	1.10	1.09	1.11	3.2 3.3	3.3	4.1
		/ Fine	Bottom	19.1	24.9	33.3 33.3	33.3	6.07 6.11	6.09	6.09	88.6 89.0	88.8	1.30	1.28		4.1	4.2	
		28	Surface	1.0	28.0	31.9 31.9	31.9	7.04	7.06		107.4 108.0	107.7	0.65	0.64		2.1	2.2	
7/9/2021	11:18:01		Middle	9.7	26.9	33.1 33.1	33.1	6.50 6.53	6.52	6.79	98.0 98.3	98.2	0.97	0.96	0.97	2.3 3.0	2.7	2.7
		/ Fine	Bottom	19.4	25.7	34.5 34.5	34.5	6.11 6.13	6.12	6.12	91.0 91.3	91.2	1.34	1.32		3.3 3.2	3.3	1
		28	Surface	1.0	28.4	32.9 32.9	32.9	6.90 6.93	6.92		106.6 106.9	106.8	0.94	0.96		4.7	4.9	
9/9/2021	14:22:38	20	Middle	9.7	27.1	33.8 33.8	33.8	6.28 6.26	6.27	6.59	95.4 95.0	95.2	1.15 1.11	1.13	1.18	3.7 2.8	3.3	3.8
		/ Fine	Bottom	19.5	25.9	34.8	34.8	6.01	5.99	5.99	90.0	89.7	1.47	1.46		2.8	3.3	
		07	Surface	1.0	27.1	34.8 31.0 31.0	31.0	5.97 6.78 6.74	6.76		89.3 101.4	101.0	1.45 1.14 1.17	1.16		3.7 3.7	3.9	<u> </u>
11/9/2021	14:48:07	27	Middle	9.6	25.9	31.0 31.2 31.2	31.2	6.21 6.24	6.23	6.49	100.6 91.1 91.4	91.3	1.17 1.27 1.29	1.28	1.35	4.1 3.0 4.6	3.8	4.2
		/ Fine	Bottom	19.2	24.8	32.4	32.4	5.91	5.90	5.90	85.7	85.5	1.60	1.62		5.2	4.9	
			Surface	1.0	27.0	32.4 28.7	28.7	5.88 6.96	6.95		85.3 102.6	102.3	1.64	1.87		4.5 2.2	2.2	
13/9/2021	16:51:16	27	Middle	9.7	25.8	28.7 30.8	30.8	6.93 6.46	6.47	6.71	102.0 94.4	94.5	1.86 2.04	2.06	2.25	2.1 2.8	2.6	2.0
		/ Fine	Bottom	19.4	24.8	30.8 31.4	31.4	6.48 6.17	6.15	6.15	94.6 89.0	88.7	2.08 2.34	2.83		2.4	1.4	
			Surface	1.0	27.4	31.4 29.1	29.1	6.13 6.91	6.93		88.4 102.8	103.0	3.31	1.42		1.2 3.4	3.5	
15/9/2021	9:33:13	27	Middle	9.6	25.7	29.1 30.6	30.6	6.94 6.42	6.40	6.66	103.2 93.6	93.3	1.44	1.86	1.80	3.5 3.6	3.9	4.0
		/ Fine	Bottom	19.2	24.6	30.6 31.5	31.5	6.38 6.05	6.04	6.04	93.0 87.0	86.8	1.87 2.14	2.13		4.1	4.8	
			Surface	1.0	27.7	31.5 30.3	30.3	6.03 6.96	6.95		86.6 104.7	104.5	2.11 0.61	0.63		4.4	4.2	
17/9/2021	10:07:14	27	Middle	9.6	25.9	30.3 32.5	32.5	6.93 6.30	6.32	6.63	104.3 93.1	93.4	0.65	0.91	0.93	4.2 3.0	3.2	3.8
		/ Fine	Bottom	19.3	24.7	32.5 33.5	33.5	6.34 6.03	6.02	6.02	93.7 87.8	87.6	0.89	1.24		3.3 4.4	4.1	
			Surface	1.0	27.6	33.5 29.9	29.9	6.01 7.02	7.01		87.4 105.2	105.1	1.25	1.75		3.7 2.1	2.0	
20/9/2021	10:31:05	27	Middle	9.7	26.1	29.9 30.2	30.2	6.99 6.37	6.36	6.68	104.9 93.3	93.1	1.74 2.13	2.14	2.12	1.9 1.5	1.9	2.0
		/ Fine	Bottom	19.4	24.1	30.2 31.3	31.3	6.35 6.06	6.08	6.08	92.8 86.3	86.5	2.15 2.49	2.47		2.2 1.9	2.2	
			Surface	1.0	29.3	31.3 31.9	31.9	6.09 7.12	7.10		86.6 111.0	110.7	2.45 0.76	0.77		2.5 1.9	2.1	
23/9/2021	13:51:16	29	Middle	9.7	27.6	31.9 33.5	33.5	7.08 6.33	6.32	6.71	110.4 96.8	96.7	0.78 1.14	1.13	1.08	2.2 2.0	2.0	2.9
-0,0,2021		/ Fine	Bottom	19.3	26.3	33.5 34.6	34.6	6.30 5.99	6.00	6.00	96.5 90.2	90.3	1.12 1.37	1.35		2.0 4.7	4.7	2.3
			Surface	1.0	28.4	34.7 29.5	29.5	6.01 6.88	6.90	0.00	90.4 104.3	104.5	1.33 1.48	1.47		4.6 1.0	1.0	
25/9/2021	14:18:00	28	Middle	9.6	26.5	29.5 30.9	30.9	6.91 6.47	6.46	6.68	104.6 95.8	95.7	1.45 1.70	1.47	1.68	1.0 1.5	1.5	1.5
201 JI 202 I	17.10.00	/ Fine	Bottom	9.6	25.5	30.9 31.4	30.9	6.45 6.02	6.00	6.00	95.6 87.9	87.6	1.72 1.87	1.71	1.00	1.4 1.9	2.0	1.5
			Surface	19.2	25.5	31.4 28.6	28.6	5.98 6.99	6.98	0.00	87.3 106.3	106.1	1.84 1.61			2.1 2.6	2.0	
27/0/2001	14:40:40	28				28.6 29.4		6.97 6.45		6.72	105.8 94.8	95.1	1.58 1.74	1.60	4 77	2.4 1.6		
27/9/2021	14:49:42	/ Fine	Middle	9.8	26.6	29.5 31.6	29.4	6.48 6.10	6.47	6.00	95.3 89.1		1.72 1.95	1.73	1.77	2.1 3.0	1.9	2.5
			Bottom	19.5	25.5	31.7 28.9	31.6	6.06 6.88	6.08	6.08	88.6 104.6	88.9	1.99 2.35	1.97		3.5 1.9	3.3	<b> </b>
00/0/022	10.00.00	29	Surface	1.0	28.8	28.9 29.3	28.9	6.86 6.33	6.87	6.59	104.1 94.4	104.4	2.38 2.77	2.37	0.75	2.2	2.1	
30/9/2021	10:03:22	/ Fine	Middle	9.6	27.5	29.3 30.8	29.3	6.30 5.94	6.32	F 00	94.0 87.9	94.2	2.75 3.03	2.76	2.73	1.0 1.0	1.0	1.4
		-	Bottom	19.1	26.5	30.8	30.8	5.90	5.92	5.92	87.3	87.6	3.07	3.05		1.0	1.0	

#### Monitoring Station : TKO-M4a



Monitoring	Station .	TKO-M4a	1			•									$\sim$ -			
Date Tir	Time	Ambient Temp (°C) / Weather	Monitoring Depth (m)		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NT			Suspended Solids		
		Condition	Ŭ	,	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
2/9/2021 9		27	Surface	1.0	26.5	29.6 29.6	29.6	7.25 7.22	7.24	7.05	106.5 106.1	106.3	1.59 1.55	1.57		1.8 1.5	1.7	2.0
	9:57:24		Middle	9.1	25.7	30.2 30.2	30.2	6.89 6.85	6.87	7.05	100.2 99.4	99.8	1.70 1.68	1.69	1.80	1.8 1.2	1.5	
		/ Fine	Bottom	18.1	24.5	31.8	31.8	6.48	6.47	6.47	93.2	93.1	2.11	2.13		2.6	2.9	
			Surface	1.0	27.7	31.9 31.4	31.4	6.46 6.77	6.79		92.9 102.5	102.9	2.14 0.93	0.92		3.2 5.7	5.7	├──
4/9/2021 10:		27				31.4 33.6		6.80 6.14		6.47	103.0 91.5	91.5	0.90 1.20		-	5.7 3.7		4.1
	10:16:29		Middle	9.0	26.0	33.6	33.6	6.18	6.16		91.9	91.7	1.24	1.22	1.16	5.3	4.5	
		/ Fine	Bottom	18.1	24.7	34.5 34.5	34.5	5.98 5.95	5.97	5.97	87.6 87.0	87.3	1.33 1.35	1.34		2.1 2.3	2.2	
7/9/2021		28 / Fine	Surface	1.0	28.2	30.8 30.8	30.8	6.88 6.90	6.89		104.7 104.8	104.8	0.55 0.57	0.56		2.8 3.0	2.9	3.0
	11:35:02		Middle	9.1	26.9	31.6	31.6	6.23	6.25	6.57 93.2 93.7 5.93 87.9 87.9 87.3	93.2	93.5	0.84	0.82	0.85	2.9	3.0	
			Bottom	18.1	25.8	31.6 32.7	32.7	6.26 5.95	5.93		93.7 87.9	87.6	0.80 1.19	1.18		3.0 3.3	- 3.3	
						32.7 30.3		5.91 7.22			87.3 109.9		1.16 1.13			3.2 3.5		
		28	Surface	1.0	28.4	30.3	30.3	7.18	7.20	6.78	109.3	109.6	1.16	1.15	1.36	3.3	3.4	4.4
9/9/2021	14:43:13		Middle	9.1	26.8	31.7 31.7	31.7	6.34 6.36	6.35		94.7 95.0	94.9	1.29 1.27	1.28		5.2 4.7	5.0	
		/ Fine	Bottom	18.1	25.7	33.4 33.4	33.4	6.05 6.07	6.06	6.06	89.6 89.9	89.8	1.68 1.64	1.66		4.4 5.2	4.8	
		07	Surface	1.0	27.1	31.5	31.5	6.85	6.84		102.8	102.7	1.10	1.09		4.7	4.8	3.9
11/9/2021 15:05:1	15:05:10	27	Middle	9.1	26.0	31.6 32.7	32.7	6.83 6.29	6.31	6.58	102.5 93.2	93.5	1.07 1.36	1.35	1.30	4.9 4.9	4.9	
	13.03.10	/ Fine				32.7 33.9		6.33 6.01			93.7 88.0		1.34 1.49		1.00	4.8 2.4		
			Bottom	18.2	24.9	33.9	33.9	5.98	6.00	6.00	87.6	87.8	1.45	1.47		1.8	2.1	
		27	Surface	1.0	27.0	29.5 29.5	29.5	6.83 6.85	6.84	6.58	101.1 101.3	101.2	1.81 1.78	1.80		1.0 1.0	1.0	1.9
13/9/2021 17:1	17:10:41		Middle	9.2	25.8	31.2 31.3	31.2	6.30 6.34	6.32	0.50	92.3 92.9 92.6	92.6	1.99 1.95	1.97	2.01	2.1	1.8	
		/ Fine	Bottom	18.4	24.7	32.9	32.9	5.96	5.95	5.95	86.5	86.2	2.28	2.28 2.25 2.27		3.0	3.0	1
			Surface	1.0	27.4	32.9 28.9	28.9	5.93 6.80	6.79		85.9 101.0	100.9	2.25	1.48		3.0 6.2	6.2	
15/9/2021	9:48:03	27				28.9 30.9		6.78 6.22		6.50	100.7 91.0		1.46 1.76		-	6.2 3.5		
		/ Fine	Middle	9.1	25.8	30.9	30.9	6.19	6.21		90.7	90.9	1.73	1.75	1.69	4.4	4.0	4.1
		/11110	Bottom	18.3	24.7	31.2 31.2	31.2	5.80 5.84	5.82	5.82	83.4 83.8	83.6	1.84 1.88	1.86		2.5 2.0	2.3	
		27	Surface	1.0	27.7	32.0 32.0	32.0	7.12 7.14	7.13		108.2 108.6	108.4	0.44	0.46		5.0 4.8	4.9	4.1
17/9/2021	10:26:48	/ Fine	Middle	9.1	25.8	32.8	32.8	6.44	6.46	6.79	95.2	95.4	0.73	0.72	0.78	3.0	3.1	
			Bottom	18.1	24.6	32.9 33.6	33.6	6.47 6.07	6.09		95.5 88.3	88.5	0.71 1.18	1.16	1	3.1 4.2	4.3	
						33.6 28.7		6.11 6.80			88.7 101.6		1.14 1.89	4 9	<u> </u>	4.3 1.8		
20/9/2021	10:47:50	27	Surface	1.0	27.8	28.7	28.7	6.83	6.82	6.51	102.0	101.8	8 1.92 2.26	1.91	_	2.2	2.0	1.9
		/ Fine	Middle	9.5	26.1	30.0 30.0	30.0	6.22 6.18	6.20		91.0 90.4 90.7	90.7	2.26	2.25	2.18	1.6 1.2	1.4	
			Bottom	19.0	24.2	31.1 31.1	31.1	5.98 5.96	5.97	5.97 85.2		85.0	2.40 2.36	2.38		2.1 2.7	2.4	
23/9/2021 14:		29	Surface	1.0	29.2	30.6 30.6	30.6	7.29 7.26	7.28		112.6	112.4	0.90 0.87	0.89	1.13	3.0 3.2	3.1	3.2
	14:13:29		Middle	9.1	27.8	31.7	31.7	6.45	6.47	6.87	98.0	98.2	1.15	1.16		3.3	3.8	
		/ Fine				31.7 32.7		6.49 6.17		98.4 6.16 92.0 91.7		1.17 1.33			4.3 2.4		0.2	
			Bottom	18.1	26.3	32.8	32.7	6.15	6.16			91.9	1.37	1.35		2.8	2.6	
		28	Surface	1.0	28.3	29.9 29.9	29.9	6.76 6.74	6.75	6.49	102.5 102.0	102.3	1.63 1.61	1.62	1.83	1.6 1.2	1.4	
25/9/2021	14:35:13	/ Fine	Middle	9.1	26.7	30.4 30.4	30.4	6.20 6.24	6.22		91.8 92.2	92.0	1.83 1.86	1.85		2.0 1.6	1.8	1.6
			Bottom	18.1	25.7	32.0 32.0	32.0	6.07 6.03	6.05	6.05	89.2 88.6 88.9	2.01 2.05	2.03	1	1.8	1.6	1	
27/9/2021	15:06:08	28 / Fine	Surface	1.0	28.8	29.8	29.8	6.86	6.85		104.9	104.8	1.79	1.78	2.00	2.1	2.1	2.1
						29.9 30.6		6.84 6.07		6.45	104.6 90.0		1.77 1.98			2.1 1.5		
			Middle	9.1	26.7	30.6 32.7	30.6	6.03	6.05		89.2	89.6	1.95 2.27	1.97		1.4 2.4	1.5	
			Bottom	18.2	25.4	32.7	32.7	5.80 5.77	5.79	5.79	84.7	84.9	2.27	2.26		2.4	2.6	
	10:25:32	29	Surface	1.0	28.9	28.5 28.5	28.5	7.05 7.03	7.04	6.73	107.1 106.8	107.0	2.64 2.68	2.66	2.97	1.0 1.0	1.0	
30/9/2021			Middle	9.1	27.7	29.3	29.3	6.41 6.44	6.43		95.9	96.2	3.06 3.04	3.05		1.0	1.2	1.1
		/ Fine	Bottom	18.3	26.6	29.3 30.2	30.2	6.03	6.05	6.05	96.4 89.1	89.3	3.20	3.21		1.3 1.3	1.2	1
			20110111	.0.0	20.0	30.3	50.2	6.07	5.00	6.05	89.5	55.5	3.22	5.61		1.0		<u> </u>

#### Monitoring Station : TKO-M5



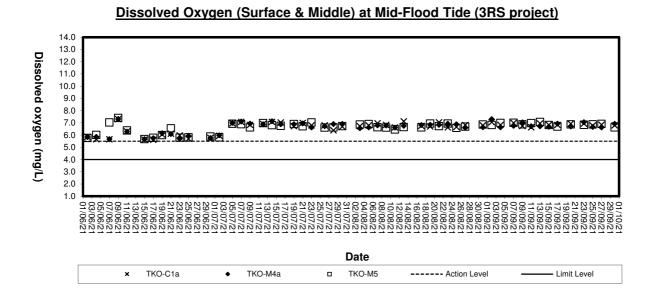
Monitoring	Station :										-				$\overline{\mathbf{V}}$			
Date Tim	Time	Ambient Temp (°C) / Weather	Monitoring Depth (m)		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids		,
		Condition		50p ()	(°C)	Value 29.4	Average	Value 6.99	Average	Depth- average	Value 102.9	Average	Value 1.82	Average	Depth- average	Value 4.0	Average	Depth- average
2/9/2021 1		27	Surface	1.0	26.7	29.4	29.4	6.97	6.98	6.70	102.5	102.7	1.84	1.83		3.0	3.5	-
	10:19:34		Middle	6.3	25.5	30.5 30.5	30.5	6.41 6.44	6.43		93.1 93.5	93.3	2.09 2.06	2.08	2.06	2.8 3.4	3.1	3.1
		/ Fine	Bottom	12.5	24.7	31.8 31.8	31.8	5.92 5.96	5.94	5.94	85.4 86.0	85.7	2.29 2.25	2.27		2.6 2.8	2.7	
4/9/2021		27	Surface	1.0	27.8	31.7 31.7	31.7	7.19 7.17	7.18	6.80	109.2 108.9	109.1	0.88 0.86	0.87	1.13	2.1 2.3	2.2	4.4
	10:39:17	/ Fine	Middle	6.2	26.1	32.7 32.7	32.7	6.41 6.44	6.43	0.00	95.2 95.6	95.4	1.19 1.16	1.18		3.8 3.8	3.8	
			Bottom	12.4	24.9	33.9 33.9	33.9	6.03 5.99	6.01	6.01	88.3 87.6	88.0	1.37 1.33	1.35		7.6 6.5	7.1	
7/9/2021	11:53:02	28	Surface	1.0	28.2	31.6 31.6	31.6	7.25 7.27	7.26		110.8 111.3	111.1	0.90 0.88	0.89	1.13	4.3 3.2	3.8	
			Middle	6.2	26.7	33.9 33.9	33.9	6.30 6.26	6.28	6.77	95.1 94.5	94.8	1.11 1.15	1.13		4.0 3.0	3.5	2.8
		/ Fine	Bottom	12.5	26.0	34.9 34.9	34.9	6.06 6.09	6.08	6.08	91.0 91.3	91.2	1.39	1.38		1.0	1.1	
	15:05:34	28 / Fine	Surface	1.0	28.5	31.5 31.5	31.5	7.06	7.04		108.4 107.8	108.1	1.02	1.01	1.29	2.7 3.4	3.1	3.4
9/9/2021			Middle	6.1	27.1	33.5 33.5	33.5	6.38 6.35	6.37	6.70	96.8 96.5	96.7	1.30	1.32		2.8	3.0	
			Bottom	12.3	26.0	34.8	34.8	5.93 5.95	5.94	5.94 89.0	89.0 89.1	89.1	1.53	1.55		4.7	4.2	
		27	Surface	1.0	27.3	34.8 30.4	30.4	7.19	7.18		107.5	107.2	1.56	1.42	1.59	3.7 4.3	3.9	4.3
11/9/2021	15:23:02		Middle	6.2	26.1	30.4 32.7	32.7	7.16	6.42	6.80 95	106.9 95.0	95.2	1.40	1.56		3.4 4.8	4.4	
		/ Fine	Bottom	12.4	25.0	32.7 33.8	33.8	6.43 6.08	6.06	6.06	95.3 89.2	88.8	1.57 1.76	1.78		3.9 4.4	4.7	
13/9/2021		27 / Fine	Surface	1.0	27.1	33.8 28.4	28.4	6.04 7.20	7.19		88.4 106.2	106.1	1.79 2.20	2.22	2.54	5.0 1.9	2.1	2.1
	17:32:21		Middle	6.2	25.7	28.5 29.6	29.6	7.18 6.50	6.52	6.85	105.9 94.2	94.5	2.24 2.59	2.61		2.2 2.8	2.5	
			Bottom	12.5	24.5	29.6 30.7	30.7	6.53 6.14	6.12	6.12	94.8 87.7	87.5	2.62 2.79	2.78		2.1 1.6	1.8	
15/9/2021						30.7 29.1		6.10 6.99		0.12	87.2 104.3		2.77 1.89			2.0 3.8		4.5
	10:05:01	27	Surface	1.0	27.6	29.1 30.5	29.1	7.01 6.35	7.00	6.69	104.4 93.0	104.4	1.85 2.15	1.87	0.10	3.2 5.9	3.5	
		/ Fine	Middle	6.2	26.0	30.6 32.9	30.5	6.39 6.14	6.37	6 1 2	93.4 89.1	93.2	2.18 2.35	2.17	2.13	4.6 4.8	5.3	
	10:48:36		Bottom	12.3	24.7	32.9 30.5	32.9	6.12 6.75	6.13	6.13	88.8 102.0	89.0	2.33 0.74	2.34	1.07	4.9 4.1	4.9	3.4
		27	Surface	1.0	27.9	30.5 31.5	30.5	6.73 6.13	6.74		101.5 90.4	101.8	0.81	0.78		4.0 3.6	4.1	
17/9/2021		/ Fine	Middle	6.2	26.1	31.5 33.3	31.5	6.16 5.84	6.15		90.7 84.9	90.6	1.14	1.13		3.1 3.0	3.4	
			Bottom	12.5	24.7	33.3 28.7	33.3	5.80 7.09	5.82	5.82	84.4	4 84.7	1.33	1.32		2.3	2.7	
20/9/2021	11:03:27	27	Surface	1.0	28.0	28.7	28.7	7.05	7.07	6.75	.75 105.5	105.9	2.01	2.03	2.28	1.0 1.9	1.5	2.5
		/ Fine	Middle	6.1	26.3	30.8 30.8	30.8	6.41 6.43	6.42		94.5 94.6	94.6 2.3	2.33 2.31	2.32		2.8	2.5	
			Bottom	12.3	24.2	31.8 31.8	31.8	6.01 6.04	6.03	6.03	86.4	86.4 86.2	2.52 2.48	2.50		3.5 3.3	3.4	
23/9/2021	14:36:06	29 / Fine	Surface	1.0	29.3	30.3 30.3	30.3	7.06 7.04	7.05		109.1 108.9	109.0	1.10 1.08	1.09	1.24	3.6 4.0	3.8	3.2
			Middle	6.7	27.8	32.4 32.4	32.4	6.24 6.28	6.26		95.2 95.6	95.4	1.27 1.24	1.26		2.9 2.7	2.8	
			Bottom	13.3	26.3	33.7 33.7	33.7	5.87 5.84	5.86		88.0 87.5	87.8	1.38 1.36	1.37		2.9 3.0	3.0	
25/9/2021		28	Surface	1.0	28.5	29.2 29.2	29.2	7.02 6.98	7.00	6.67	106.4 105.6	106.0	1.58 1.56	1.57	1.84	1.5 1.1	1.3	
	14:50:07		Middle	6.2	26.7	30.9 30.9	30.9	6.33 6.36	6.35		94.0 94.4	94.2	1.87 1.90	1.89		3.1 2.8	3.0	1.8
		/ Fine	Bottom	12.4	25.8	32.8 32.8	32.8	6.12 6.10	6.11	6.11	90.5 90.2	90.4	2.09 2.05 2.07		1.0 1.0	1.0	1	
27/9/2021	15:25:33	28 / Fine	Surface	1.0	28.8	29.7 29.8	29.7	7.14	7.12	$\begin{array}{c c} 1.12 \\ 6.72 \\ \hline 1 \\ \hline 3.32 \\ \hline 0.08 \\ 6.08 \\ \hline 6.08 \\ \hline 8 \\ \hline 8$	109.1 108.3	108.7	1.87	1.86	2.06	2.3	2.3	2.2
			Middle	6.3	26.8	30.5 30.5	30.5	6.30 6.33	6.32		93.5 94.0	93.8	2.05	2.07		1.3	1.5	
			Bottom	12.6	25.7	32.8 32.8	32.8	6.07 6.09	6.08		89.6 90.0	89.8	2.09 2.26 2.24	2.25		2.7	2.9	
		20	Surface	1.0	29.0	28.8	28.8	6.73	6.72		102.6	102.5	2.70	2.71		1.0	1.0	<u> </u>
30/9/2021	10:46:22	29	Middle	6.2	27.7	28.9 29.9	29.9	6.71 6.01	6.03	6.38 5.84	102.3 90.3	90.6	2.72 3.12	3.14	3.09	1.0 1.0	1.0	1.0
		/ Fine	Bottom	12.4	26.6	29.9 30.5	30.5	6.05 5.85	5.84		90.9 86.5	86.3	3.16 3.40	3.42		1.0	1.0	
			Louon	12.4	20.0	30.5	50.5	5.82	0.04		86.1	50.5	3.43	0.72		1.0	1.0	

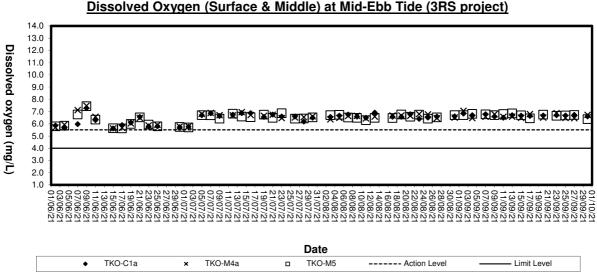


Appendix D5

Graphical Plots of Impact Marine Water Quality Monitoring Data (3RS Project)

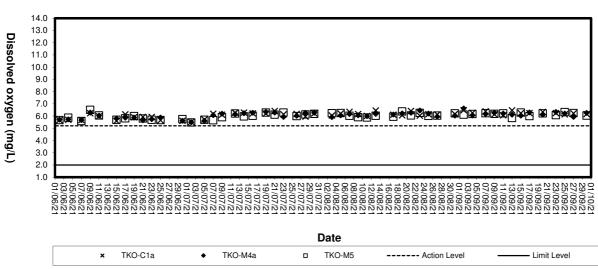




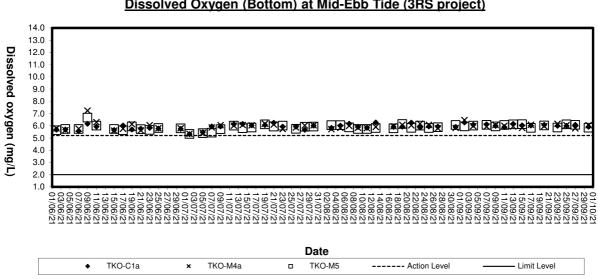


Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide (3RS project)



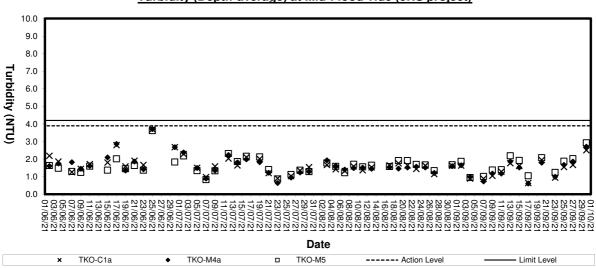


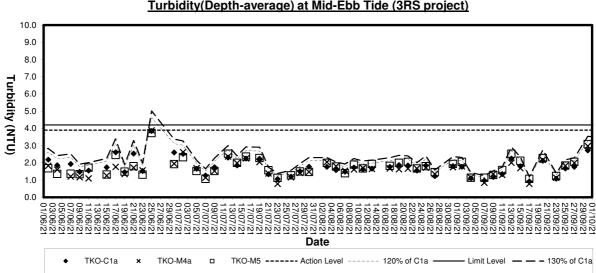
Dissolved Oxygen (Bottom) at Mid-Flood Tide (3RS project)



Dissolved Oxygen (Bottom) at Mid-Ebb Tide (3RS project)



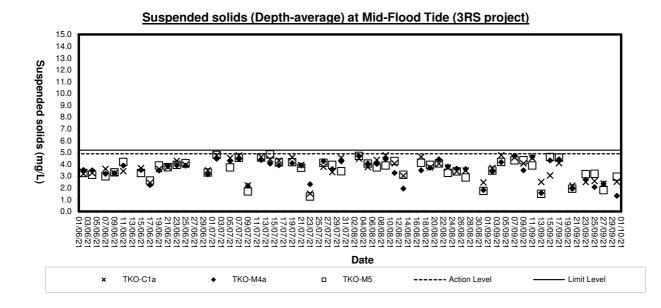


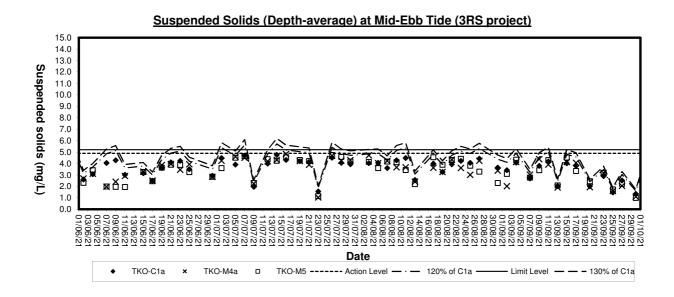


Turbidity(Depth-average) at Mid-Ebb Tide (3RS project)

#### Turbidity (Depth-average) at Mid-Flood Tide (3RS project)









Appendix E

Weather Condition

-	Mean Pressure		r Temperati		Mean Dew	Mean Relative	Total Rainfall	Prevailing Wind	Mean Wind
Day	(hPa)	Absolute	Mean	Absolute	Point (deg. C)	Humidity (%)	(mm)	Direction (degrees)	Speed (km/h)
		Daily Max (deg. C)	(deg.C)	Daily Min (deg. C)	(ueg. C)	(70)		(degrees)	(KIII/II)
1	***	32.1	28.7	26.7	25.8	85	5.9	80	21.2
2	***	33	29.5	27.7	25.7	80	-	80	13.5
3	***	33.6	29.8	27.8	25.6	79	Trace	120	7.1
4	***	33.6	29.8	27.9	25.7	79	0.9	140	7.8
5	***	33.2	29.8	28.3	25.7	79	Trace	120	8
6	***	32.5	29.7	28	25.2	77	-	80	11.9
7	***	33.4	30.1	28.1	25.7	78	0.2	60	24.3
8	***	34.3	30.6	28.2	25.2	74	-	120	10.3
9	***	33.5	30.1	27.8	24.7	73	-	80	10.4
10	***	33.7	30.5	28.6	24.6	71	-	80	21
11	***	33.4	30.5	28.4	25.5	75	-	250	16
12	***	34.5	31.2	29	26.4	76	-	250	27.7
13	***	33.6	30.9	29.5	26.5	77	-	240	19
14	***	30.2	29	26.7	25.8	83	33.8	200	6.8
15	***	33	30.2	27.9	25.2	75	-	250	18.2
16	***	31.9	29.2	26.8	24.6	77	Trace	280	14.1
17	***	34.1	29.5	27.5	25	77	7.6	70	7.5
18	***	33.2	30.2	28.3	26.1	79	0.2	70	24.5
19	***	32.1	29.3	27.4	26.6	86	21.2	110	22.3
20	***	32.3	29.3	27.9	26.2	84	9.4	90	7.9
21	***	31.7	29	26.7	25.6	82	10.2	150	8.5
22	***	34	30.3	27.9	25.7	77	0.5	90	14.6
23	***	30.2	28	26	25.6	87	38.4	90	30.7
24	***	32	29.4	27.8	25.7	81	1.2	90	31.8
25	***	32.3	29.6	27.9	24.7	76	0.1	80	35.2
26	***	31.6	29.1	27.8	23.5	72	-	80	26
27	***	32.8	29.5	28.1	24.6	75	-	80	16.3
28	***	32.2	29.6	27.9	24.7	75	-	90	10.3
29	***	32.7	29.7	27.9	25.1	77	-	240	13
30	***	32.9	30.3	28.4	26	78	-	240	14.9

### Daily Extract of Meteorological Observations , September 2021 - Tseung Kwan O

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



Appendix F

**Event-Action Plans** 

	Contractor		<ol> <li>Rectify any unacceptable practise</li> <li>Amend working methods if appropriate</li> </ol>	<ol> <li>Submit proposals for remedial actions to IC(E) within 3 working days of notification</li> <li>Implement the agreed proposals</li> <li>Amend proposal if appropriate</li> </ol>	ľ	<ol> <li>1. Take Immediate action to avoid further exceedance</li> <li>2. Submit proposals for remedial actions to fC(E) within 3 working days of notification</li> <li>3. Implement the agreed proposals</li> <li>4. Amend proposal if appropriate.</li> </ol>
LITY EXCEEDANCE	Ē		1. Notify Contractor	<ol> <li>Confirm receipt of notification of failure in writing</li> <li>Notify the Contractor</li> <li>Ensure remedial measures property implemented</li> </ol>		<ol> <li>Confirm receipt of notification of faiture in writing</li> <li>Notify the Contractor</li> <li>Ensure remedial measures properly implemented</li> </ol>
EVENT/ACTION PLAN FOR AIR QUALITY EXCEEDANCE ACTION			<ol> <li>Check monitoring data submitted by the ET</li> <li>Check contractor's working method</li> </ol>	<ol> <li>Check monitoring data submitted by the ET Leader</li> <li>Check the Contractor's working method</li> <li>Check the Contractor's working method</li> <li>Discuss with ET and Contractor on possible remedial measures</li> <li>Advise the ER on the effectiveness of the proposed remedial measures</li> <li>Supervise implementation of remedial measures</li> </ol>	LIMIT LEVEL	<ol> <li>Check monitoring data submitted by the ET Leader</li> <li>Check Contractor's working method</li> <li>Check Contractor's working method</li> <li>Discuss with ET and Contractor on possible remedial measures</li> <li>Advise the ER on the effectiveness of the proposed remedial measures</li> <li>Supervise implementation of remedial measures</li> </ol>
Ĩ		EILeader	<ol> <li>Identify source, investigate the causes</li> <li>of exceedance and propose remedial measures</li> <li>Inform ER, IC(E) and Contractor</li> <li>Repeat measurement to confirm finding</li> <li>Increase monitoring frequency to daily</li> </ol>	rrce, investigate the causes nce and propose remedial :) and Contractor asurements to confirm enitoring frequency to daily in IC(E) and Contractor on ctions nce continues, arrange th IC(E) and ER.	6 III MILLOUI	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>Inform ER, Contractor and EPD</li> <li>Repeat measurement to confirm finding</li> <li>A sesses the effectiveness of Contractor's remedial actions and keep IC(E), EPD and ER informed of the results</li> </ol>
EVENT	I		1. Exceedance for one sample	<ol> <li>Exceedance for two or more consecutive samples</li> </ol>		1. Exceedance for one sample

	IC(E) Contractor ER Contractor	Discuss amongst ER, ET and Contractor on the potential remedial actions       1. Confirm receipt of notification of failure in writing       1. Take Immediate action to avoid further exceedances         Review Contractor's remedial actions whenever necessary to assure their offectiveness and advise the ER accordingly Supervise the implementation of remedial measures       1. Confirm receipt of notification actions to inclusion the remedial actions       1. Confirm receipt of of failure in writing         2. Notify Contractor       2. Notify Contractor       2. Submit proposals for remedial actions to inclusion the remedial measures       2. Submit proposals for remedial actions to inclusion implemented         4. Ensure their measures       4. Ensure remedial measures implemented       4. Ensure remedial measures implemented       4. Ensure their proposals         5. If exceedances continues, consider what portion of the work is responsible and instruct the Contractor to stop       5. Stop the relevant activity of problem still not under control instruct the Contractor to stop
EVENT/ACTI	ET Leader	Identify source, investigate the causes of exceedance and propose remedial of exceedance and propose remedial neasures and actions measures. Notify IC(E), ER, EPD and Contractor free contractors remedial actions measures measures measures and advise the implementation inding finding finding finding fractiveness and advise the implementation measures working procedures to determine possible mitigation to be taken and the fractiveness of Contractor's remedial actions to be taken finding fractiveness of Contractor's remedial actions to be taken monitoring fractiveness of Contractor's remedial actions and the results finding fractivenes and advise the implementation measures fractiveness and advise the fractivenes advise the fractivenes and advise the
		- Nich 4'0' 0' - 0'
EVENT		2. Exceedance for two or more consecutive samples

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	Contractor	<ol> <li>Submit noise mitigation proposals to IC(E).</li> <li>Implement noise mitigation proposals.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance</li> <li>Submit proposals for remedial actions to IC(E) within 3 working days of notification.</li> <li>Implement the agreed proposals.</li> <li>Resubmit proposals if problem still not under control.</li> <li>Stop the relevant activity of works as determined by the ER until the exceedances is abated.</li> </ol>	
	ЯЛ	<ol> <li>Confirm receipt of notification of failure in writing.</li> <li>Notify the Contractor.</li> <li>Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>Ensure remedial measures are properly implemented.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing.</li> <li>Notify the Contractor.</li> <li>Require the Contractor to propose remedial measures for the analysed noise problem.</li> <li>Ensure remedial measures are properly implemented.</li> <li>If exceedances continue, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedances is abated.</li> </ol>	
EVENT/ACTION PLAN FOR NOISE EXCEEDANCE ACTION	IC(E)	<ol> <li>Review the analysed results submitted by the ET.</li> <li>Review the proposed remedial measures by the Contractor and advise the ER accordingly.</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions.</li> <li>Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly.</li> <li>Supervise the Implementation of remedial measures.</li> </ol>	
	ET Leader	I the Contractor. Ion. f investigation to ontractor. intractor and measures. infrequency to ectiveness	<ol> <li>Notify the IC(E), the ER, the EPD and the Contractor.</li> <li>Identify source.</li> <li>Repeat measurement to confirm findings.</li> <li>Repeat measurement to confirm findings.</li> <li>Increase monitoring frequency.</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented.</li> <li>Inform the IC(E), the ER and the EPD the causes &amp; actions taken for the exceedances.</li> <li>Assess effectiveness of Contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results</li> <li>If exceedance due to the construction works stops, cease additional monitoring</li> </ol>	
EVENT		Action Level	Limit Levej	

			1		ξ		Į		
				ACTION	Ň				Т
<u> </u>		ET Leader	L	Contractor		ER		IEC	T
Action level	÷	Identify source(s) of impact:	-	Notify the ER and IEC in writing	÷	Notify EPD and other relevant	<b>.</b>	Check monitoring data	
papa	5	Reneat in-situ measurement to		within 24 hours of identification of		governmental agencies in writing		submitted by ET	
	i	confirm findings		exceedance		within 24 hours of the	2	Confirm ET assessment if	
- day	¢	Notify Contractor in writing within	~	Rectify unacceptable practice:		identification of the exceedance		exceedance is due / not due	æ
	÷	24 hours of Identification of the	ं लं	Check all plant and equipment:	,	Discuss with IEC, ET and		to the works	
			4	Submit investigation report to IEC		Contractor on the proposed	ಲ	Discuss with ET, ER and	
	Þ	Check monitoring data, all plant.	:	and ER within 3 working days of		mitigation measures;		Contractor on the mitigation	_
	f	automent and Contractor's		the identification of an	č	Require contractor to propose		measures	
		working methods:		exceedance	;	remedial measures for the	4	Review contractor's	
	¢	Carry out investigation	ŝ	Consider changes of working		analysed problem if related to the		mitigation measures	
	່	Report the results of investigation	i	method if exceedance is due to		construction works		whenever necessary to	
	;	In the Contractor within 3 working	_	the construction works	4.	Ensure remedial measures are		ensure their effectiveness	
		clave of identification of	ý	Discuss with ET. IEC and ER and		property implemented		and advise the ER	
		avreadance and advise		propose mitigation measures to	ഗ	Assess the effectiveness of the		accordingly	
		contractor if exceedance is due to		IEC and ER if exceedance is due	_	mitigation measure	ഗ്	Supervise the	
	_	contractor's construction works		to the construction works within 4		1		implementation of mitigation	c
	2.	Discuss mitigation measures with		working days of identification of				measures .	
		Contractor if exceedance is due		an exceedance					
<u> </u>		to the construction works within 4	~	Implement the agreed mitigation					
		working days		measures within reasonable time					
	ω	Repeat measurement on next day		scale					
		of exceedance if exceedance is							
		due to the construction works							٦

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Event	<u> </u>			EVENT AND ACTION PLAN FOR WATER QUALITY	N FO	R WATER QUALITY		
				ACTION	N			
	ŀ	ET Leader		Contractor		ER	IEC	0
Action level	÷.	Identify source(s) of impact;	-	Notify IEC and ER in writing	<b>~</b> :	Notify EPD and other relevant	1. Check monitoring data	itoring data
being	R	Repeat in-situ measurement		within 24 hours of		governmental agencies in	submitted by ET	y ET
exceeded by		to confirm findings		identification of exceedance		writing within 24 hours of the	2. Confirm ET	Confirm ET assessment
more than one	က်	Notify Contractor in writing	2			identification of the	if exceedance is due	ce is due /
consecutive		within 24 hours of	က်	Check all plant and		exceedance	not due to the works	he works
sampling days		identification		equipment;	<u>м</u>	Discuss with IEC, ET and	3. Discuss with	Discuss with ET, ER and
	4	Check monitoring data, all	4			Contractor on the proposed	Contractor on the	on the
		plant, equipment and		methods;		mitigation measures;	mitigation measures.	neasures.
		Contractor's working methods;	ഗ്		က်	Require contractor to propose	4. Review contractor's	itractor's
	ശ്			investigation to IEC and ER		remedial measures for the	mitigation measures	neasures
	ം			within 3 working days of the		analysed problem if related to	whenever n	whenever necessary to
		investigation to the Contractor		identification of an		the construction works	ensure their	
		within 3 working days of		exceedance	4	Ensure remedial measures	effectivenes	effectiveness and advise
		identification of exceedance	ö	Disc		are properly implemented		ordingly
		and advise contractor if		and propose mitigation	ທ່	Assess the effectiveness of	5. Assess the	Assess the effectiveness
		exceedance is due to		measures to IEC and ER		the mitigation measure	of the implemented	mented
		contractor's construction		within 4 working days of			mitigation measures.	neasures.
		works		identification of an				
	~			exceedance				
		with IEC and Contractor within	~	Implement the agreed				
<u>,</u>		4 working of identification of		mitigation measures within				
		an exceedance		reasonable time scale		-		
	<del>ю</del>	Ensure mitigation measures						
		are implemented;						
	တ်	Prepare to increase the						
		monitoring frequency to daily;						
	ő							
		day of exceedance.						

EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	
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Event		EVEN	ĭ₹	EVENT AND ACTION PLAN FOR WATER QUALITY EXCEEDANCE	ATE	R QUALITY EXCEEDANCI	ш		
				ACTION	N				-
• •••••••••••••••••••••••••••••••••••••		ET Leader		Contractor		ER		IEC	
Limit Level	F	Repeat in-situ measurement	-	Notify ER and IEC in writing	÷	Notify EPD and other relevant	÷	Check monitoring data	
beina				within 24 hours of the		governmental agencies in		submitted by ET	
exceeded by	2			Identification of the		writing within 24 hours of	ri,	Confirm ET assessment	
more than one	i m	_		exceedance and		identification of exceedance		if exceedance is due /	
consecutive			ri	Rectify unacceptable practice;	c,i	Discuss with IEC, ET and		not due to the works	
samoling days		identification of the	က်	Check all plant and		Contractor on the proposed	က်	Discuss with ER, ET and	
		exceedance		equipment;		mitigation measures;		Contractor on the	
	4	Check monitoring data, all	4	Consider changes of working	ń	Request Contractor to critically		mitigation measures.	
		plant, equipment and		methods;		review the working methods;	4	Review proposals on	
	_	Contractor's working methods:	ω.	Submit the results of the	ശ്	Ensure remedial measures		mitigation measures	_
	<u>ي</u>	-		investigation to IEC and ER		are properly implemented		submitted by Contractor	
	ģ			within 3 working days of the	4	Assess the effectiveness of		and advise the ER	
	;			identification of an		the implemented mitigation		accordingly.	
		within 3 working days of		exceedance		measures;	ശ്	Assess the effectiveness	
		Identification of exceedance	പ	Discuss with ET, IEC and ER	ഗ	Consider and instruct, if		of the implemented	
		and advise contractor if	-	and propose mitigation		necessary, the Contractor to		mitigation measures.	
		exceedance is due to		measures 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	ú	Implement the agreed		exceedance of Limit Level.			
	~	Discuss mitigation measures		mitigation measures within					
		-		reasonable time scale					
-	α		~	As directed by the Engineer,					
		are implemented;		to slow down or to stop all or					
	တ်	Increase the monitoring		part of the marine work or					
		frequency to daily until no		construction actives.					
		exceedance of Limit Level for							
		two consecutive days.			_				٦



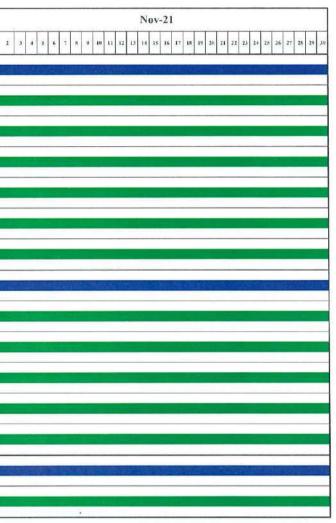
Appendix G

Works Programme

#### China Harbour - Zhen Hua Joint Venture Contract No. CV/2015/07 Handling of Surplus Public Fill (2016 -2018)

# Three Months Rolling Programme for the Period from 1-September-2021 to 30-November-2021 (Supplementary Agreement No.4)

Item	Description	From	То	Sep-21	Oct-21	
				1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 9 20 21 22 23 24 25 26 27 29 29 30	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 29 21 22 23 24 25 26 27 28 29 39 31	1 2
1	Section 1C	1-Sep-21	30-Nov-21			
1.1	Operation of Fill Bank, surveillance system, tipping halls and recorder houses	1-Sep-21	30-Nov-21			
1.2	Operation of crushing plants	1-Sep-21	30-Nov-21			
1.3	Operation of the existing and expanded dewatering plants	1-Sep-21	30-Nov-21			
1.4	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	1-Sep-21	30-Nov-21			
1.5	Breaking up the incoming precast concrete units	1-Sep-21	30-Nov-21			
1,6	Carry out preliminary sorting on Public Fill and Delivery the pre- sorted Public to Staorage Area for 3RS Project	1-Sep-21	30-Nov-21			
2	Section 2C	1-Jun-21	31-Aug-21			(Certific
2.1	Operation of Fill Bank, surveillance system, tipping halls and recorder houses	1-Sep-21	30-Nov-21			
2.2	Breaking up the incoming precast concrete units	1-Sep-21	30-Nov-21			
2.3	Operation of crushing plants	1-Sep-21	30-Nov-21			
2.4	Operation of glass cullet storage compartment at Portion B7	1-Sep-21	30-Nov-21			
2.5	Carry out preliminary sorting on Public Fill and Delivery the pre- sorted Public to Staorage Area for 3RS Project	1-Sep-21	30-Nov-21			6-c -
3	Section 4B	I-Sep-21	30-Nov-21			
3.1	Collection and delivery of Public Fill to the Designated Reclamation Sites in the Mainland	1-Sep-21	30-Nov-21			



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Appendix H

Weekly ET's Site Inspection Record

#### CEDD Contract No.; CV/2015/07

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



Inspection Date	1/9/21		
Time	17=30		
Weather	: Sunny / Fine/ Cloudy / Overcast	/ Drizzle / Rain / Storm / Hazy	
Wind	Calm / (ight) / Breeze / Strong	· · · · · · · · · · · · · · · · · · ·	
Temperature	: 31°C		. · · ·
Humidity	High / Moderate /		
inspected by	CEDD	Contractor / Sub-Contactor	ET
inspected by Signature:	CEDD	Contractor / Sub-Contactor	ET
	CEDD Aston ZEDD Whit ZEDD Whit	Alle	Mak
Signature:	Aron	Contractor / Sub-Contactor Sub	ET Mak Mak Kei Wai E.T

			tation	Remark
Environmental Checklist		Stage		
	Yes		N/A	
Fugitive Dust Emission	<b>4</b> 774			
Dust control / mitigation measures shall be provided to prevent dust nuisance.	1			
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.	V			
Water sprays shall be provided and used to dampen materials.	1		-	
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	1			
All vehicles shall be restrict to a maximum speed of 10 km per hour.	1			·····
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.	1			
The designated site main haul road shall be paved or regular watering.	1			
Frequent watering of work site shall be at least three times per day.	√			
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	$\neg$			
Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	V			
All plant and equipment should be well maintained e.g. without black smoke emission.	$\checkmark$	1		
Open burning should be prohibited.	1			
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.	1			
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 beit.	V			
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.	V			
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).	1			
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.	1			
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	1	1		
Air compressors and hand held breakers should have noise labels.	1			
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	1		+ +	-
Noisy equipment and mobile plant shall always be site away from NSRs.	1	1		·

	Environmental Checklist	Implemen Stage		*	Remark
			No		
Wat	er 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.	1			
•	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.	1			
•	Manholes should be covered and sealed.	$\checkmark$			
•	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	V			
•	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	1			
•	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	1			
•	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.	1			
•	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.	1			
-	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.	1			
•	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.	V			
•	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.	1			:
•	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.	$\checkmark$			
•	Oil interceptor shall be provided at work shop.	V			
•	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	1			
•	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.	1			
•	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	$\checkmark$			
•	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.	1			
•	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.	4			
•	A waste collection vessel shall be deployed to remove floating debris.	$\sim$			

Environmental Checklist	lmp	lemen Stage		Remark
	Yes	No	N/A	
Landscape and Visual				
<ul> <li>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. Straig edged slopes should be avoided.</li> </ul>	jht √			
<ul> <li>The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.</li> </ul>	V			
<ul> <li>Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark gree brown) once completed.</li> </ul>	n/ √			
<ul> <li>The barging point and the C&amp;DMSF at the fill bank shall not be in operation from 07:00 pm to 08:00 am daily to avoid potential visual impact froglare.</li> </ul>	om √			
Other Environmental Factors				
<ul> <li>C&amp;D waste sorted from mixed C&amp;D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT land for disposal.</li> </ul>	Ifi∥ √			
<ul> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	1			
<ul> <li>Any unused materials or those with remaining functional capacity should be recycled and stored properly.</li> </ul>	V		:	
All generators, fuel and oil storage are within bundle areas.	1			
Oil leakage from machinery, vehicle and plant is prevented.		1		Item 3
The Environmental Permit should be displaced conspicuously on site.	1			/ - -
<ul> <li>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.</li> </ul>	he 🗸		_	
<ul> <li>To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from oth general refuse generated by the workforce.</li> </ul>	ner √			



### Summary of the Weekly Site Inspection:

ltem	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
1	Follow up action to item no.4 on 26/08/21, stagnant water were cleaned.		210901_001	No	
2.	Follow up action to item no.5 on 26/08/21, general refuse were cleaned.		210901_002	No	
3.	Oil stain were observed near Workshop	To clean the oil stain properly	200901_003	Yes	08/09/2021

#### Remark

	Name	Title	Signature	Date
Checked by	June Lau	ET Representative		01 September 2021
			Juni	



<u>Photo</u> Photo 210901\_001 (Near Excavator) (Improved) Photo 210901\_002 (Near Workshop) (Improved) Photo 210901\_003 (Near Workshop)

CEDD Contract No.: CV/2015/07



Inspection Date	: 2021-09-08 : 14:20		
Time .	14:20		
Weather	: Sunny / Fing/ Cloudy / Overcast	/ Drizzle / Rain / Storm / Hazy	
Wind	: Calm / Light / Breeze / Strong		
Temperature	33 2		
Humidity	: High / Møderate / Low		
inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	Asvarl	Alle	M
Name:	TSONCH YOU Let int	Sin sual.	Vasbadus
Title	BLON/PE	Freder	E.T

	Implementation	Remark
Environmental Checklist	Stages*	
	Yes No N/A	
Fugitive Dust Emission		
Dust control / mitigation measures shall be provided to prevent dust nuisance.	4	
<ul> <li>A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest AS Estate. Within the buffer zone, no dusty material shall be stockpiled and no lpading / unloading and similar activitie</li> </ul>		
<ul> <li>Water sprays shall be provided and used to dampen materials.</li> </ul>		
<ul> <li>Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.</li> </ul>	1	
<ul> <li>All vehicles shall be restrict to a maximum speed of 10 km per hour.</li> </ul>	1	
<ul> <li>Any vehicle with open load carrying area used for moving materials which has the potential to create dust shall and tail boards. Material having the potential to create dust shall not be loaded to a level higher than the side and covered by a clean tarpaulin.</li> </ul>	have properly fitting side √ I tail boards, and shall be	
<ul> <li>The designated site main haul road shall be paved or regular watering.</li> </ul>	$\checkmark$	
<ul> <li>Frequent watering of work site shall be at least three times per day.</li> </ul>		
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	√	
<ul> <li>Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank</li> </ul>		
<ul> <li>All plant and equipment should be well maintained e.g. without black smoke emission.</li> </ul>		<u> </u>
Open burning should be prohibited.		
<ul> <li>The temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeab water or protected by other method approved by CEDD.</li> </ul>		
<ul> <li>Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.</li> </ul>		<u></u>
<ul> <li>When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.</li> </ul>	V	
• The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the	e return belt. √	
<ul> <li>The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor point is maintained at no more than 1m.</li> </ul>	r and the material landing	
<ul> <li>Approval or exemption Non-road Mobile Machinery (NRMM) labels should be painted or securely fixed on regularized vehicles at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emis Cap.311).</li> </ul>		
Noise Impact		
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of e adapted.	equipment, etc.) shall be 🗸	
Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction	on works. 🗸 🗸	
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.		
Air compressors and hand held breakers should have noise labels.	V	
<ul> <li>Machines and plants that may be in intermittent use should be shut down between work periods or should be throit</li> </ul>	ttled down to a minimum.	
Noisy equipment and mobile plant shall always be site away from NSRs.		······





Environmental Checklist	Implementation Stages*			Remark
		No		
Water Quality				
<ul> <li>Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.</li> </ul>	1			
<ul> <li>The permanent drainage channels should have sediment basin, traps and baffies and maintain property.</li> </ul>	1			
<ul> <li>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.</li> </ul>	V			
<ul> <li>Manholes should be covered and sealed.</li> </ul>	1			
<ul> <li>Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.</li> </ul>		1		Item 2
A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	V			
<ul> <li>A buffer distance of at least 20m shall be maintained between the boundary of the C&amp;DMSF and the seafront.</li> </ul>	1			
<ul> <li>The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.</li> </ul>	V			
<ul> <li>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.</li> </ul>	V			
<ul> <li>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.</li> </ul>	V			
<ul> <li>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.</li> </ul>	1			
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.	1			•
<ul> <li>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.</li> </ul>	4			
<ul> <li>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.</li> </ul>	7			
<ul> <li>Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.</li> </ul>	√			
Oil interceptor shall be provided at work shop.	√			
<ul> <li>Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.</li> </ul>	1			
<ul> <li>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.</li> </ul>	1			
<ul> <li>All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.</li> </ul>	1			
<ul> <li>Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.</li> </ul>				
<ul> <li>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.</li> </ul>	1			
<ul> <li>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.</li> </ul>	V			
<ul> <li>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.</li> </ul>	1			
<ul> <li>A waste collection vessel shall be deployed to remove floating debris.</li> </ul>	V			



Environmental Checklist		lemen Stage		Remark
	Yes	No	N/A	
Landscape and Visual				
<ul> <li>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. Straig edged slopes should be avoided.</li> </ul>	ht √			
<ul> <li>The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.</li> </ul>	V			
<ul> <li>Surface of outer slopes of the fill bank shall preferably be hydroseeded or covered with geo-textile matting of appropriate colour (e.g. dark greet brown) once completed.</li> </ul>	1/ 1			
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.	m √			
Other Environmental Factors	. Signing	2	· · · ·	
<ul> <li>C&amp;D waste sorted from mixed C&amp;D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT land for disposal.</li> </ul>	fill 🗸		-	
<ul> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	7			
<ul> <li>Any unused materials or those with remaining functional capacity should be recycled and stored property.</li> </ul>	1			
All generators, fuel and oil storage are within bundle areas.	V			
Oil leakage from machinery, vehicle and plant is prevented.	V			
The Environmental Permit should be displaced conspicuously on site.	1			
<ul> <li>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 t nearby environment.</li> </ul>	ne √		:	
<ul> <li>To encourage collection of aluminium cans by individual collectors, separate labelled bins should be provided to segregate this waste from oth general refuse generated by the workforce.</li> </ul>	er √			

### Summary of the Weekly Site Inspection:

Item	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
1	Follow up action to item no.3 on 01/09/21, Oil stain were cleaned.		210908_001	No	
2.	Water was overflowed by the generator near vehicle-washing basin.	To clean the stagnant water property	210908_002	Yes	15/09/2021

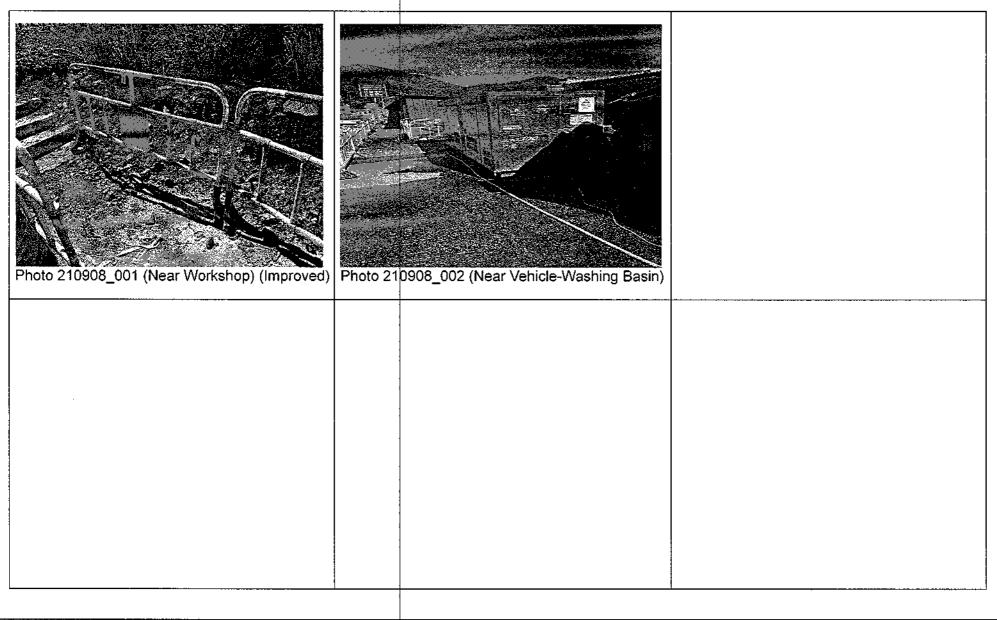
#### Remark

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	Name	Title	Signature	Date
Checked by	June Lau	ET Representative	Anne	08 September 2021
	•	•		

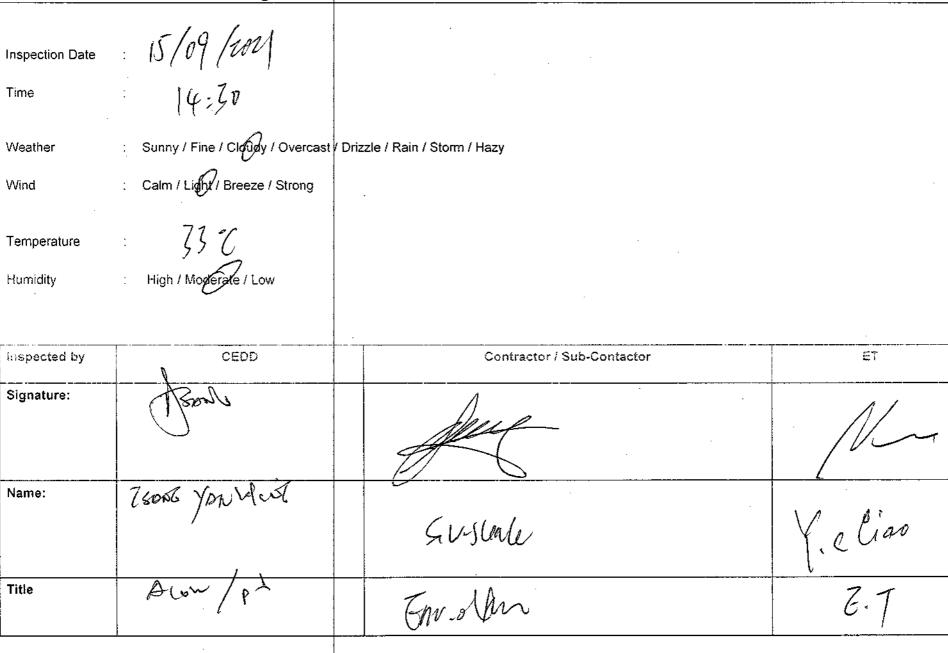


<u>Photo</u>



#### CEDD Contract No.: CV/2015/07

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



#### CEDD Contract No.: CV/2015/07

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

		ementat	ion Remark
Environmental Checklist		Stages*	
		No N	
Fugitive Dust Emission	and a second		
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.	1		
Water sprays shall be provided and used to dampen materials.	$\checkmark$		
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	1		
All vehicles shall be restrict to a maximum speed of 10 km per hour.	$\checkmark$		
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.	1		
The designated site main haul road shall be paved or regular watering.	$\checkmark$		
Frequent watering of work site shall be at least three times per day.	$\checkmark$		
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.	$\checkmark$		
All plant and equipment should be well maintained e.g. without black smoke emission.	$\checkmark$		
Open burning should be prohibited.	$\checkmark$		
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.	4		
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.	1		
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.	1		
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).	4		
Noise Impact	<b>5</b> 8760		
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	1		
Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	1		
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	1		
Air compressors and hand held breakers should have noise labels.	1		
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	1		
Noisy equipment and mobile plant shall always be site away from NSRs.	1		



Environmental Checklist		Implementation Stages*			
	Yes	No	N/A	1	
Water Quality			-	AT THE REPORT OF A	
<ul> <li>Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.</li> </ul>	1				
<ul> <li>The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.</li> </ul>	1	<b> </b>			
<ul> <li>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.</li> </ul>	V				
<ul> <li>Manhoies should be covered and sealed.</li> </ul>					
<ul> <li>Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.</li> </ul>		V		Item 2	
<ul> <li>A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.</li> </ul>	√				
<ul> <li>A buffer distance of at least 20m shall be maintained between the boundary of the C&amp;DMSF and the seafront.</li> </ul>	1				
The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	1				
<ul> <li>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.</li> </ul>	1			-	
<ul> <li>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.</li> </ul>	1	:			
<ul> <li>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.</li> </ul>	1				
<ul> <li>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.</li> </ul>	7				
<ul> <li>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.</li> </ul>	4				
<ul> <li>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.</li> </ul>	1				
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.	V				
<ul> <li>Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.</li> </ul>	√				
<ul> <li>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.</li> </ul>	V				
<ul> <li>All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.</li> </ul>	V				
<ul> <li>Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.</li> </ul>	1				
<ul> <li>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.</li> </ul>	√				
<ul> <li>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.</li> </ul>	, ∧				
<ul> <li>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.</li> </ul>					
<ul> <li>A waste collection vessel shall be deployed to remove floating debris.</li> </ul>	$\neg$				



	東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.
1 and	ETS-TESTCONSULT LTD.

Environmental Checklist		ement Stages		Remark
	Yes	No	N/A	
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.	Ą			
<ul> <li>The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.</li> </ul>	1			
<ul> <li>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.</li> </ul>	4			
<ul> <li>The barging point and the C&amp;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.</li> </ul>	4			
Other Environmental Factors				
<ul> <li>C&amp;D waste sorted from mixed C&amp;D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.</li> </ul>	7			
<ul> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	1			
<ul> <li>Any unused materials or those with remaining functional capacity should be recycled and stored properly.</li> </ul>	4			
All generators, fuel and oil storage are within bundle areas.	1			
Oil leakage from machinery, vehicle and plant is prevented.	1			
The Environmental Permit should be displaced conspicuously on site.	7			
<ul> <li>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.</li> </ul>	1			
<ul> <li>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.</li> </ul>	V			

### Summary of the Weekly Site Inspection:

Item	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
1	Follow up action to item no.2 on 08/09/21, stagnant water were cleaned.		210915_001	No	
2.	Water barriers were damaged near A3 pier.	To maintain water barriers properly	210915_002	Yes	22/09/2021

Remark

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	Name	Title	Signature	Date
			A	
Checked by	June Lau	ET Representative		15 September 2021
			Thur	



<u>Photo</u> Photo 210915\_001 (Near Vehicle-Washing Basin) Photo 210915\_002 (Near A3 pier) (Improved)

#### CEDD Contract No.: CV/2015/07

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



- - - - -

: 21/09/2000	1 2021	
(0:30	· · · · ·	
: Sunny (Fine) Cloudy / Overcast	/ Drizzle / Rain / Storm / Hazy	
: Calm/Light/Breeze / Strong		
: 32°C		
: High (Moderate) Low		
CEDD	Contractor / Sub-Contactor	ET
M	Act	A
		-
112- 1201K	G.V.Slelly	Chan Mon Kay
Azon /PS	Tweet	E.1.
	: (0:30 : Sunny / Fine Cloudy / Overcast : Calm / Light) / Breeze / Strong : 32°C : High (Moderate) Low CEDD CEDD ML - MOK	Sunny / Fine Cloudy / Overcast / Drizzle / Rain / Storm / Hazy Calm (Light) / Breeze / Strong 32°C High (Moderate) Low CEDD Contractor / Sub-Contactor Mul August A

	Implementation			Remark
Environmental Checklist	Stages*			
	Yes No N/A			
Fugitive Dust Emission				
Dust control / mitigation measures shall be provided to prevent dust nuisande.	V			
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.	V			
Water sprays shall be provided and used to dampen materials.	1			
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	1			
All vehicles shall be restrict to a maximum speed of 10 km per hour.	1	1		
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.	1			
The designated site main haul road shall be paved or regular watering.	$\checkmark$			
Frequent watering of work site shall be at least three times per day.	1			
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	1			
Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	$\checkmark$			
All plant and equipment should be well maintained e.g. without black smoke emission.				
Open burning should be prohibited.	√	<u> </u>		· · · · · · · · · · · · · · · · · · ·
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.	1			
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.	1			
When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	1			
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	1	-		
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.	1			
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).	V			
loise Impact	NT 33			
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.	1			
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	1			
Air compressors and hand held breakers should have noise labels.	$\checkmark$			
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	1			
Noisy equipment and mobile plant shall always be site away from NSRs.	1		1.	

Environmental Checklist	nvironmental Checklist Stages* Yes No N/A			
Water Quality				
<ul> <li>Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.</li> </ul>	$\checkmark$			
<ul> <li>The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.</li> </ul>				
<ul> <li>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.</li> </ul>	4			
<ul> <li>Manholes should be covered and sealed.</li> </ul>	$\checkmark$			
<ul> <li>Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.</li> </ul>		V		Item 3
<ul> <li>A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpilling area and the sea front.</li> </ul>	1	·		
<ul> <li>A buffer distance of at least 20m shall be maintained between the boundary of the C&amp;DMSF and the seafront.</li> </ul>	1			
<ul> <li>The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.</li> </ul>	1			
<ul> <li>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.</li> </ul>	7			
<ul> <li>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.</li> </ul>	1			
<ul> <li>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.</li> </ul>	7			
<ul> <li>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.</li> </ul>	7			
<ul> <li>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.</li> </ul>	7			
<ul> <li>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.</li> </ul>	1	5		
Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	$\checkmark$			· · · · · · · · · · · · · · · · · · ·
Oil interceptor shall be provided at work shop.	$\checkmark$			
<ul> <li>Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.</li> </ul>	1			
<ul> <li>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.</li> </ul>	7			
<ul> <li>All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.</li> </ul>	1			·
<ul> <li>Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.</li> </ul>	√.			
<ul> <li>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.</li> </ul>	1			
<ul> <li>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.</li> </ul>				
<ul> <li>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.</li> </ul>	1			
<ul> <li>A waste collection vessel shall be deployed to remove floating debris.</li> </ul>	1			



Environmental Checklist		ement Stages		Remark
	Yes	No	N/A	
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.	1			
<ul> <li>The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.</li> </ul>	V			
<ul> <li>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.</li> </ul>	7		·	
<ul> <li>The barging point and the C&amp;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.</li> </ul>	V			
Other Environmental Factors		n ar sea Lee Lee annais	ilionador. Descrivitis	ing da 1999 - The Constant of States and
<ul> <li>C&amp;D waste sorted from mixed C&amp;D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal.</li> </ul>	1			
<ul> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>	1			
<ul> <li>Any unused materials or those with remaining functional capacity should be recycled and stored properly.</li> </ul>	1			
All generators, fuel and oil storage are within bundle areas.		1		Item 2
Oil leakage from machinery, vehicle and plant is prevented.	1			
The Environmental Permit should be displaced conspicuously on site.	1			· ····································
<ul> <li>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.</li> </ul>	1			
<ul> <li>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.</li> </ul>	V			

### Summary of the Weekly Site Inspection:

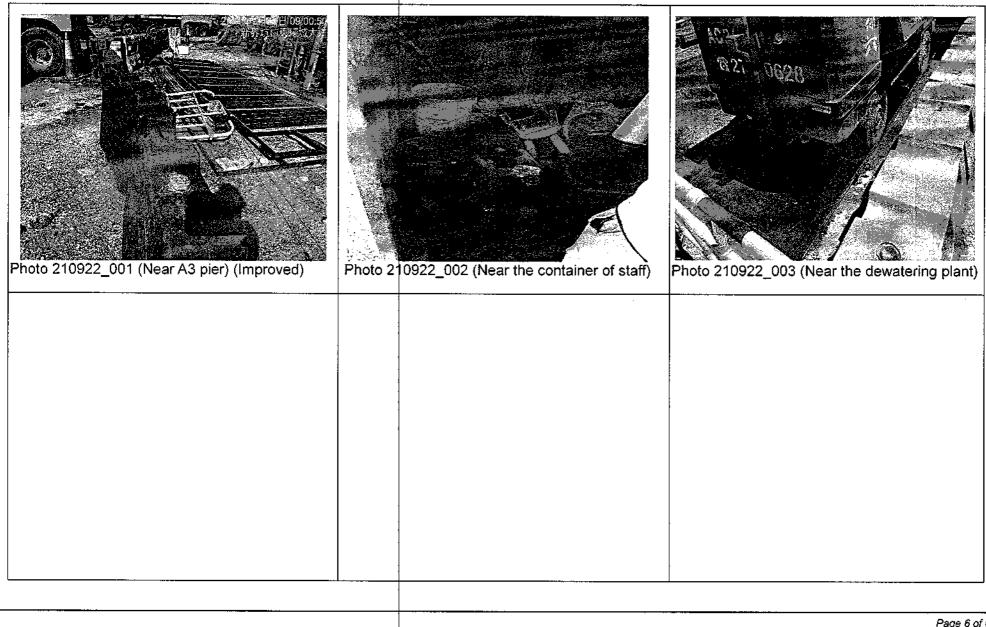
item	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
1	Follow up action to item no.2 on 15/09/21, water barriers were maintained.		210921_001	No	
2.	Chemical materials were discovered in the container of staff near wet mud platform.	To remove the chemical material properly	210921_002	Yes	28/09/2021
3.	Stagnant water was observed on the drip tray near dewatering plant.	To clean the stagnant water properly	210921_003	Yes	28/09/2021

#### Remark

	Name	Title	Signature	Date
Checked by	June Lau	ET Representative	Ame	21 September 2021



<u>Photo</u>



#### CEDD Contract No.: CV/2015/07

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



Inspection Date Time	2919121		
Weather Wind	: Sunny / <b>∉ine</b> / Cloudy / Overcast : Calm / Light / Breeze / Strong	/ Drizzle / Rain / Storm / Hazy	
Temperature Humidity	: 33°( High / Moderate / www.		
lospected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	per	Am	Nak
Name:			
	H.L. Mook	Givsun	Mak Sei Wai
Title	AZON /PS	Eneth	EJ

#### CEDD Contract No.: CV/2015/07

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

			tation	Remark
Environmental Checklist		Stages	s* N/A	
<sup>5</sup> ugitive Dust Emission		-		
Dust control / mitigation measures shall be provided to prevent dust nuisance.	1	`×```	0.557	
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.	4			
Water sprays shall be provided and used to dampen materials.	V			
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	V			
All vehicles shall be restrict to a maximum speed of 10 km per hour.	V			
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.	1			
The designated site main haul road shall be paved or regular watering.	1			
Frequent watering of work site shall be at least three times per day.	$\checkmark$			
Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.	$\checkmark$			
Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.	$\checkmark$			
All plant and equipment should be well maintained e.g. without black smoke emission.	$\checkmark$			
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.	1			
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.	4			
When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	1			
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	1			
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).	1			
Noise Impact	899,999,999	0.000		
The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	V			
Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	1			
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	1			
Air compressors and hand held breakers should have noise labels.	$\checkmark$		1	
Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	1			·
Noisy equipment and mobile plant shall always be site away from NSRs.	1			

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					Remark
	Environmental Checklist		Stage		4
		Tes		N/A	
Water Q					
	nage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	1			
	permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	1			
bun	porary intercepting drains should be used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth ds and sand bay barriers shall be used to assist the diversion of polluted stormwater to the intercepting channels.	4			
<ul> <li>Man</li> </ul>	holes should be covered and sealed.	$\checkmark$			
- Unn	ecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	1			
• A bi	offer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	$\checkmark$			
<ul> <li>A but</li> </ul>	iffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	1			
• The	stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	V			
	temporary slope surfaces, especially those facing to the north of the site shall be covered with impermeable sheet or sprayed with ar or protected by other method approved by CEDD.	V			
	I slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation ting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	V			
silt a	ting and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited 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 functioning properly at all times.	. 1			
<ul> <li>A w disc</li> </ul>	heel washing bay shall be provided at the site exit and wash-water shall have sand and silt settled out or removed before being harged into storm drains.	V			
	section of construction road between wheel washing bay and the public road shall be paved with concrete, bituminous materials or Icores to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	1			
	rage from toilets shall be discharged in to a foul sewer, or chemical toilets shall be provided. The chemical toilets (if use) shall be rided by a licensed contractor, who will be responsible for disposal and maintenance of these facilities.	4			
• Oil i	ntercept in addition of sand / silt removal facilities shall be provided at the car parking areas.	1			
Oil i	nterceptor shall be provided at work shop.	1			
• Tipp	ing halls enclosed with top and 3-side to prevent spillage of material into marine water.	1	-		
	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 are the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	7			
	ressels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during sport.	4			
• Ade	quate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.	1			
	ges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be perly collected and treated before disposal.	*			
vicir	work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the oity of the barging facilities.	4			
and shai suct	ting silt curtain at the outward side of the basin near the Barging Handling Area (BHA) throughout the period shall be repair, maintain 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 I 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 that it can also serve the function of refuse containment boom to confine floating refuse.	1			
• Awa	aste collection vessel shall be deployed to remove floating debris.	$\checkmark$			



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

Environmental Checklist				Remark
	Yes	No	N/A	
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			
<ul> <li>The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD.</li> </ul>	1			-
<ul> <li>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.</li> </ul>	1			
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.	1			
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.	1			
Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.	1			
<ul> <li>Any unused materials or those with remaining functional capacity should be recycled and stored properly.</li> </ul>	$\checkmark$			
All generators, fuel and oil storage are within bundle areas.	1	-		
Oil leakage from machinery, vehicle and plant is prevented.	1	1		
The Environmental Permit should be displaced conspicuously on site.	1	1	1	
<ul> <li>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.</li> </ul>	1			
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.	4	:		

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.



### Summary of the Weekly Site Inspection:

ltem	Details of defective works or observations	Proposed Follow Up Action	Photo Ref.	Further Action Required (Yes/No)	Follow up Date
1	Follow up action to item no.2 on 21/09/21, chemical material were removed.	·	210929_001	Νο	
2.	Follow up action to item no.3 on 21/09/21, stagnant water were cleaned.		210929_002	No	<u></u> -1

Remark

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	Name	Title	Signature	Date
Checked by	June Lau	ET Representative	June	29 September 2021

CEDD Contract No.: CV/2015/07

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



Photo Photo 210929\_001 (Near the container of staff) Photo 210929\_002 (Near the dewatering plant) (Improved) (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

	<b>*</b> • •		Implementation Status					
	Environmental Protection Measures	Location	Implemented	Partially implemented	Not implemented	Not Applicable		
Ai	r 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						
•	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	$\checkmark$					
•	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						
-	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	$\checkmark$					
•	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						
-	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						
-	Air compressors and hand held breakers should have noise labels.	All areas						
•	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	$\checkmark$					
-	Noisy equipment and mobile plant shall always be site away from NSRs.	All areas						



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

			Implementation Status				
	Environmental Protection Measures	Location	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	$\checkmark$				
•	A waste collection vessel shall be deployed to remove floating debris.	Along the seafront	$\checkmark$				



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

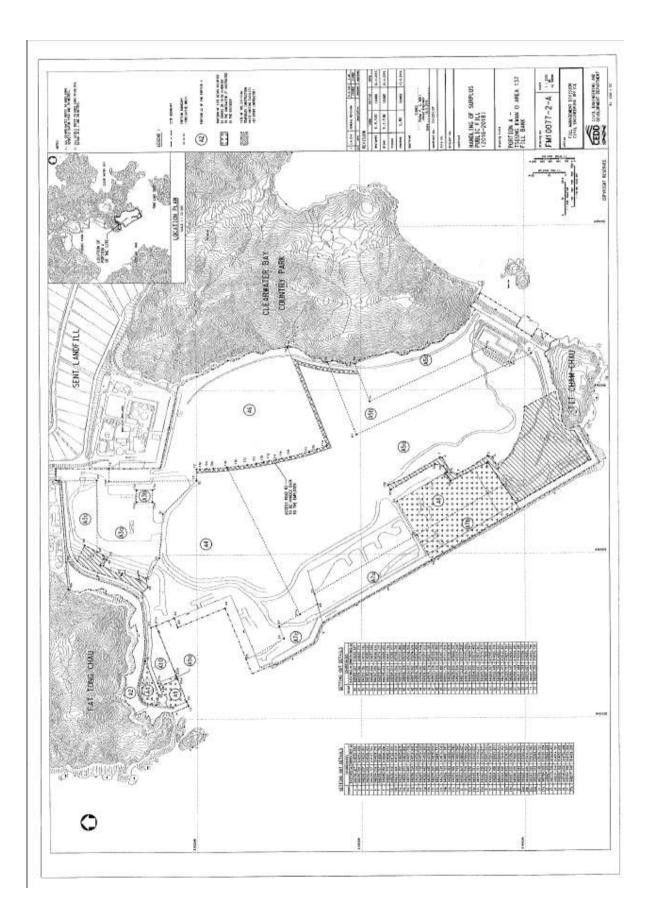
		Implementation Status					
Environmental Protection Measures	Location	Implemented	Partially implemented	Not implemented	Not Applicable		
Landscape and Visual							
• The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding 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	$\checkmark$					
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						
Oil leakage from machinery, vehicle and plant is prevented.	All areas		$\checkmark$				
The Environmental Permit should be displaced conspicuously on site.	All areas	$\checkmark$					
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	$\checkmark$					



Appendix J

Site General Layout plan







Appendix K

Monthly Summary Waste Flow Table

		Actual Quantitie	es of Inert C&I	O Materials Gene	erated Monthly		Actual Quantities of C&D Wastes Generated Monthly					
Month	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse	
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	
Jan	0	0	0	0	0	0	0	0	0	0	78.83	
Feb	0	0	0	0	0	0	0	0	0	0	45.73	
Mar	0	0	0	0	0	0	0	0	0	0	96.48	
Apr	0	0	0	0	0	0	0	0	0	0	152.63	
May	0	0	0	0	0	0	0	0	0	0	127.55	
Jun	0	0	0	0	0	0	0	0	0	3.4	116.35	
Sub-total	0	0	0	0	0	0	0	0	0	3.4	617.57	
Jul	0	0	0	0	0	0	0	0	0	0	72.7	
Aug	0	0	0	0	0	0	0	0	0	0	158.67	
Sep	0	0	0	0	0	0	0	0	0	0	80.37	
Oct												
Nov												
Dec												
Total												

## Monthly Summary Waste Flow Table for 2021

Notes: (1) The performance targets are given in PS Clause 1.110(14)

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the site.

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



Appendix L

Monitoring Schedule for the Coming Month

Remark:



#### 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-hrTSP, 24-hr TSP and 24-hr RSP), Weekly Site Inspection (Weekly SI) and Impact Noise Monitoring

October 2021

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26-Sep	27-			30-Sep		2-Oct
	24 hr TSP 24-hr RSP		1-hr TSP x 3 Weekly SI (pm)			
	WQM Mid-flood (08:00-10:00) Mid-ebb (14:30-16:30)			WQM Mid-ebb (09:30-11:30) Mid-flood (15:00-17:00)		WQM Mid-ebb (08:30-10:30) Mid-flood (16:00-18:00)
3-Oct		Oct 5-Oc	t 6-Oct	7-Oct	8-Oct	
24 hr TSP 24-hr RSP	1-hr TSP x 1 NM		1-hr TSP x 1 Weekly SI (pm)			
	WQM Mid-ebb (09:30-11:30) Mid-flood (15:30-17:30)		WQM Mid-ebb (10:30-12:30) Mid-flood (17:00-19:00)			
10-Oct	11	Oct 12-Oc		14-Oct	15-Oct	: 16-Oct
	1-hr TSP x 1 24 hr TSP 24-hr RSP		1-hr TSP x 3 Weekly SI (pm)		24 hr TSP 24-hr RSP	
	WQM Mid-flood (09:00-11:00) Mid-ebb (15:00-17:00)				WQM Mid-ebb (08:30-10:30) Mid-flood (14:30-16:30)	
17-Oct		Oct 19-Oc	t 20-Oct	21-Oct		23-Oct
	1-hr TSP x 2		1-hr TSP x 1 Weekly SI (pm)	24 hr TSP 24-hr RSP	1-hr TSP x 2	
	WQM Mid-ebb (10:00-12:00) Mid-flood (16:00-18:00)		WQM Mid-ebb (11:00-13:00) Mid-flood (16:30-18:30)		WQM Mid-flood (08:45-10:45) Mid-ebb (13:30-15:30)	
24-Oct	25	Oct 26-Oc	t 27-Oct	28-Oct	29-Oct	30-Oct
	1-hr TSP x 1 WQM		24 hr TSP 24-hr RSP Weekly SI (pm)		1-hr TSP x 2	WQM
	Mid-flood (08:00-10:00) Mid-ebb (13:30-15:30)					Mid-ebb (08:00-10:00) Mid-flood (14:30-16:30)
31-Oct	1-	Nov 2-Nov	3-Nov	4-Nov	5-Nov	6-Nov
	1-hr TSP x 1	24 hr TSP 24-hr RSP	1-hr TSP x 2 Weekly SI (pm)		1-hr TSP x 1	

1. Due to the adverse weather condition (The Tropical Cyclone Signal No.3), the water quality monitoring scheduled on 08/10/2021 was cancelled.

2. Due to the tidal period is not within the working hour, water monitoring (Mid-ebb&flood) in 13 & 27 October 2021 have been cancelled.

3. Due to the severe flooding of site, air quality monitoring scheduled on 08/10/2021 was cancelled.

4. Due to the adverse weather condition (The Tropical Cyclone Signal No.8), the air quality monitoring scheduled on 09/10/2021 was cancelled.



Appendix M

**Reporting Month Monitoring Schedule** 



#### 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-hrTSP, 24-hr TSP and 24-hr RSP), Weekly Site Inspection (Weekly SI) and Impact Noise Monitoring

### September 2021

	Sunday	Monday		Tuesday		Wednesday		Thursday		Friday		Saturday	
	29-Aug		30-Aug	31	-Aug		1-Sep		2-Sep		3-Sep		4-Sep
		1-hr TSP x 2				1-hr TSP x 1 Weekly SI (pm)				24 hr TSP 24-hr RSP			
1				WQM Mid-ebb (08:30-10:30) Mid-flood (15:00-17:00)				WQM Mid-ebb (08:45-10:45) Mid-flood (15:00-17:00)				WQM Mid-ebb (09:30-11:30) Mid-flood (16:00-18:00)	
	5-Sep		6-Sep	7.	-Sep		8-Sep		9-Sep		10-Sep		11-Sep
		1-hr TSP x 2 NM				1-hr TSP x 1 Weekly SI (pm)		24 hr TSP 24-hr RSP		1-hr TSP x 2			
				WQM Mid-ebb (11:00-13:00) Mid-flood (17:00-19:00)				WQM Mid-flood (08:00-10:00) Mid-ebb (14:00-16:00)				WQM Mid-flood (08:30-10:30) Mid-ebb (14:30-16:30)	
	12-Sep		13-Sep		-Sep	1	15-Sep	(*************	16-Sep		17-Sep	(********	18-Sep
		1-hr TSP x 1 WQM Mid-flood (10:30-12:30) Mid-ebb (16:30-18:30)				24 hr TSP 24-hr RSP Weekly SI (pm) WQM Mid-ebb (09:00-11:00) Mid-flood (14:30-16:30)				1-hr TSP x 2 WQM Mid-ebb (09:45-11:45) Mid-flood (15:30-17:30)			
	19-Sep		20-Sep	21 <sup>.</sup>	-Sep	2	22-Sep		23-Sep		24-Sep		25-Sep
		1-hr TSP x 1 WQM Mid-ebb (10:00-12:00)		24 hr TSP 24-hr RSP Weekly SI (am)				WQM Mid-flood (08:30-10:30)		1-hr TSP x 3		WQM Mid-flood (08:00-10:00)	
		Mid-flood						Mid-ebb				Mid-ebb	
	00.0	(16:00-18:00)	27-Sep		-Sep			(13:30-15:30)	30-Sep		1.0-4	(14:00-16:00)	2 0-4
		24 hr TSP 24-hr RSP	27-Sep	28		1-hr TSP x 3 Weekly SI (pm)	29-Sep		<u>30-Sep</u>		1-Oct		2-Oct
		WQM Mid-flood (08:00-10:00) Mid-ebb (14:30-16:30)						WQM Mid-ebb (09:30-11:30) Mid-flood (15:00-17:00)				WQM Mid-ebb (08:30-10:30) Mid-flood (16:00-18:00)	



Appendix N

**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.	<ul> <li>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.</li> <li>Follow up action to complaint by ET and contractor: Contractor under the valid dumping permit to dump fill materials and the site works shall be complied with the relevant environmental protection and pollution control ordinances.</li> <li>ET reminded contractor that the dump fill material under the valid dumping permit should be checked and confirmed. In addition, record should be kept for ET reference.</li> <li>Details of Action(s) Taken by the Contactor:</li> <li>The contractor started to dump fill materials from 19 May 2017 after receiving the valid dumping permit.</li> <li>The contractor dump fill materials were followed by the valid dumping permit and the permit was kept apply every three month</li> <li>The contractor kept the permit for ET reference.</li> </ul>	Closed
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.	<ul> <li>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.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Site vehicle for transporting materials are covered properly by using clean tarpaulin sheets;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> <li>Silt curtains are provided at the outward side of the basin near the Fill Bank;</li> <li>Drainage systems are adequate and maintained to prevent flooding and overflow;</li> <li>Catchpits, sand and silt removal facilities and intercepting channels are maintained and functioning properly.</li> </ul> </li> </ul>	Closed



003	Tseung Kwan O 137 Fill Bank	09 April 2018	One complaint received on 09 April 2018, which was forwarded to ET on 18 April 2018, from public against the rocks and debris deposited on the road surface along Wan Po Road near TKO137 Fill Bank. The complainant complained that waste generated caused an environmental nuisance.	<ul> <li>Refer to the ET site investigation on 20 April 2018, the condition of Wan Po Road near TKO137 Fill Bank was found satisfactory. (Photos on ET follow-up investigation at TKO137 Fill Bank on 20 April 2018).</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular cleaning on Wan Po Road and the access road at the site exit by haul road cleaning team to remove mud and gravel is arranged eight times per month;</li> <li>Regular water spraying by water lorries is provided for road cleaning at Wan Po Road;</li> <li>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;</li> <li>Site vehicles for transporting materials are covered properly by using clean tarpaulin sheets;</li> <li>Regular cleaning at the site haul road is provided.</li> </ul> </li> </ul>	Closed
004	Tseung Kwan O 137 Fill Bank	13 January 2019	One complaint received on 13 January 2019, which was forwarded to ET on 16 January 2019, from EPD (NCF-N08/RE/00001348-19) against 將軍澳 137 堆填區 內,缸車池污水,不經處理, 直接排到河道,河道係直接流 出大海,極度嚴重影響周遭環 境生態,污染程度極為嚴重, 促請政府有關部門嚴正跟進!	<ul> <li>After received the details of the complaint from the Contractor on 16 January 2019, ET have performed a site investigation on 21 January 2019 to investigate this event. During the site inspection, no muddy water was observed discharged from the Fill Bank to nearby environment.</li> <li>Besides, refer to the marine water monitoring results during that period, no exceedance was recorded on Turbidity and Suspended Solids. This reflects that this occurrence did not affect the condition of marine water near the TKO137Fill Bank.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Drainage system were adequate and well maintained to prevent flooding and overflow;</li> <li>Sand and silt removal facilities, e.g. silting screen, were provided before the discharge point;</li> <li>Temporary intercepting drains were used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers were used to assist the diversion of polluted stormwater to the intercepting channels were maintained, and the deposited silt and grit were 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;</li> </ul></li></ul>	Closed



005	Tseung Kwan O 137 Fill Bank	14 May 2019	One complaint received on 14 May 2019, which was forwarded to ET on 14 May 2019, from public against 投 訴將軍澳第 137 區填料庫, 有車出入沒有灑水傳出大量沙 塵,破壞環境,帶出大量沙泥 到馬路,造成污染及嚴重滋 擾,要求跟進。要求改善, 停止滋擾	<ul> <li>Refer to the ET site investigation on 15 May 2019, the condition of Wan Po Road near TKO137 Fill Bank was found satisfactory. (Photos on ET follow-up investigation at TKO137 Fill Bank on 15 May 2019).</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular cleaning on Wan Po Road and the access road at the site exit by haul road cleaning team to remove mud and gravel is arranged eight times per month;</li> <li>Regular water spraying by water lorries is provided for road cleaning at Wan Po Road;</li> <li>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;</li> <li>Site vehicles for transporting materials are covered properly by using clean tarpaulin sheets;</li> <li>Regular cleaning at the site haul road is provided.</li> </ul> </li> </ul>	Closed
006	Tseung Kwan O 137 Fill Bank	11 June 2019	One complaint received on 04 June 2019, which was forwarded to ET on 11 June 2019, from public regarding the muddy water problem at 137 fill bank.	<ul> <li>After received the details of the complaint from the Contractor on 11 June 2019, ET have performed a site investigation on 14 June 2019 to investigate this event. During the site inspection, no muddy water was observed discharged from the Fill Bank to nearby environment.</li> <li>Besides, refer to the marine water monitoring results during that period, no exceedance was recorded on Turbidity and Suspended Solids during the concerning period. This reflects that this occurrence did not affect the condition of marine water near the TKO137Fill Bank.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Drainage system were adequate and well maintained to prevent flooding and overflow;</li> <li>Sand and silt removal facilities, e.g. silting screen, were provided before the discharge point;</li> <li>Temporary intercepting drains were used at the stockpiling area to divert polluted stormwater to the intercepting channels. Earth bunds and sand bay barriers were used to assist the diversion of polluted stormwater to the intercepting channels, each rainstorm to ensure that these facilities are functioning properly at all times;</li> </ul></li></ul>	Closed



007	Tseung Kwan O 137 Fill Bank	27 June 2019	One complaint received on 27 June 2019, which was forwarded to ET on 28 June 2019, from public against dust emission at the fill bank. The complainant complained that the dust caused an environmental nuisance.	<ul> <li>Refer to the ET site investigation on 02 July 2019, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 24 to 28 June 2019.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed
008	Tseung Kwan O 137 Fill Bank	17 July 2019	One complaint received on 17 July 2019, which was forwarded to ET on 17 July 2019, from public against 投 訴將軍澳堆填 137 區及收泥 頭區,於運作時產生大量沙 塵,嚴重污染周圍環境及影響 行人,情況已持續發生了幾日	<ul> <li>Refer to the ET site investigation on 19 July 2019, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 2 to 17 July 2019.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed



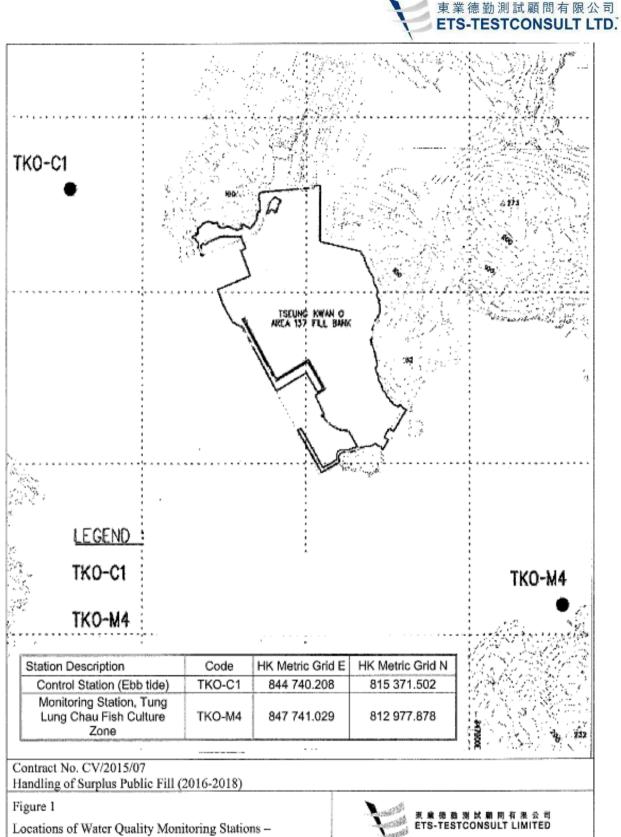
009	Tseung Kwan O 137 Fill Bank	26 July 2019	One complaint received on 26 July 2019, which was forwarded to ET on 26 July 2019, from public against 投 訴將軍澳第 137 區填料庫, 大風吹起引致塵埃飛揚,更吹 到 TVB,造成嚴重滋擾,要 求跟進及回覆。	<ul> <li>Refer to the ET site investigation on 29 July 2019, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 23 to 29 July 2019.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed
010	Tseung Kwan O 137 Fill Bank	09 September 2019	One complaint received on 09 September 2019, which was forwarded to ET on 09 September 2019, from public against 投訴將軍澳第 137 區 填料庫,大風吹起引致塵埃飛 揚,更吹到日出康城,造成嚴 重滋擾,要求跟進及回覆。	<ul> <li>Refer to the ET site investigation on 11 September 2019, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 1 to 13 September 2019.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed



011	Tseung Kwan O 137 Fill Bank	10 September 2019	One complaint received on 10 September 2019, which was forwarded to ET on 10 September 2019, from public against 投訴將軍澳 137 區經常 於處理建築廢料時沒有灑水,導 致沙塵滾滾,嚴重污染環境,要 求環保署跟進及回覆。	<ul> <li>Refer to the ET site investigation on 11 September 2019, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 1 to 13 September 2019.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed
012	Tseung Kwan O 137 Fill Bank	24 August 2021	One complaint received on 24 August 2021, which was forwarded to ET on 30 August 2021, from public against 投訴 將軍澳第 137 區公眾填料庫, 灑水不足,泥頭車引起大量塵 埃。	<ul> <li>Refer to the ET site investigation on 30 August 2021, no defective observation related to dust emission was recorded during the investigation.</li> <li>No impact air quality monitoring result of 1-hr TSP and 24-hr TSP was exceeded Action and Limit Level at all monitoring stations from 20 August 2021 to 30 August 2021.</li> <li>Details of Action(s) Taken by the Contactor: <ul> <li>Repairing work on water truck was conducted.</li> <li>Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank;</li> <li>Mist spraying systems at the site entrance are operated properly;</li> <li>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;</li> <li>All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet;</li> <li>Truck speed within the site is limited within 10 km/h;</li> <li>Regular cleaning at the site haul road is provided to minimize the fugitive dust emission;</li> </ul> </li> </ul>	Closed



Figures



Tseung Kwan O Area 137 Fill Bank

