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China Harbour – Zhen Hua Joint Venture



TSEUNG KWAN O AREA 137 FILL BANK

MONTHLY EM&A REPORT NO.26

(JUNE 2019)

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Environmental Officer

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16 July 2019

By Email and Fax No.: 2695 3944

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

Attention: Mr. C L Lau

Dear Mr. Lau,

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

Monthly EM&A Report (No. 26) for June 2019 for the Tseung Kwan O Area 137 Fill Bank

Reference is made to your submission of the draft Monthly EM&A Report for June 2019 for the TKO Area 137 Fill Bank received by email on 11 July 2019 and the subsequent revision on 16 July 2019.

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

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

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

Hear

F. C. Tsang Independent Environmental Checker

c.c. CEDD Attn: Ms. Lisa Yung CHZHJV Attn: Mr. S W Sung

Fax No.: 2714 0113 By Email

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東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

Monthly EM&A Report No.26

EXECUTIVE SUMMARY

This monthly Environmental Monitoring and Audit (EM&A) report No.26 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 June 2019.

Site Activities

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

- 1. Operation of the TKO137 Fill Bank.
- 2. Delivery of public fill to Taishan;
- 3. Operation of dewatering plant and expanded dewatering plant
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6. Crushing plant operation.
- 7. Carrying out defects of Removal of public fill at Portion A6
- 8. Provision of photoelectric height limits warning system at the existing height restriction gantries;

9. Re-construction of sampling platforms at TKOFB;

- 10. Break up of concrete pavement at Portion A5c at TKOFB;
- 11. Replacement of Y40 rebar with Y50 rebar at the existing wheel washing bay at TKOFB;
- 12. Enhancement Rainwater Collection and Recycling Facility at TKOFB
- 13. Construction of concrete pavement at expanded dewatering plant
- 14. Repair works for damaged at TKOFB caused by Super Typhoon
- 15. Installation of LED Display Board;
- 16. Installation of Temporary Accommodation to CEDD Site Staff at TKOFB;
- 17. Carry out preliminary sorting on Public Fill for 3RS project
- 18. Demolition and Construction of Recorder House A2 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: 15 Occasions at 2 designated locations
- Marine Water Quality Monitoring:12 Occasions at 2 designated locations
- Weekly-site inspection: 4 Occasions

Noise Monitoring

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

Air Monitoring

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

Marine Water Quality Monitoring

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

Weekly Site Inspections

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

Environmental Complaints, Notification of summons and successful prosecutions

Two complaints received on 4 & 27 June 2019, no notification of summons or successful prosecutions with respect to environmental issues was received in this reporting period.

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

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Future Key Issues

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

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

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1.0 INTRODUCTION

*China Harbour – Zhen Hua Joint 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/M) (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 June 2019.

2.0 PROJECT INFORMATION

2.1 Scope of the Project

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

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

2.2 Site Description

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



2.3 Work Programme

Details of work programme are shown in Appendix G.

2.4 **Project Organization and Management Structure**

The project organization chart is shown in Appendix A.

2.5 Contact Details of Key Personnel

The key personnel contact names and telephone numbers are shown in Table 2.1. Table 2.1 Contact Details of Key Personnel

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

3.0 WORK PROGRESS IN THIS REPORTING PERIOD

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

1. Operation of the TKO137 Fill Bank.

- 2. Delivery of public fill to Taishan;
- 3. Operation of dewatering plant and expanded dewatering plant
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6. Crushing plant operation.
- 7. Carrying out defects of Removal of public fill at Portion A6

8. Provision of photoelectric height limits warning system at the existing height restriction gantries;

- 9. Re-construction of sampling platforms at TKOFB;
- 10. Break up of concrete pavement at Portion A5c at TKOFB;
- 11. Replacement of Y40 rebar with Y50 rebar at the existing wheel washing bay at TKOFB;
- 12. Enhancement Rainwater Collection and Recycling Facility at TKOFB
- 13. Construction of concrete pavement at expanded dewatering plant
- 14. Repair works for damaged at TKOFB caused by Super Typhoon
- 15. Installation of LED Display Board;
- 16. Installation of Temporary Accommodation to CEDD Site Staff at TKOFB;
- 17. Carry out preliminary sorting on Public Fill for 3RS project
- 18. Demolition and Construction of Recorder House A2 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 parameters,	duration, frequency	y of air quality monitoring
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Parameter	Duration	Frequency
24-hr TSP	24 hr	Once every six days
1-hr TSP	1 hr	Three times per day every six days

4.4 **Monitoring Locations**

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

Table 4.3	Air quality	monitoring	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 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate was indicated on the flow rate chart.
- For TSP sampling, fiberglass filters (Whatman G653) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and • conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling month of 1 hour or 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).



- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recoded.
- Before weighting, all filters were equilibrated in a desiccator for 24 hour with the temperature of 25°C <u>+</u> 3°C and the relative humidity (RH) <50% <u>+</u>5%.
- All measurement procedures in Section 2.3 of the EM&A Manual were followed during the reporting period.

Maintenance & Calibration

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

Wind Data Monitoring

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

4.6 Action and Limit Levels

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

Monitoring Logation	24-hr TSP (μg/m³)		24-hr TSP (μ g/m ³) 1-hr TSP (μ g/m ³)			
	Action Level	Limit Level	Action Level	Limit Level		
TKO-A1	210	260	376	500		
TKO-A2a *	210	260	376	500		

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

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

4.7 Event-Action Plans

Please refer to Appendix F for details.

4.8 Results and Observation

4.8.1 1-hour and 24-hour TSP Monitoring results

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

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

4.8.2 Observation

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

5.0 Noise Monitoring

5.1 Monitoring Requirements

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

5.2 Monitoring Equipment

An Integrating Sound Level Meter was used for noise monitoring. It was a Type 1 sound level meter capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (Lx). It complies with International Electro Technical Commission Publications 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.

Table 5.2	Duration.	Frequencies	and Parameters	of Noise Monitoring
	Baracion,	1 10940110100	and i aramotoro	or rioloo monitoring

		<u> </u>	
Time	Duration/min	Parameters	Frequency
Day-time: 0700-1900 hrs on normal week day	30	L _{eq} , L ₁₀ , L ₉₀	Once per month

5.4 Monitoring Locations

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

Table 5.3Noise Monitoring Location

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

5.5 Monitoring Procedures and Calibration Details

Operation/Analysis Procedures

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



• Noise monitoring would be cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration

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

5.6 Action and Limit Levels

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

Table 5.4 Action and Limit Levels for noise monitoring

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

5.7 Event-Action Plans

Please refer to the Appendix F for details.

5.8 Results and Observation

5.8.1 Results

Only Day-time noise monitoring was carried out at monitoring station TKO-N1 in this reporting period. The detail of the noise monitoring is provided in Appendix C2. Graphical presentation of the monitoring result for the reporting period is shown in Appendix C3.

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

5.8.2 Observation

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

6.0 MARINE WATER QUALITY MONITORING

6.1 Monitoring Requirements

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

6.2 Monitoring Locations

For the Reclamation Project, there were 4 Designated Monitoring Stations and 2 Designated Control Stations specified in the EM&A Manual. Upon the completion of the monitoring programme under Stage 2 reclamation works, the ET started monitoring events at the impact station M4 and the control station C1 from 18 May 2004 onwards.

Figure 1 shows the location of the marine water quality monitoring stations. Table 6.1 describes the locations of the monitoring stations in the reporting period.

Table 6.1	Locations	of Marine	Water	Monitoring	Stations
-----------	-----------	-----------	-------	------------	----------

	<u>v</u>		
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



Contract No.: CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank ENA95168 Monthly EM&A Report No.26

According to Environmental Permit (Permit no.:EP-134/2002/M) 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	• Monitorina	Stations	(3RS project)
			mornioning	olulions	

Station Description	Code	HK Metric Grid E	HK Metric Grid N
Control Station (Ebb tide)	C1a	845647	814146
lana a (Manitaria a Otatian	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.

Table 6.3	Marine Water	Quality	Monitoring	Parameters
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In-situ measurement	Laboratory analysis
Depth (m)	Suspended solids (mg/L)
Temperature (°C)	
Dissolved Oxygen (mg/L and % saturation)	
Turbidity (NTU)	
Salinity (ppt)	

6.4 Monitoring Frequency

The monitoring frequency of the marine water monitoring is summarized in Table 6.4.

Table 6.4Monitoring frequency 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		3 (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 re-calibrated at 3 monthly intervals or sometimes longer throughout all stages of the water quality monitoring.

Dissolved Oxygen, Salinity and Temperature Measuring Equipment

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

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

A membrane electrode with automatic temperature compensation complete with a cable was installed. **Turbidity Measurement Instrument**

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

For Water Sampling and Sample Analysis

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

Water Sampler

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

Water Container

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

The summary of testing method of testing parameter as recommended by EIA or required by EPD, with the QA/QC results in accordance with the requirement of HOKLAS or international accredited scheme is shown in Table 6.5.

Table 6.5	Summary of testing procedures
-----------	-------------------------------

Laboratory Analysis	Detection Limit	
Total suspended solids	In house method based on APHA 19 th ed 2540D	1.0 mg/L

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<u>In-situ measurement</u>

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

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

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

			(
Parameter	Model	Date of Calibration	Due Date	Equipment No.
Coordinate of Monitoring stations	Garmin eTrex 10			ET/EW/005/09
Dissolved Oxygen (Saturation), Temperature, Salinity	YSI Dissolved Oxygen, Salinity & Temperature Meter, YSI 2030	03/06/19	02/09/19	ET/EW/008/006*
Turbidity	HACH Model 2100Q Turbid Meter	25/04/19	24/07/19	ET/0505/021*
Water Depth	Speedtech SM-5			ET/EW/002/08

Table 6 6	Details	of Marine	Water	Quality	Monitorina	Equipment	(In-site	measurement)
	Details	or manne	vvaler	Quanty	monitoring			measurement)

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.

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)	>6.74 mg/L (95%-ile of baseline data) or	>7.67 mg/L (99%-ile of baseline data) or
(Depth-	>120% of the upstream control station's	>130% of the upstream control station's
averaged)	SS at the same tide on the same day	SS at the same tide on the same day
Turbidity	>4.28 NTU (95%-ile of baseline data) or	>4.58 NTU (99%-ile of baseline data) or
(NTU) (Depth-	>120% of the upstream control station's	>130% of the upstream control station's
averaged)	turbidity at the same tide on the same	turbidity at the same tide on the same
	day	day

Table 6.7 Water Quality Action and Limit Levels

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



Table 6.8	Water Quality Action and Limit Levels (3R	S project)
Parameter	Action Level	Limit Level
DO (mg/L)	Surface & Middle	Surface & Middle
	<5.5 mg/L	<4.00 mg/L (1%-ile of baseline data)
	<u>Bottom</u>	<u>Bottom</u>
	<5.2 mg/L	<2.00 mg/L
SS (mg/L)	>4.9 mg/L or >120% of the upstream	>5.2 mg/L or >130% of the upstream
(Depth-	control station's SS at the same tide on	control station's SS at the same tide on
averaged)	the same day	the same day
Turbidity	>3.9NTU or >120% of the upstream	>4.2 NTU or >130% of the upstream
(NTU) (Depth-	control station's turbidity at the same	control station's turbidity at the same tide
averaged)	tide on the same day	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:

June 2019										
Sunday	Monday	Tuesday	Tuesday Wednesday Thursday		Friday	Saturday				
						1/6				
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										

 Table 6.9
 Time Schedule of Impact Marine Water Quality Monitoring

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

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

6.9 Marine Water Quality Monitoring Results

The impact water quality measurement results are detailed in Appendix D2. Appendix D3 presents the water quality monitoring data and graphical presentations of monitoring results. The summary of marine water quality exceedances is shown in Table 6.10.

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	
10-01	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	DO		Turbidity		S	S	Total		
Station	Level	Flood	Ebb	Flood	Ebb	Flood	Ebb	Flood	Ebb	
C10	Action	0	0	0	0	0	0	0	0	
Cia	Limit	0	0	0	0	0	0	0	0	
1440	Action	0	0	0	0	0	0	0	0	
IVH4	Limit	0	0	0	0	0	0	0	0	
1.45	Action	0	0	0	0	0	0	0	0	
OVI	Limit	0	0	0	0	0	0	0	0	

Table 6.11Summary 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, four weekly site inspections were conducted (05, 12, 19 and 24 June 2019). Table 7.1 presents the key findings of weekly ET site inspection in this reporting period.

Table 7 1	Koy Findings of Moskly FT Site Audits in this reporting period
	Nev Findings of Weekiv FT Sile Addits in this reporting benog

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
05 June 2019	Silting screen was found performance degradation near Area A5a(Previous Item)	Replace the silting screen properly	Silting screen was replaced	Closed
	Fill materials were found accumulated along the concrete pavement near the pier at Area A9 (New Item)	To clean up the fill materials properly.		Follow-up
12 June 2019	Fill materials were found accumulated along the concrete pavement near the pier at Area A9 (Previous Item)	To clean up the fill materials properly.	Fill materials were cleaned.	Closed
19 June 2019	No defective work or	observation was recorded du	ring the weekly ET site inspe	ction
24 June 2019	U channel was found accumulated mud near CP5 (New Item)	To clean the mud and replace the filter properly.		Follow-up

7.1.2 EPD's Site Inspection

EPD's site inspection was carried out at TKO137 Fill Blank on 4, 6 & 25 June 2019.

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.

Waste Type	Actual Amount	Disposal Locations
Public Fill ('000m ³)	0	TKO 137 Fill Bank
C&D Waste ('000kg)	525.18	SENT Landfill / Refuse Collection Point
Chemical Waste (kg/L)	0	Collected by licensed collector

 Table 7.2
 Actual amounts of Waste generated in this reporting period

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

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

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

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

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

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8.0 Status of Environmental Licensing and Permitting

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

Table 8.1 Summary of environmental licensing and permit status Description Permit No. Valid Period Section From То EP-Environmental 17/12/18 Site clearance Permit 134/2002/ Construction of a temporary storm water system М • Stockpiling of 6 million m3 of public fill Setting up two barging points for transporting the stockpiled public fill by barges Setting up a temporary barging point at the existing Explosive Off-loading Barging Point for the month of May 2004 to December 2004 for transporting the stockpiled public fill by barge Construction of operation of a construction and Demolition Material Sorting Facility (C&DMSF) Setting up a Construction and Demolition Material Crushing Facility at the TKO Basin Remove the temporary fill bank Marine EP/MD/19-03/04/19 30/06/19 Approval for dumping 3,000,000 tons • Dumping 115 (approximately equal to 1,666,667 cu.m. bulked Permit quantity) of Public Fill (Reclamation Materials) from Tseung Kwan O Area 137 Fill Bank and Tuen Mun Area 38 Fill Bank to designated dumping area at Guanghaiwan of Taishan Chemical 5919-839-19/04/17 Spent battery cell containing heavy metals and • Waste C4181-01 spent lubricating oil Producer 27/09/17 30/09/22 Effluent, Surface Run-off, and all other Effluent WT000291 Discharge 78-2017 wastewater discharges from screen and License sedimentation tank Billing 7027643 22/05/17 ---Account for Waste Disposal Notification 415682 12/04/17 ___ Pursuant to Section 3(1) of the Air Pollution Control (Construction Dust) Construction GW-27/05/19 31/10/19 ---

9.0 ENVIRONMENTAL NON-CONFORMANCE

RE0401-19

Noise Permit

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

Two complaints were 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

Two complaints received on 04 & 27 June 2019, which was forwarded to ET on 11 June 2019, from public regarding the muddy water problem at 137 fill bank; second one which was forwarded to ET on 27 June 2019, from public against dust emission at the fill bank. The complainant complained that the dust caused an environmental nuisance.

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

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

Complaints l	ogged	Summons	served	Successful prosecution received			
June 2019 Cumulative		June 2019	Cumulative	June 2019	Cumulative		
2	7	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.



Two complaints received on 04 & 27 June 2019, no prosecutions and notifications of summons were received in this reporting period.

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

Recommendations

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

Air Quality

- Ensure the frequency of water spraying on haul roads, unloading areas and stockpiles to be sufficient to suppress the dust sources;
- Provide proper maintenance for the powered mechanical equipment and barges to avoid emission of dark smoke;
- Provide water spraying onto the truckloads during inspection of fill material;
- Conduct road sweeping on all paved haul roads and public roads especially outside and near the site egress by the road sweeper. Undertake water spraying on stockpiling area by water bowser;
- Erect adequate speed limit signs to advise the truck drivers of the speed limit;
- Operate mist spraying systems and automatic water sprinklers in the Fill Bank;
- Implement the dust mitigation measures for the site activities;
- Designate proper haul roads to ensure effective water spraying; and
- Ensure all vehicles to be washed before leaving the site egress by provision, operation and maintenance of automatic wheel washing facilities.

Noise

Conduct noisy activities at a farther location from the NSRs.

Water Quality

- Maintain the drainage system, including the trapezoidal channels, permanent desilting chambers, regularly;
- Operate and maintain the silt curtains regularly;
- Operate the cleaning vessel within the TKO Basin regularly;
- Clean up the fill material on the concrete pavement at BHA frequently; and
- Remove the stagnant water or provide approved pesticides for the stagnant water in the permanent desilting chambers, if any.

Landscape and Visual

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

Chemical and Waste Management

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

12.0 FUTURE KEY ISSUES

12.1 Work Programme for the Coming Month

As informed by the Contractor, the activities to be conducted by them in the next month included:

- 1. Operation of the TKO137 Fill Bank.
- 2. Delivery of public fill to Taishan;
- 3. Operation of dewatering plant and expanded dewatering plant
- 4. Operation of bentonite pool.
- 5. Concrete block breaking work.
- 6. Crushing plant operation.
- 7. Removal of public fill at Portion A6
- 8. Construction of concrete pavement for Expanded Dewatering Plant
- 9. Provision of photoelectric height limits warning system at the existing height restriction gantries;
- 10. Re-construction of sampling platforms
- 11. Replacement of Y40 rebar with Y50 rebar at the existing wheel washing bay
- 12. Construction of concrete pavement at expanded dewatering plant
- 13. Repair works for damaged at TKOFB caused by Super Typhoon
- 14. Upgrading Works for Optical Fibre Cable System for CCTV at Tipping Halls of TKOFB;
- 15. Installation of Temporary Accommodation to CEDD Site Staff at TKOFB;
- 16. Demolition of Damaged Principle Site Office at TKOFB
- 17. Re-construction of CREO Room A at TKOFB
- 18. Demolition and Construction of Recorder House A2 at TKOFB;
- 19. Upgrade the Bituminous Access Road near Portion A10 of 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; and
- Dust generated from dump trucks traffic.

Mitigation measures to be required in the coming month:

Air Quality Impact

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

<u>Noise</u>

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

Water Quality Impact

- To maintain the drainage system in the Fill Bank;
- To ensure the cleanliness of oil interceptor bypass tanks and all the drainage channels;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To repair, inspect and maintain the silt curtains regularly;
- To provide covers for the drip trays to avoid stagnant water pond due to rainfall;



- To deploy a cleaning vessel to remove floating rubbish in the TKO Basin;
- To clean up the concrete paved area at Portion I every night to avoid fill materials from being washed into the sea; and
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding in the Fill Bank.

Chemical and Waste Management

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

12.3 Monitoring Schedule for the Coming Month

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



Appendix A

Project Organization Chart





Appendix B1

Calibration Certificates for Impact Air Quality Monitoring Equipment



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Calibration Report

of High Volume Air Sampler

Manufacturer	:	Graseby 105	Date of Calibra	ation	: _	12 Ap	ril 2019	
Serial No.	:	9795 (ET/EA/003/18)	Calibration Du	e Date	: _	11 Jur	ne 2019	
Method	:	Five-point calibration by using standar Operations Manual	d calibration kit	Tisch TE-5	6025	A refe	er to the	
Results	:	Flow recorder reading (cfm)	48	43	:	36	31	27
		Qstd (Actual flow rate, m ³ /min)	1.69	1.52	1.	.29	1.05	0.86
		Pressure : 762.06 mm	Hg	Temp. :	2	96	ĸ	

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)



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Calibration Report

of High Volume Air Sampler

Manufacturer	:	Andersen G1051	Date of Calib	ration	:	10 June 2019		
Serial No.	:	1176 (ET/EA/003/05)	Calibration D	ue Date	:	<u>09 Au</u>	ugust 2019	
Method	:	Based on Operations Manual for the 5- manufactured by Tisch TE-5025 A	point calibrati	on using st	and	ard ca	libration kit	
Results	:	Flow recorder reading (cfm)	56	47		41	32	26
		Qstd (Actual flow rate, m ³ /min)	1.76	1.52		1.36	1.00	0.85
		Pressure : 768.81 mm ł	Ηa	Temp ·		299	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 :

LIÃO, Yun Chao (Technician)

Checked by

LAU, Chi Leung

(Environmental Team Leader)



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Calibration Report

of High Volume Air Sampler

Manufacturer	:	Andersen G1051	Date of Calib	oration	:	12 Ap	oril 2019	
Serial No.	:	1176 (ET/EA/003/05)	Calibration D	ue Date	:	<u>11 Ju</u>	ine 2019	
Method	:	Based on Operations Manual for the 5-p manufactured by Tisch TE-5025 A	point calibration	on using sta	and	ard ca	libration kit	
Results	:	Flow recorder reading (cfm)	55	47		42	33	25
		Qstd (Actual flow rate, m ³ /min)	1.75	1.52		1.37	1.01	0.83
		Pressure : 762.06 mm H	lg	Temp. :		296	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)



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

Manufacturer	:	Graseby 105	Date of Calibration	ation	:	<u>10 Ju</u>	i,	
Serial No.	:	9795 (ET/EA/003/18)	Calibration Du	e Date	:	09 Ai		
Method	:	Five-point calibration by using standard Operations Manual	d calibration kit	Tisch TE-5	6025	iA refe	er to the	
Results	:	Flow recorder reading (cfm)	47	42		37	32	28
		Qstd (Actual flow rate, m ³ /min)	1.68	1.51	1	.30	1.06	0.87
		Pressure : 768.81 mm l	Hg	Temp. :		299	к	

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



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

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

Calibrated by :

Jus hall LIAO, Yun Chao

LIAO, Yun Chao (Technician) Checked by

LAU. Chi Leung (Environmental Team Leader)

RECALIBRATION **DUE DATE:** March 15, 2020 Environmenta ertificate of alibration **Calibration Certification Information** °K Rootsmeter S/N: 438320 Ta: 293 Cal. Date: March 15, 2019 Pa: 760.7 mm Hg **Operator:** Jim Tisch Calibrator S/N: 3612 Calibration Model #: TE-5025A Vol. Final ΔVol. ΔΡ ΔН Vol. Init ∆Time (in H2O) (m3) (m3) (m3) (min) (mm Hg) Run 1.4500 3.2 2.00 1 1 2 1 4.00 2 3 4 1.0300 6.3 1 5.00 0.9220 7.8 3 5 6 1 4 7 0.8780 8.7 5.50 8 1 0.7220 12.6 8.00 5 9 10 1 **Data Tabulation** $\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)$ √∆H(Ta/Pa) Vstd Ostd Qa (x-axis) (y-axis) (x-axis) (y-axis) Va (m3) 0.9958 0.6868 0.8777 1.0138 0.6991 1.4269 2.0180 0.9917 0.9628 1.2412 1.0096 0.9802 1.0735 1.3877 0.9897 1.0076 1.0928 2.2561 1.4555 1.0064 1.1462 2.3663 0.9886 1.1259 1.7553 0.9834 1.3621 1.0012 1.3867 2.8538 1.30142 2.07834 m= m= -0.01288 OSTD b= -0.02094QA b= 0.99994 0.99994 r= r= Calculations $Va = \Delta Vol((Pa - \Delta P)/Pa)$ Vstd= $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$ Qstd= Vstd/∆Time **Qa=** Va/Δ Time For subsequent flow rate calculations: Pa Tstd ,/∆H(Ta/Pa Qstd = 1/m/ΔН Qa= 1/m -h Pstd Ta **Standard Conditions** 298.15 °K RECALIBRATION Tstd: 760 mm Hg Pstd: US EPA recommends annual recalibration per 1998 Key 40 Code of Federal Regulations Part 50 to 51, ΔH: calibrator manometer reading (in H2O) ΔP: rootsmeter manometer reading (mm Hg) Appendix B to Part 50, Reference Method for the Ta: actual absolute temperature (°K) **Determination of Suspended Particulate Matter in** Pa: actual barometric pressure (mm Hg) the Atmosphere, 9.2.17, page 30 b: intercept m: slope

Tisch Environmental, Inc. 145 South Miami Avenue Village of Cleves, OH 45002 <u>www.tisch-env.com</u> TOLL FREE: (877)263-7610 FAX: (513)467-9009



Appendix B2

Impact Air Quality Monitoring Results

Summary of 24-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egress

Start		Finish		Elapse Time		Sampling	Flow Rate (m ³ /min.)		Average	Filter Weight (g)		Conc.
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	(µg/m ³)
03/06/2019	09:30	04/06/2019	09:30	20345.74	20369.74	24.00	1.0839	1.0839	1.0839	2.6245	2.7221	63
09/06/2019	08:30	10/06/2019	08:30	20372.74	20396.74	24.00	1.0839	1.0839	1.0839	2.7027	2.8278	80
15/06/2019	08:00	16/06/2019	08:00	20399.74	20423.74	24.00	1.0598	1.0598	1.0598	2.6635	2.7789	76
21/06/2019	09:00	22/06/2019	09:00	20426.74	20450.74	24.00	1.1030	1.1030	1.1030	2.6936	2.8669	109
27/06/2019	08:30	28/06/2019	08:30	20453.74	20477.74	24.00	1.1030	1.1030	1.1030	2.6816	2.8103	81

Monitoring Station : TKO-A2a

Location : CREO

S	tart	Fini	sh	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Average	Filter W	Conc.	
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	(µg/m ³)
03/06/2019	09:30	04/06/2019	09:30	22439.61	22463.61	24.00	1.0298	1.0298	1.0298	2.6738	2.7682	64
09/06/2019	08:30	10/06/2019	08:30	22466.61	22490.61	24.00	1.0938	1.0938	1.0938	2.8890	3.0162	81
15/06/2019	08:00	16/06/2019	08:00	22493.61	22517.61	24.00	1.0643	1.0643	1.0643	2.6972	2.8854	123
21/06/2019	09:25	22/06/2019	09:25	22520.61	22544.61	24.00	1.0328	1.0328	1.0328	2.7888	2.9434	104
27/06/2019	08:30	28/06/2019	08:30	22547.61	22571.61	24.00	1.0328	1.0328	1.0328	2.7766	2.8770	68

Summary of 1-hr TSP Monitoring Results



Monitoring Station : TKO-A1

Location : Site Egres Site Egress

Start		Finish		Elapse Time		Sampling	Flow Rate (m ³ /min.)		Average	Filter Weight (g)		Conc.	
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Initial Final		Initial	Final	(µg/m³)	
05/06/2019	09:00	05/06/2019	10:00	20369.74	20370.74	1.00	1.0839	1.0839	1.0839	2.7225	2.7299	114	
05/06/2019	10:55	05/06/2019	11:55	20370.74	20371.74	1.00	1.0839	1.0839	1.0839	2.7065	2.7154	137	
05/06/2019	14:40	05/06/2019	15:40	20371.74	20372.74	1.00	1.0839	1.0839	1.0839	2.7196	2.7305	168	
10/06/2019	09:05	10/06/2019	10:05	20396.74	20397.74	1.00	1.1030	1.1030	1.1030	2.7609	2.7704	144	
12/06/2019	10:00	12/06/2019	11:00	20397.74	20398.74	1.00	1.1030	1.1030	1.1030	2.7059	2.7230	258	
14/06/2019	13:00	14/06/2019	14:00	20398.74	20399.74	1.00	1.0598	1.0598	1.0598	2.6802	2.6887	134	
17/06/2019	09:10	17/06/2019	10:10	20423.74	20424.74	1.00	1.1030	1.1030	1.1030	2.7206	2.7336	196	
17/06/2019	13:00	17/06/2019	14:00	20424.74	20425.74	1.00	1.1030	1.1030	1.1030	2.7268	2.7393	189	
19/06/2019	14:42	19/06/2019	15:42	20425.74	20426.74	1.00	1.1030	1.1030	1.1030	2.6978	2.7172	293	
24/06/2019	09:20	24/06/2019	10:20	20450.74	20451.74	1.00	1.1030	1.1030	1.1030	2.7782	2.7850	103	
24/06/2019	13:00	24/06/2019	14:00	20451.74	20452.74	1.00	1.1030	1.1030	1.1030	2.7775	2.7825	76	
26/06/2019	10:00	26/06/2019	11:00	20452.74	20453.74	1.00	1.1030	1.1030	1.1030	2.7701	2.7808	162	
28/06/2019	13:00	28/06/2019	14:00	20477.74	20478.74	1.00	1.0598	1.0598	1.0598	2.7868	2.7952	132	
28/06/2019	14:08	28/06/2019	15:08	20478.74	20479.74	1.00	1.0598	1.0598	1.0598	2.7781	2.7904	193	
28/06/2019	15:11	28/06/2019	16:11	20479.74	20480.74	1.00	1.0598	1.0598	1.0598	2.7915	2.8005	142	

Monitoring Station : TKO-A2a





St	art	Finish		Elapse Time		Sampling	Flow Rate (m ³ /min.)		Average	Filter Weight (g)		Conc.
Date	Time	Date	Time	Initial	Final	Time (hrs)	Initial	Final	(m ³ /min.)	Initial	Final	(µg/m ³)
05/06/2019	09:06	05/06/2019	10:06	22463.61	22464.61	1.00	1.0298	1.0298	1.0298	2.6716	2.6784	110
05/06/2019	10:58	05/06/2019	11:58	22464.61	22465.61	1.00	1.0298	1.0298	1.0298	2.6874	2.6947	118
05/06/2019	14:45	05/06/2019	15:45	22465.61	22466.61	1.00	1.0298	1.0298	1.0298	2.7007	2.7081	120
10/06/2019	09:11	10/06/2019	10:11	22490.61	22491.61	1.00	1.0959	1.0959	1.0959	2.7861	2.7931	106
12/06/2019	10:10	12/06/2019	11:10	22491.61	22492.61	1.00	1.0959	1.0959	1.0959	2.7022	2.7165	217
14/06/2019	13:08	14/06/2019	14:08	22492.61	22493.61	1.00	1.0643	1.0643	1.0643	2.6904	2.6983	124
17/06/2019	09:16	17/06/2019	10:16	22517.61	22518.61	1.00	1.0643	1.0643	1.0643	2.7051	2.7158	168
17/06/2019	13:00	17/06/2019	14:00	22518.61	22519.61	1.00	1.0643	1.0643	1.0643	2.7140	2.7242	160
19/06/2019	14:50	19/06/2019	15:50	22519.61	22520.61	1.00	1.0328	1.0328	1.0328	2.6956	2.7134	287
24/06/2019	09:25	24/06/2019	10:25	22544.61	22545.61	1.00	1.0643	1.0643	1.0643	2.7862	2.7924	97
24/06/2019	13:00	24/06/2019	14:00	22545.61	22546.61	1.00	1.0643	1.0643	1.0643	2.8013	2.8078	102
26/06/2019	10:12	26/06/2019	11:12	22546.61	22547.61	1.00	1.0328	1.0328	1.0328	2.7908	2.7994	139
28/06/2019	13:00	28/06/2019	14:00	22571.61	22572.61	1.00	1.0328	1.0328	1.0328	2.7908	2.8051	231
28/06/2019	14:03	28/06/2019	15:03	22572.61	22573.61	1.00	1.0328	1.0328	1.0328	2.7741	2.7885	232
28/06/2019	15:17	28/06/2019	16:17	22573.61	22574.61	1.00	1.0328	1.0328	1.0328	2.8192	2.8307	186



Appendix B3

Graphical Plots of Impact Air Quality Monitoring Data






1-hour TSP level at TKO-A2a





24-hour TSP level at TKO-A1



24-hour TSP level at TKO-A2a

Date



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.	812030		Page	1 of 3	Pages
Customer :	ETS-Testconsult Limited				
Address :	8/F., Block B, Veristrong Industr	ial Centre, 34-36 Au	Pui Wan St., Fo	otan, Hong Ko	ong.
Order No. :	Q84795		Date of receipt	t :	4-Dec-18
Item Tested		· · · · · · · · · · · · · · · · · · ·			
Description :	Sound Level Meter				
Manufacturer :	Rion		I.D.	: ET/EN/	/003/14
Model :	NL-52		Serial No.	: Faded	
Test Conditi	ons				
Date of Test :	11-Dec-18		Supply Voltage	e :	
Ambient Temp	erature : (23 ± 3)°C		Relative Humic	dity:(50 ± 28	5) %
Test Specifi	cations				
Calibration chec	ck.				
Ref. Document/	Procedure : Z01, IEC 61672.				
Test Results	\$				
The results are	shown in the attached page(s).				
Main Test equip	oment used:				
Equipment No.	Description	<u>Cert. No.</u>		Traceable to	<u>)</u>
S017	Multi-Function Generator	C170120		SCL-HKSAF	R
S240	Sound Level Calibrator	803357		NIM-PRC &	SCL-HKSAR
The values given in will not include allow	this Calibration Certificate only relate to t vance for the equipment long term drift, y	he values measured at th ariations with environmer	ne time of the test ar ntal changes, vibratio	nd any uncertaint	ties quoted ring 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 Onit-Onder-Test only			1	
Calibrated by :	Appro	oved by :	Qu	
Elva Chong			Kin Wong	
This Certificate is issued by:	Date:	11-Dec-18		
Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street,Kwai Chu Tel: 2425 8801 Fax: 2425 8646	ng, NT,Hong Kong.			



Calibration Certificate

Certificate No. 812030

Page 2 of 3 Pages

Results :

1. Self-generated noise: 17.8 dBA

2. Acoustical signal test

	UUT S				
	Frequency	Time	Octave	Applied	UUT
Range (dB)	Weighting	Weighting	Filter	Value (dB)	Reading (dB)
30-130	A	F	OFF	94.0	92.0
		S	OFF		92.0
	С	F	OFF		92.0
	Z	F	OFF		92.0
	A	F	OFF	114.0	112.0
		S	OFF		112.0
	C	F	OFF		112.0
	Z	F	OFF		112.0

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

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

Frequ	lency	Attenuation (dB)	IEC 61672 Type 1 Spec.
31.5	5 Hz	-39.7	· · · · · · · · · · · · · · · · · · ·	- 39.4 dB, ± 2 dB
63	Hz	-26.2		- 26.2 dB, ± 1.5 dB
125	Hz	-16.2	4	- 16.1 dB, ± 1.5 dB
250	Hz	-8.7		- $8.6 \text{ dB}, \pm 1 \text{ dB}$
500	Hz	-3.2		- $3.2 \text{ dB}, \pm 1.4 \text{ dB}$
1	kHz	0.0	(Ref)	$0 \text{ dB}, \pm 1.1 \text{ dB}$
2	kHz	+1.0		$+ 1.2 \text{ dB}, \pm 1.6 \text{ dB}$
4	kHz	+0.7		$+ 1.0 \text{ dB}, \pm 1.6 \text{ dB}$
8	kHz	-1.2		- $1.1 \text{ dB}, +2.1 \text{ dB} \sim -3.1 \text{ dB}$
16	kHz	-8.6		- $6.6 \text{ dB}, + 3.5 \text{ dB} \sim -17.0 \text{ dB}$

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



Hong Kong Calibration Ltd. 香港校正有限公司

Calibration Certificate

Certificate No. 812030

Page 3 of 3 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

UUT	Applied	UUT	Difference	IEC 61672
Setting	Value (dB)	Reading (dB)	(dB)	Type 1 Spec.
A	94.0	94.0 (Ref.)		$\pm 0.4 \text{ dB}$
С	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 : 1 007 hPa.

4. Preamplifier model : NH-25, S/N : 10653

5. Firmware Version: 1.2

6. Power Supply Check: OK

----- END -----

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Hong Kong Calibration Ltd. 香港校正有限公司

Calibration Certificate

	Certificate No. 901844				z rayes	
Customer :	ETS-Testconsult Limited					
Address :	8/F., Block B, Veristrong Inde	ustrial Centre, 34-3	3 Au Pui Wan St., F	otan, Hong I	Kong.	
Order No. :	Q90738		Date of receip	ot :	26-Feb-19	
Item Tested						
Description :	: Acoustic Calibrator					
Manufacturer	: Castle		I.D.	: ET/E	N/002/07	
Model :	GA607		Serial No.	: 0386	41	
Test Conditi	ions					
Date of Test :	6-Mar-19		Supply Voltag	ge :		
Ambient Temp	erature : $(23 \pm 3)^{\circ}C$		Relative Hum	idity : (50 ±	25) %	
Test Specifi	cations					
Calibration cheo Ref. Document	ck. /Procedure : IEC 60942, F06,	F20, Z02.				
Test Results	3					
All results were	within the IEC 60942 Class 1	specification.				
The results are	shown in the attached page(s	i).				
Main Test equir	oment used:					
Equipment No.	Description	Cert. No.		Traceable	to	
S014	Spectrum Analyzer	805025		NIM-PRC	& SCL-HKSAR	
S240	Sound Level Calibrator	803357		NIM-PRC	& SCL-HKSAR	
S041	Universal Counter	802061		SCL-HKS	AR	
S206	Sound Level Meter	805027		SCL-HKS	AR	
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	: Elva Chong	,	Approved by :	Kin Wong		

Date: 6-Mar-19

Kin Wong

This Certificate is issued by: Hong Kong Calibration Ltd. Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong. Tel: 2425 8801 Fax: 2425 8646

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Hong Kong Calibration Ltd. 香港校正有限公司

Calibration Certificate

Certificate No. 901844

Page 2 of 2 Pages

Results :

1. Generated Sound Pressure Level

UUT Nominal Value (dB)	Measured Value (dB)	IEC 60942 Class 1 Spec.
94.0	94.1	$\pm 0.4 \text{ dB}$

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

Short-term Level Fluctuation : 0.0 dB IEC 60942 Class 1 Spec. : ± 0.1 dB Uncertainty : ± 0.01 dB

3. Frequency

UUT Nominal Value (kHz)	Measured Value (kHz)	IEC 60942 Class 1 Spec.
1	1.000	± 1 %

Uncertainty : \pm 3.6 x 10⁻⁶

4. Total Distortion : < 2.9 % IEC 60942 Class 1 Spec. : < 4 % Uncertainty : ± 2.3 % of reading

Remark : 1. UUT : Unit-Under-Test

- 2. The uncertainty claimed is for a confidence probability of not less than 95%.
- 3. Atmospheric Pressure : 1 002 hPa.

----- END -----

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Appendix C2

Impact Noise Monitoring Results



Day-time Noise Monitoring

Monitoring Location: TKO-N1 (Site Egress)

Date	Start Sampling Time	No	ise Level dB	Wind	Weather	
	(hh:mm)	L _{eq(30min)}	L ₁₀	L ₉₀	(m/s)	Condition
03/06/19	13:32	69.8	71.4	65.2	0.1	Cloudy



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



Form E/CE/R/24 Issue 1 (1/1) [01/18]

Calibration Report of Dissolved Oxygen Meter (In situ Measurement)					
Equipment Ref. No. :	ET/EW/008/006		Manufacturer :	YSI	
Model No. :	Pro 2030		Serial No.	12A100554	
Calibration Date :	3/6/2019		Calibration Due Date :	2/9/2019	
Temperature Verifica	tion by Reference Thermometer	(ET/0521/028)			
* •	Temperature Reading (°C)	Correction (°C)	Corrected Temperature	(°C) Difference (°C)	
Reference Thermomet	er 21.5	0.0	21.5		
DO Meter	21.4	0.0	21.4	-0.1	
Criteria: Difference between corrected temperature from DO meter and reference thermometer : $< \pm 0.5$ °C					
Zero Point Checking					
D	D meter reading (mg/L)		0.03	3	
Criteria: Zero checkin	Criteria: Zero checking: 0.0 mg/L				
Linequity Checking of	Dissolved Orwan Contant by A	PHA 1000 4500-0			
Lineuruy Checking of	Expected DO value (mg/L)	<u>1117 17eu 4300-0</u>		Difference of DO Content	
Purging time, min	(ET/0510/012)	DO met	er reading (mg/L)	(mg/L)	
2	6.07		6.19	0.12	
5	3.76		3.93	0.17	
10	2.26		2.41	0.15	
Criteria: Difference be	tween DQ meter reading and exp	vected DO value: <	< ±0.30 mg/L		
Salinity Checking by	4PHA 19ed 2520 B				
		Expect	ed Salinity (ppt)	DO meter reading (ppt)	
Reagent No. of NaCl (10 ppt): CPE/012/4.7/005/01		10	9.5	
Reagent No. of NaCl (30 ppt): CPE/012/4.8/005/01		30	28.7	
Criteria: Difference be	etween DO meter reading and exp	pected Salinity: $\pm J$	10.0 %		
The equipment complies [#] / does not comply [#] with the specified requirements and is deemed acceptable [#] / unacceptable [#] for use. [#] Delete as appropriate					
	•	90.992.000.000.000.000.000.000.000.000.0			
Calibrated by : Approved by :					

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CPE/024/W

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Performance Check of Turbidity Meter						
Eq	uipment Ref. No.	. <u>ET/0505</u>	/021	Manufacturer	: HACH	
-	Model No.	:21000	Q	Serial No.	: 17020C056013	
Da	ate of Calibration	: 25/4/20)19	Due Date	: 24/7/19	
Theoretical Value of Turbidity Standard (NTU)Measured Value (NTU)Difference % *						
	20			20.2	1.0%	
	100		102		2.0%	
	800)	785		-1.9%	
	(*) Difference =	(Measured Value	e – Theore	tical Value) / Theo	oretical Value x 100	
Acceptance Criteria Difference : -5 % to 5 %						
The turbidity meter complies * / does not comply * with the specified requirements and is deemed acceptable * / unacceptable * for use. Measurements are traceable to national standards.						
Pre	Prepared by : Checked by :					

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Appendix D2

Impact Marine Water Quality Monitoring Results

Mid-Ebb Tide



Monitoring Station : TKO-C1

Data	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Тι	urbidity (NT	TU)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	25.6	31.3	31.4	7.38	7.40		107.7	108.0	3.75	3.74		0.8	0.9	
03/06/19	1015 1030	27/Cloudy	Middle	10.7	25.4	31.4	31.5	7.41	7 28	7.34	106.3	106.1	3.96	3.95	3.02	2.2	21	15
03/00/13	1015-1050	27/Cloudy	Wildule	10.7	23.4	31.5	31.5	7.26	7.20		105.8	100.1	3.93	3.33	5.52	2.0	2.1	1.5
			Bottom	20.4	25.2	31.7 31.6	31.7	7.08 7.04	7.06	7.06	102.9 102.3	102.6	4.05 4.09	4.07		1.4 1.7	1.6	
			Surface	1.0	27.6	31.9 31.9	31.9	6.93	6.95		105.0	105.3	3.81	3.83		2.2	2.1	
05/00/10	4000 4050			10.0		31.9		6.74	0.70	6.85	103.5		3.93			2.0		
05/06/19	1238-1252	30/Cloudy	Middle	10.8	27.5	32.0	32.0	6.77	6.76		102.3	102.1	3.96	3.95	3.93	3.2	3.1	2.8
			Bottom	20.6	27.4	32.1	32.2	6.70	6.69	6.69	101.3	101.1	4.02	4.01		2.9	3.1	
						32.2	-	6.67			100.9		3.99			3.3	-	
			Surface	1.0	29.7	31.4	31.4	7.52	7.54		117.7	118.0	3.64	3.63		5.8	5.6	
						31.4		7.45		7.49	116.2		3.75		_	5.4		-
08/06/19	1535-1550	32/Fine	Middle	10.8	29.5	31.6	31.6	7.42	7.44		115.8	116.0	3.79	3.77	3.78	5.2	5.3	5.3
			Bottom	20.6	29.4	31.7	31.7	7.37	7 36	7 36	115.0	114.9	3.93	3.95		5.2	51	
			Dottom	20.0	23.4	31.7	51.7	7.35	7.50	7.50	114.7	114.5	3.96	5.55		5.0	5.1	
			Surface	1.0	28.8	31.3	31.3	7.35	7.37		113.3	113.5	3.43	3.45		2.7	2.7	
						31.3		7.38		7.25	113.7		3.46		_	2.6		-
10/06/19	1505-1519	31/Fine	Middle	10.9	28.6	31.4	31.5	7.12	7.14		109.5	109.8	3.60	3.61	3.62	3.0	3.2	3.2
			Deffect	00.7	00.5	31.6	01.0	7.04	7.00	7.00	108.1	400.0	3.83	0.04		3.7		
			Bottom	20.7	28.5	31.6	31.6	7.02	7.03	7.03	107.8	108.0	3.79	3.81		3.9	3.8	
			Surface	1.0	27.7	31.1	31.2	7.38	7.37		111.5	111.5	3.54	3.56		3.5	3.3	
						31.2		7.36		7.30	111.4		3.57		_	3.1		-
12/06/19	0838-0852	29/Cloudy	Middle	10.8	27.5	31.3	31.3	7.20	7.22		108.6	108.9	3.73	3.72	3.71	3.6	3.7	3.4
						31.4		7.02			105.7		3.84	 	-	3.7	 	
			Bottom	20.6	27.4	31.4	31.4	7.05	7.04	7.04	106.2	106.0	3.88	3.86		3.0	3.2	
			Surface	10	27.3	30.9	30.0	6.98	6.96		104.6	104.4	3.74	3 72		3.5	34	
			Gunace	1.0	21.5	30.8	50.5	6.94	0.00	6.86	104.1	104.4	3.70	0.72		3.2	0.4	
14/06/19	0913-0927	28/Cloudy	Middle	10.8	27.2	31.4	31.5	6.74	6.76		101.2	101.4	3.95	3.93	3.90	4.2	4.1	3.9
						31.5		6.77			101.6	-	3.91		-	4.0		-
			Bottom	20.6	27.2	31.5	31.5	6.65	6.67	6.67	100.4 00.0	100.2	4.07	4.05		3.9	4.1	
						31.4		7.34			110.5		3.92			4.3		1
			Surface	1.0	27.4	31.4	31.4	7.41	7.38	7.00	111.6	111.1	3.99	3.96		4.1	4.3	
17/06/19	1020-1033	30/Cloudy	Middle	10.7	27.2	31.6	31.7	7.22	7.26	1.32	108.5	109 1	3.83	3.85	3 78	3.0	3.1	3.6
17/00/19	1020-1000	our croddy	Wilduie	10.7	21.2	31.7	51.7	7.30	1.20		109.7	100.1	3.86	0.00	0.70	3.1	0.1	0.0
			Bottom	20.4	27.0	31.8	31.9	7.05	7.11	7.11	105.7	106.5	3.57	3.54		3.4	3.6	
						31.9		7.16			107.3		3.51			3.7		

Mid-Ebb Tide



Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	ırbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.5	31.0	31.0	7.45	7 50		112.2	113.0	3.85	3.87		3.6	35	
			Sunace	1.0	21.5	31.0	51.0	7.55	7.50	7.40	113.7	113.0	3.89	5.07		3.3	3.5	
19/06/19	1220 1252	28/Cloudy	Middle	10.8	27.4	31.1	31.1	7.36	7 31	7.40	110.6	100.8	3.64	3 66	3 71	3.9	3.8	3.6
13/00/13	1550-1555	20/01000	Middle	10.0	21.4	31.1	01.1	7.25	7.51		109.0	100.0	3.67	0.00	0.71	3.7	0.0	0.0
			Bottom	20.5	27.1	31.3	31 3	7.11	7 19	7 19	106.6	107.7	3.59	3.61		3.3	34	
			Dottom	20.5	27.1	31.3	51.5	7.26	7.15	7.15	108.8	107.7	3.63	3.01		3.5	5.4	
			Surface	10	27.7	31.4	31.4	7.55	7 59		114.4	114.9	3.72	3 74		0.9	0.8	
			Ounace	1.0	21.1	31.4	01.4	7.62	7.55	7 55	115.4	114.5	3.75	0.74		0.7	0.0	
21/06/19	1351-1404	29/Cloudy	Middle	10.7	27.4	31.5	31.6	7.43	7 5 1	1.00	112.1	113.2	3.65	3.67	3.61	1.8	17	13
21/00/13	1001-1404	25/010003	Middle	10.7	21.4	31.6	01.0	7.58	7.51		114.3	110.2	3.68	0.07	0.01	1.5	1.7	1.0
			Bottom	20.4	27.3	31.7	31.7	7.21	7 27	7 27	108.5	109.5	3.42	3 4 4		1.3	14	
			Dottoini	20.4	21.5	31.7	01.7	7.33	1.21	1.21	110.4	100.0	3.45	0.44		1.4	1.4	
			Surface	10	27.7	31.0	31.1	7.50	7 56		113.2	114.2	3.82	3.84		5.3	51	
			Canado			31.1	•	7.62	1.00	7 49	115.1		3.85	0.01		4.8	0.1	
24/06/19	1535-1551	31/Cloudy	Middle	10.6	27.5	31.3	31.4	7.34	7 4 2		110.7	111 9	3.70	3 74	3.63	3.9	41	4.6
24/00/10	1000 1001	o in cloudy	Middle	10.0	21.0	31.4	01.4	7.50	7.12		113.1	111.0	3.77	0.14	0.00	4.2		1.0
			Bottom	20.2	27.2	31.5	31.6	7.18	7 21	7 21	107.9	108.4	3.29	3 33		4.6	47	
			Dottoin	20.2		31.6	01.0	7.24			108.8	100.1	3.36	0.00		4.8		
			Surface	10	27.7	31.0	31.0	7.44	7 4 9		112.3	113.0	3.68	3 71		1.5	1.5	
			oundoo			31.0	01.0	7.53		7.36	113.7		3.74	01		1.4		
26/06/19	1508-1522	30/Cloudy	Middle	10.8	27.5	31.1	31.1	7.29	7.23		109.9	109.0	3.53	3.56	3.58	2.7	2.6	2.0
						31.1	•	7.16			108.0		3.59			2.4		
			Bottom	20.5	27.2	31.3	31.4	7.08	7.11	7.11	106.3	106.8	3.46	3.47		1.8	2.0	
						31.4		7.14			107.2		3.47			2.1		
			Surface	1.0	27.4	31.2	31.2	7.36	7.43		110.6	111.6	3.78	3.81		1.8	1.7	
						31.2	•=	7.49		7.35	112.6		3.83			1.5		
28/06/19	0832-0845	26/Cloudy	Middle	10 7	27.2	31.3	31.4	7.25	7 28		108.8	109.3	3.65	3 66	3 64	1.5	1.5	20
20.00.10		20.0.0000				31.4	0	7.31	5		109.7		3.66	0.00	0.0.	1.5		
			Bottom	20.4	27.0	31.6	31.7	7.10	7.16	7.16	106.4	107.3	3.42	3.45		2.6	2.8	
						31.7		7.22			108.2		3.48			3.0	2.0	

Mid-Ebb Tide

Monitoring Station : TKO-M4

	Sampling	Ambient Temp			Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Date	Duration	(°C) / Weather Condition	Monitoring [Depth (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	25.7	31.4	31.4	7.54	7.53		110.4	110.2	3.52	3.51		1.0	1.1	
						31.4		7.51		7.44	110.0		3.50			1.1		
03/06/19	1133-1146	27/Cloudy	Middle	4.9	25.5	31.6	31.6	7.34	7.35		107.2	107.4	3.68	3.70	3.68	2.2	2.2	2.1
						31.3		7.30			107.5		3.85			3.3		
			Bottom	8.7	25.4	31.7	31.7	7.15	7.17	7.17	104.4	104.7	3.82	3.84		3.0	3.2	
			Surface	1.0	27.6	32.0	32.0	7.02	7 04		106.5	106.7	3.74	3 72		3.0	3.2	
			Oundee	1.0	27.0	32.0	02.0	7.05	7.04	6.93	106.9	100.7	3.70	0.72		3.4	0.2	
05/06/19	1343-1356	30/Cloudy	Middle	4.8	27.4	32.1	32.1	6.81	6.82		103.0	103.2	3.88	3.87	3.85	3.5	3.5	3.3
						32.1	-	6.83			103.4		3.85			3.4		
			Bottom	8.6	27.4	32.1	32.1	6.70	6.78	6.78	102.4	102.6	3.95	3.97		3.4	3.3	
						31.4		7.50	[117.6		3.57			5.1		
			Surface	1.0	29.8	31.5	31.5	7.53	7.52	7.40	118.0	117.8	3.54	3.56		5.1	5.3	
08/06/10	1654 1709		Middlo	47	20.6	31.6	21.6	7.34	7 22	7.42	114.7	114.4	3.65	2.66	2.67	8.5	0.2	6.2
00/00/19	1004-1706	32/Fille	wildule	4.7	29.0	31.6	51.0	7.30	7.32		114.1	114.4	3.67	3.00	3.07	8.0	0.5	0.2
			Bottom	8.4	29.4	31.8	31.9	7.15	7.17	7.17	111.5	111.8	3.82	3.80		4.8	5.0	
						31.9		7.18			112.0		3.78			5.2		
			Surface	1.0	28.7	31.3	31.3	7.51	7.50		115.5	115.4	3.35	3.37		3.2	3.3	
						31.2		7.49		7.44	113.5		3.39			3.4		
10/06/19	1620-1633	31/Fine	Middle	4.8	28.5	31.4	31.4	7.37	7.39		113.0	113.3	3.41	3.43	3.49	3.6	3.8	3.6
			Pottom	° 6	20.2	31.5	21.5	7.28	7.26	7.26	111.3	111.0	3.66	2.67		3.6	27	
			Bollom	0.0	20.3	31.5	31.5	7.24	7.20	7.20	110.7	111.0	3.67	3.07		3.7	5.7	
			Surface	1.0	27.7	31.2	31.2	7.41	7.43		112.1	112.4	3.37	3.36		3.1	3.1	
						31.2		7.44		7.38	112.6		3.35			3.1		
12/06/19	0948-1000	29/Cloudy	Middle	4.7	27.6	31.4	31.4	7.36	7.34		111.2	110.9	3.52	3.54	3.53	2.8	3.0	3.1
						31.5		7.32			108.5		3.50			3.1		
			Bottom	8.4	27.4	31.5	31.5	7.21	7.20	7.20	108.8	108.7	3.67	3.69		3.4	3.2	
			Surface	1.0	27.4	30.9	21.0	7.03	7.05		105.5	105.7	3.52	2 50		3.4	27	
			Surface	1.0	27.4	31.0	31.0	7.06	7.05	6.97	105.9	105.7	3.48	3.50		4.0	3.7	
14/06/19	1020-1033	28/Cloudy	Middle	4.8	27.3	31.4	31.5	6.92	6.90	0.57	104.0	103.8	3.81	3.83	3.77	4.2	3.7	3.9
						31.5		6.88			103.5		3.85			3.1	•	
			Bottom	8.6	27.2	31.5	31.5	6.88	6.87	6.87	103.3	103.1	3.96	3.98		5.5	4.5	
						31.5		0.85			102.9		3.99			3.4		
			Surface	1.0	27.4	31.4	31.4	7.59	7.56		114.3	113.9	3.50	3.52		3.4	3.6	
47/00/40	4400 4475	00/01	Matella	4.0	07.4	31.6	24.0	7.36	7.40	7.48	110.0		3.43	0.45		4.0		o 7
17/06/19	1138-1153	30/Cloudy	Middle	4.8	27.4	31.6	31.6	7.44	7.40		112.2	111.1	3.47	3.45	3.41	4.2	4.1	3.7
			Bottom	85	27.3	31.8	31.8	7.16	7 22	7 22	107.9	108.8	3.23	3 25		3.3	34	
			Dottom	0.0	21.0	31.8	01.0	7.27	1.22	1.22	109.6	100.0	3.27	0.20		3.5	0.7	

Mid-Ebb Tide

Monitoring Station : TKO-M4

Data	Sampling	Ambient Temp	Marchaeland		Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	Monitoring L	Deptn (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.5	31.0	31.0	7.36	7.40		110.8	111.4	3.56	3 5 8		3.1	33	
			Sunace	1.0	21.5	31.0	51.0	7.43	7.40	7 35	111.9	111.4	3.60	5.50		3.4	5.5	
19/06/19	1514-1533	28/Cloudy	Middle	4.6	27.5	31.0	31.1	7.28	7.31	1.00	109.6	110.0	3.32	3 34	3 35	4.1	4.0	3.6
10,00,10	1014 1000	20/010000	Middle	1.0	21.0	31.1	01.1	7.33	7.01		110.4	110.0	3.35	0.01	0.00	3.8	-1.0	0.0
			Bottom	8 1	27.4	31.2	31.3	7.14	7 17	7 17	107.5	108.0	3.10	3.12		3.8	3.6	
			Dottom	0.1	27.4	31.3	01.0	7.20	7.17	,	108.4	100.0	3.14	0.12		3.4	0.0	
			Surface	10	27.7	31.4	31.4	7.42	7 4 9		112.4	113.5	3.54	3 57		1.2	13	
			Gundoe	1.0	27.7	31.4	01.4	7.56	1.40	7 39	114.5	110.0	3.59	0.07		1.4	1.0	
21/06/19	1523-1540	29/Cloudy	Middle	47	27.6	31.5	31.5	7.32	7 29	1.00	110.7	110.3	3.41	3 4 3	3.42	1.3	12	12
21/00/10	1020 1010	20/010000	Middle		27.0	31.5	01.0	7.26	7.20		109.8	110.0	3.45	0.10	0.12	1.1	2	1.2
			Bottom	84	27.5	31.6	31.7	7.11	7 20	7 20	107.0	108.3	3.26	3.28		1.1	12	
			Bottom	0.1	21.0	31.7	•	7.28			109.6		3.29	0.20		1.3		
			Surface	10	27.7	31.0	31.1	7.45	7.51		112.5	113.4	3.51	3 53		4.6	45	
			Cundoo			31.1	•	7.56		7 4 1	114.2		3.55	0.00		4.4		
24/06/19	1703-1718	31/Cloudy	Middle	47	27.5	31.3	31.4	7.28	7 32		109.8	110.4	3.36	3 38	3 4 1	5.0	5.0	49
2	1100 1110	onoloddy			21.0	31.4	•	7.36			111.0		3.39	0.00	0	5.0	0.0	
			Bottom	83	27.5	31.6	31.6	7.16	7 23	7 23	107.6	108.6	3.30	3 32		5.3	51	
			Dottom	0.0	20.0	31.6	00	7.29			109.6		3.34	0.02		4.8	0	
			Surface	10	27 7	31.0	31.0	7.34	7 4 1		110.8	111.8	3.62	3 64		2.3	22	
						31.0		7.47		7 35	112.8		3.65			2.0		
26/06/19	1627-1644	30/Cloudy	Middle	4.8	27.6	31.1	31.1	7.22	7.29	1.00	108.9	110.0	3.50	3.53	3.52	2.4	2.2	2.1
20,00,10		co, cloudy			20.0	31.1	•	7.36			111.0		3.56	0.00	0.02	2.0		
			Bottom	8.6	27.6	31.3	31.4	7.19	7.22	7.22	107.9	108.4	3.41	3.40		2.0	2.1	
						31.4		7.25			108.8		3.38			2.1		
			Surface	10	27 4	31.2	31.2	7.53	7 49		113.2	112.6	3.65	3 67		1.9	18	
			Cundoo			31.2	02	7.45		7 42	112.0		3.68	0.01		1.6		
28/06/19	1000-1017	26/Cloudy	Middle	46	27.3	31.3	31.4	7.30	7 34		109.7	110.3	3.43	3 46	3 46	2.7	29	22
20.00.10		20/01000y				31.4	•	7.38			110.9		3.49	0.10	00	3.0		
			Bottom	82	27.3	31.6	31.6	7.16	7 22	7 22	107.3	108.2	3.25	3 27		2.0	21	
			Dottoin	0.2	21.0	31.6	01.0	7.27	1.22	1.22	109.0	100.2	3.28	0.27		2.2	<u> </u>	

Mid-Flood Tide

Monitoring Station : TKO-C1

Data	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	(mg/L)	Dissolve Satura	ed Oxygen ition (%)	Tu	urbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Dale	Duration	(°C) / weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.7	31.3	31.3	7.55	7 57		114.2	114.5	3.64	3 63		2.2	22	
			Garrade	1.0	21.1	31.3	01.0	7.58	1.01	7 49	114.7	114.0	3.61	0.00		2.1	2.2	
03/06/19	1537-1551	29/Fine	Middle	10.9	27.5	31.5	31.5	7.42	7 4 1		112.1	111.9	3.75	3 77	3 79	1.5	14	20
00,00,10	1007 1001	20/1 110	inidalo		27.0	31.4	0.1.0	7.40			111.6		3.79	0.11	0.10	1.3		2.0
			Bottom	20.7	27.4	31.6	31.6	7.23	7.25	7.25	109.1	109.4	3.98	3.97		2.7	2.6	
						31.6		7.27			109.7		3.96			2.4		
			Surface	1.0	27.4	31.8	31.8	7.02	7.04		106.0	106.3	3.62	3.64		3.0	3.0	
						31.7		7.06		6.96	106.5		3.66			2.9		
05/06/19	0850-0902	30/Cloudy	Middle	11.2	24.3	31.9	32.0	6.87	6.88		103.6	103.8	3.84	3.82	3.79	3.9	4.1	3.5
						32.0		6.89			103.9		3.80			4.2		
			Bottom	21.4	27.2	32.1	32.1	6.75	6.73	6.73	101.8	101.5	3.93	3.92		3.6	3.5	
						32.1		6.71			101.2		3.90			3.4		
			Surface	1.0	28.8	31.5	31.5	7.79	7.78		120.2	120.0	3.55	3.54		5.5	5.5	
						31.4		7.77		7.70	119.7		3.53		+	5.5		
08/06/19	0834-0848	30/Fine	Middle	10.9	28.6	31.6	31.6	7.61	7.63		117.1	117.3	3.66	3.68	3.67	7.8	7.7	6.7
						31.6		7.64			117.5		3.69			7.5		
			Bottom	20.8	28.5	31.7	31.8	7.48	7.46	7.46	114.9	114.7	3.80	3.78		7.1	6.9	
						31.8		7.44			114.5		3.76			6.7		
			Surface	1.0	27.7	31.2	31.3	7.58	7.56		114.7	114.4	3.38	3.37		4.4	4.3	
						31.3		7.54		7.47	114.1		3.30			4.2		
10/06/19	1013-1028	29/Cloudy	Middle	11.0	27.6	31.4	31.4	7.30	7.38		111.5	111.5	3.51	3.53	3.51	3.8	4.0	4.0
						31.4		7.39			108.6		3.55			4.2		
			Bottom	21.0	27.4	31.5	31.5	7.23	7.22	7.22	100.0	108.9	3.61	3.63		3.8	3.7	
						31.1		7.50			115.4		3.45			2.7		
			Surface	1.0	28.8	31.1	31.1	7 47	7.49		114.9	115.2	3 43	3.44		3.0	2.9	
						31.2		7.31		7.40	112.3		3.61			2.7		
12/06/19	1314-1329	31/Cloudy	Middle	11.0	28.6	31.2	31.2	7.33	7.32		112.6	112.5	3.58	3.60	3.60	2.8	2.8	2.9
						31.4		7.14	- 10	- 10	109.3	100 -	3.75			3.2		
			Bottom	20.9	28.4	31.3	31.4	7.18	7.16	7.16	110.0	109.7	3.79	3.77		3.0	3.1	
			0	1.0	07.5	30.9	04.0	6.91	0.00		103.9	400 7	3.69	0.07		3.6	0.7	
			Surrace	1.0	27.5	31.0	31.0	6.88	6.90	0.05	103.5	103.7	3.65	3.67		3.8	3.7	
14/06/10	4407 4454	20/01	Middle	11 1	07.0	31.3	21.4	6.81	6 90	0.85	102.4	102.2	3.86	2.04	2.04	3.0	47	4.0
14/00/19	1437-1451	29/Cloudy	Middle	11.1	21.5	31.4	31.4	6.78	0.00		102.0	102.2	3.82	3.04	3.01	6.3	4.7	4.0
			Pottom	21.2	27.2	31.5	21.6	6.74	6 72	6 70	101.2	100.0	3.90	2.02		3.5	27	
			Bollom	21.2	21.2	31.6	51.0	6.70	0.72	0.72	100.6	100.9	3.93	3.92		3.8	3.7	
			Surface	10	27.5	31.3	31 /	7.61	7.64		114.7	115 1	3.76	3 78		3.1	3.1	
			ounace	1.0	21.5	31.4	51.4	7.66	7.04	7.61	115.5	110.1	3.80	5.70		3.0	0.1	
17/06/19	1546-1559	31/Cloudy	Middle	10.8	27.3	31.6	31.7	7.53	7 59	7.01	113.4	114.3	3.62	3 63	3.63	3.8	39	35
11,00,10	10-10-1000	o n cloudy	Wilduic	10.0	21.0	31.7	01.7	7.64	1.00		115.1		3.64	0.00	0.00	4.0	0.0	0.0
			Bottom	20.6	27.2	31.8	31.8	7.39	7.44	7.44	110.9	111.6	3.45	3.47		3.7	3.6	
			Dottom	23.0	-/.2	31.8	01.0	7.48			112.3		3.49	0.11		3.4	0.0	

Mid-Flood Tide

Monitoring Station : TKO-C1

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Tu	urbidity (NT	U)	Susper	ided Solids	(mg/L)
Dale	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.6	31.0	31.0	7.64	7 70		115.2	116.0	3.69	3 72		5.6	5.5	
			Ounace	1.0	27.0	31.0	51.0	7.75	1.10	7.63	116.8	110.0	3.75	0.72		5.3	0.0	
19/06/19	0829-0842	27/Cloudy	Middle	10.9	27.4	31.1	31.1	7.51	7 57	1.00	112.9	113 7	3.42	3 43	3 48	2.7	27	4 1
10,00,10	0020 0012	21/0100003	iniaalo			31.1	•	7.62			114.5		3.44	0.10	0.10	2.7		
			Bottom	20.7	27 1	31.2	31.3	7.34	7 40	7 40	110.0	110.9	3.26	3 28		4.2	4 1	
						31.3		7.46			111.8		3.29			4.0		
			Surface	1.0	27.5	31.4	31.4	7.88	7.82		118.8	117.9	3.65	3.67		2.2	2.4	
					_	31.4	-	7.76		7.67	117.0		3.68			2.5		
21/06/19	0840-0852	28/Cloudy	Middle	10.9	27.3	31.5	31.5	7.46	7.52	-	112.1	113.0	3.41	3.43	3.46	0.8	1.0	1.4
						31.5		7.57			113.8		3.44			1.1		
			Bottom	20.7	27.2	31.7	31.7	7.27	7.30	7.30	109.6	109.9	3.26	3.28		0.8	0.9	
						31.7		7.33			110.2		3.29			0.9		
			Surface	1.0	27.7	31.1	31.1	7.65	7.72		115.5	116.5	3.66	3.63		6.9	7.0	
						31.0		7.78		7.67	117.5		3.60			7.1		
24/06/19	0911-0923	28/Cloudy	Middle	10.8	27.4	31.3	31.4	7.54	7.62		113.5	114.7	3.51	3.53	3.45	3.3	3.4	4.7
						31.4		7.09			115.8		3.54			3.5		
			Bottom	20.5	27.1	21.6	31.6	7.32	7.40	7.40	112.2	111.1	3.10	3.18		3.7	3.7	
						31.0		7.40			112.3		3.20			3.7		
			Surface	1.0	27.6	31.0	31.0	7.04	7.71		117.1	116.2	3.66	3.64		1.4	1.5	
						31.0		7.36		7.56	110.6		3.53			6.7		
26/06/19	0931-0946	29/Cloudy	Middle	10.9	27.4	31.3	31.3	7 48	7.42		112.4	111.5	3.57	3.55	3.50	6.4	6.6	4.4
						31.4		7.45			111.8		3.29			5.3		
			Bottom	20.7	27.2	31.5	31.5	7.56	7.51	7.51	113.5	112.7	3.33	3.31		4.9	5.1	
			.			31.2		7.58			114.5		3.64	0.07		2.6		
			Surface	1.0	27.6	31.2	31.2	7.66	7.62	7.54	115.7	115.1	3.69	3.67		2.8	2.7	
00/00/10				10.0		31.4		7.42		7.54	111.5		3.45	o 17		1.6		
28/06/19	1408-1425	28/Cloudy	Middle	10.8	27.3	31.4	31.4	7.51	1.47		112.9	112.2	3.48	3.47	3.49	1.5	1.6	2.1
			Detterr	20.6	27.2	31.6	21.6	7.30	7 20	7 20	109.7	110.0	3.33	2.25		1.9	2.1	
			Bottoth	20.0	21.2	31.6	31.0	7.46	1.38	1.38	112.1	110.9	3.36	3.35		2.2	2.1	

Mid-Flood Tide

Monitoring Station : TKO-M4

	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ed Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.8	31.4	31.4	7.62	7.64		115.6	115.9	3.44	3.43		2.1	2.0	
						31.3		7.66		7.55	110.1		3.42		-	1.9		
03/06/19	1650-1702	29/Fine	Middle	5.0	27.6	31.5	31.5	7.47	7.46		113.0	112.9	3.55	3.53	3.57	1.7	1.7	1.8
			Bottom	8.9	27.5	31.7	31.7	7.35	7.34	7.34	111.0	110.9	3.76	3.75		1.7	1.8	
					-	31.6		7.33			110.7		3.73			1.8		
			Surface	1.0	27.4	31.9	31.9	7.17	7.16		106.3	108.1	3.57	3.54		3.3	3.5	
05/00/40	0040.0050		Malalla	5.4	07.0	32.0		7.03	7.05	7.10	106.0	100.0	3.72	0.74	0.00	3.1	0.1	
05/06/19	0946-0958	30/Cloudy	widdie	5.1	27.3	32.0	32.0	7.06	7.05		106.4	106.2	3.76	3.74	3.69	3.0	3.1	3.8
			Bottom	9.2	27.3	32.0	32.1	6.92	6.94	6.94	104.3	104.5	3.77	3.78		5.1	5.0	
						32.1		6.95			104.7		3.79			4.8		
			Surface	1.0	28.7	31.4	31.4	7.60	7.68		117.9	118.1	3.35	3.35		8.3 7.9	8.1	
00/00/40		00/51	Mahala	4.0	00.5	31.5	04.0	7.47	7.45	7.56	114.8	444.5	3.52	0.54	0.54	5.5	5.0	
08/06/19	0948-1000	30/Fine	Middle	4.9	28.5	31.6	31.6	7.43	7.45		114.1	114.5	3.50	3.51	3.51	5.0	5.3	6.4
			Bottom	8.7	28.4	31.7	31.7	7.30	7.31	7.31	112.0	112.2	3.64	3.66		5.7	5.8	
						31.7		7.32			112.3		3.68			5.8		
			Surface	1.0	27.8	31.2	31.2	7.60	7.62		115.2	115.4	3.24	3.22		4.5	4.3	
40/00/40			Malalla	5.0	07.0	31.3	04.0	7.48	7.50	7.56	113.0	110.0	3.35	0.04	0.05	4.0		10
10/06/19	1131-1144	29/Cloudy	Middle	5.0	27.6	31.3	31.3	7.52	7.50		113.6	113.3	3.33	3.34	3.35	3.8	3.9	4.2
			Bottom	8.9	27.5	31.5	31.5	7.36	7.35	7.35	111.2	111.0	3.47	3.49		4.2	4.4	
						31.4		7.34			110.7		3.50			4.5		
			Surface	1.0	28.7	31.2	31.2	7.50	7.58		116.3	116.5	3.23	3.25		2.8	3.0	
40/00/40			Mahala	4.0	00.5	31.3	04.0	7.45	7.40	7.50	114.3	1110	3.38	0.00	0.40	2.8	0.7	
12/06/19	1432-1445	31/Cloudy	Middle	4.9	28.5	31.3	31.3	7.41	7.43		113.7	114.0	3.40	3.39	3.43	2.6	2.7	2.8
			Bottom	8.7	28.4	31.4	31.4	7.27	7.26	7.26	111.3	111.2	3.66	3.64		2.7	2.6	
				-		31.4		7.25			111.0		3.62			2.5	-	
			Surface	1.0	27.6	31.0	31.1	7.10	7.12		107.0	107.3	3.41	3.43		5.0	4.6	
					07.4	31.5		7.02		7.06	107.8	105.0	3.70			2.9		
14/06/19	1545-1558	29/Cloudy	Middle	4.9	27.4	31.5	31.5	6.98	7.00		105.3	105.6	3.73	3.72	3.69	3.8	3.4	4.2
			Bottom	8.8	27.3	31.5	31.6	6.87	6.85	6.85	103.3	103.1	3.94	3.92		4.0	4.7	
						31.6		6.82			102.8		3.90			5.3		
			Surface	1.0	27.5	31.3	31.3	7.71	7.66		116.2	115.5	3.42	3.44		3.0	3.0	
						31.6		7.64		7.64	114.7		3.33			2.9		
17/06/19	1702-1716	31/Cloudy	Middle	4.9	27.5	31.7	31.7	7.58	7.61		114.5	115.0	3.36	3.35	3.35	3.3	3.2	3.1
			Bottom	87	27.3	31.8	31.9	7.40	7,46	7,46	111.6	112.5	3.26	3.28		3.2	32	
			Dottoill	0.1	27.0	31.9	01.0	7.52	1.10	1.40	113.4	112.5	3.29	0.20		3.2	0.2	

Mid-Flood Tide

Monitoring Station : TKO-M4

Dete	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Dale	Duration	Condition	(r	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.6	31.0	31.0	7.57	7.62		114.1	11/1 8	3.45	3.47		4.7	47	
			Sunace	1.0	27.0	31.0	51.0	7.66	7.02	7 56	115.5	114.0	3.48	5.47		4.7	4.7	
19/06/19	0948 1000	27/Cloudy	Middle	47	27.6	31.1	31.2	7.42	7 50	7.50	111.9	113.1	3.21	3.22	3 25	5.3	54	5 1
10,00,10	0040-1000	21/0/0000	Middle		27.0	31.2	01.2	7.58	1.00		114.3	110.1	3.22	0.22	0.20	5.5	0.4	0.1
			Bottom	84	27.5	31.3	31.3	7.29	7 33	7 33	109.9	110.5	3.06	3.08		4.9	5.2	
			Dottoini	0.4	27.5	31.3	01.0	7.36	1.00	1.55	111.0	110.0	3.10	0.00		5.4	5.2	
			Surface	1.0	27.5	31.4	31.4	7.75	7 79		116.8	1174	3.44	3.46		2.1	23	
			Gunace	1.0	27.5	31.4	01.4	7.82	1.15	7 73	117.9	117.4	3.48	0.40		2.4	2.0	
21/06/19	0950-1000	28/Cloudy	Middle	4.8	27.4	31.5	31.5	7.74	7.68	1.10	116.7	115 7	3.21	3.23	3 20	1.3	12	14
21/00/13	0000-1000	20/010003	Wilduic	ч.0	21.4	31.5	01.0	7.61	7.00		114.7	110.7	3.24	0.20	0.20	1.1	1.2	1.4
			Bottom	8.6	27.4	31.6	31.7	7.59	7 64	7 64	114.1	114.8	3.16	3 18		0.6	0.7	
			Dottom	0.0	27.3	31.7	01.1	7.68	7.04	7.04	115.5	114.0	3.19	0.10		0.8	0.1	
			Surface	1.0	27.7	31.1	31.1	7.56	7.60		114.2	114.8	3.34	3 36		4.1	41	
			Ganado	1.0	27.7	31.1	01.1	7.64	1.00	7 50	115.4	114.0	3.38	0.00		4.0	-1.1	
24/06/19	1017-1031	28/Cloudy	Middle	49	27.4	31.3	31.3	7.34	7 40	1.00	110.5	1114	3.26	3.28	3 26	4.9	49	45
24/00/10	1017-1001	20/010003	Middle	1.0	27.1	31.3	01.0	7.45	7.10		112.2		3.30	0.20	0.20	4.8	1.0	4.0
			Bottom	87	27.1	31.5	31.6	7.33	7.38	7 38	110.0	110.8	3.14	3 15		4.5	47	
			Dottom	0.7	27.1	31.6	01.0	7.43	1.00	7.00	111.5	110.0	3.16	0.10		4.8	-1.7	
			Surface	10	27.6	31.0	31.0	7.53	7 47		113.6	112 7	3.55	3 57		2.5	27	
			Canado		20.0	31.0	00	7.41		7 45	111.7		3.58	0.01		2.9		
26/06/19	1054-1111	29/Cloudy	Middle	5.0	27.5	31.2	31.2	7.38	7 43	7.10	111.3	112.0	3.43	3.46	3 4 5	3.2	31	27
20/00/10	1004 1111	20/0100003	Middle	0.0	27.0	31.2	01.2	7.47	7.10		112.6	112.0	3.48	0.10	0.10	3.0	0.1	2.7
			Bottom	89	27.4	31.4	31.5	7.26	7 33	7 33	109.3	110.3	3.30	3.32		2.6	24	
			Dottom	0.0	27.3	31.5	01.0	7.39	1.00	1.00	111.3	110.0	3.33	0.02		2.2	2.1	
			Surface	1.0	27.6	31.2	31.2	7.75	7 79		117.1	1177	3.40	3.43		1.5	17	
			Gunace	1.0	27.0	31.2	01.2	7.83	1.15	7 69	118.2	117.7	3.45	0.40		1.8	1.7	
28/06/19	1543-1602	28/Cloudy	Middle	4.8	27.5	31.3	31.4	7.66	7 60	1.00	115.4	114.3	3.26	3.28	3 28	3.3	34	25
20,00,10	1040-1002	20/01000	middle		21.0	31.4	01.4	7.53	1.00		113.2	114.5	3.29	0.20	0.20	3.5	0.4	2.0
			Bottom	8.5	27.4	31.6	31.6	7.41	7 4 9	7 49	111.7	112 0	3.11	3 13		2.3	25	
			Dottom	0.5	27.4	31.6	51.0	7.57	7.43	7.43	114.1	112.5	3.14	5.15		2.6	2.5	



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









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



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





Turbidity (Depth-average) at Mid-Flood Tide







Appendix D4

Impact Marine Water Quality Monitoring Results (3RS Project)

Mid-Ebb Tide



Monitoring Station : TKO-C1a

Data	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen ition (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	s (mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	25.7	31.3 31.3	31.3	7.45	7.44		109.1	108.9	3.55	3.57		5.1	5.2	
03/06/19	1034-1050	27/Cloudy	Middle	10.9	25.5	31.4	31.5	7.26	7.28	7.36	106.0	106.3	3.78	3.77	3.74	3.2	3.0	3.9
			Bottom	20.7	25.3	31.6	31.6	7.07	7.06	7.06	108.8	102.8	3.89	3.88		3.2	3.5	
			Surface	1.0	27.6	31.6 32.0	32.0	7.05 6.98	6.97		102.6 105.9	105.7	3.87 3.59	3.57		3.7 3.9	3.8	
05/06/10	1055 1000	20/Cloudy	Middle	10.6	07.5	32.0 32.0	20.4	6.95 6.78	6 77	6.87	105.5 102.7	102 5	3.55 3.82	2.94	2.75	3.7 3.4	2.7	2.6
05/06/19	1200-1308	30/Cloudy	widdle	10.6	27.5	32.1	32.1	6.75	0.77		102.3	102.5	3.85	3.84	3.75	3.9	3.7	3.0
			Bottom	20.2	27.4	32.1 32.1	32.1	6.74 6.77	6.76	6.76	101.9 102.3	102.1	3.83 3.88	3.86		3.1 3.5	3.3	
			Surface	1.0	20.0	31.5	31.5	7.68	7.67		120.6	120.5	3.74	3 72		3.0	3.0	
			Surface	1.0	23.5	31.4	51.5	7.66	1.01	7.57	120.3	120.0	3.70	5.72		3.0	5.0	
08/06/19	1555-1609	32/Fine	Middle	10.9	29.8	31.6 31.6	31.6	7.49 7.45	7.47		117.6 117.0	117.3	3.81 3.83	3.82	3.85	3.8 4.0	3.9	3.8
			Bottom	20.7	29.6	31.8	31.8	7.23	7 25	7 25	113.2	113.4	4.01	4 00		4.4	4.6	
			Bottom	20.7	23.0	31.7	51.0	7.26	1.25	1.25	113.6	113.4	3.98	4.00		4.8	4.0	
			Surface	1.0	28.7	31.3 31.3	31.3	7.46	7.44		114.8 114.2	114.5	3.51 3.53	3.52		4.0 4.2	4.1	
10/06/19	1524-1540	31/Fine	Middle	10.8	28.6	31.4	31.4	7.24	7.26	7.35	111.2	111.5	3.71	3.70	3.68	3.0	2.9	3.5
						31.4 31.5		7.13			111.7		3.68			2.8		
			Bottom	20.6	28.4	31.5	31.5	7.11	7.12	7.12	108.9	109.1	3.80	3.82		3.5	3.4	
			Surface	1.0	27.8	31.2 31.2	31.2	7.31	7.32		110.8	111.0	3.45 3.43	3.44		3.1 3.3	3.2	
12/06/19	0856-0910	29/Cloudy	Middle	10.7	27.7	31.4	31.4	7.17	7.15	7.24	108.6	108.3	3.59	3.57	3.59	3.1	3.2	3.2
		,				31.3		7.13			107.9		3.55			3.3		
			Bottom	20.4	27.5	31.5	31.5	7.01	7.03	7.03	105.9	106.1	3.74	3.76		3.1	3.2	
			Surface	10	27.4	31.0	31.0	6.87	6.86		103.3	103 1	3.59	3 56		3.1	33	
			Gundoo	1.0	27.1	31.0	01.0	6.84	0.00	6.79	102.9	100.1	3.52	0.00		3.5	0.0	
14/06/19	0930-0943	28/Cloudy	Middle	10.6	27.3	31.6 31.5	31.6	6.72 6.74	6.73		101.2	101.4	3.93 3.90	3.92	3.81	4.0 3.6	3.8	3.9
			Bottom	20.2	27.2	31.6	31.6	6.68	6.67	6.67	100.4	100.5	3.98	3.97		4.5	4.6	
						31.6		6.65			100.6		3.95			4.7		
			Surface	1.0	27.4	31.4	31.4	7.36	7.43	7.00	110.8	111.8	3.82	3.80		3.9	3.9	
17/06/19	1037-1052	30/Cloudy	Middle	10.7	27.2	31.5	31.6	7.25	7.30	7.36	109.0	109.8	3.64	3.67	3.67	3.1	3.4	3.6
						31.6 31.8		7.35			110.5		3.69 3.53			3.6		
			Bottom	20.3	27.0	31.8	31.8	7.26	7.18	7.18	108.8	107.7	3.58	3.56		3.6	3.7	

Mid-Ebb Tide



Monitoring Station : TKO-C1a

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salini	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Dale	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.5	31.0	31.0	7.62	7 70		114.7	115.0	3.71	3 73		4.3	4.6	
			Sunace	1.0	21.5	31.0	51.0	7.77	7.70	7.64	117.0	115.5	3.75	5.75		4.8	4.0	
19/06/19	1350 1/15	28/Cloudy	Middle	10.7	27.4	31.1	31.1	7.53	7 59	7.04	113.2	114.0	3.53	3 55	3 54	4.7	4.5	47
13/00/13	1000-1410	20/01000	Middle	10.7	21.4	31.1	01.1	7.64	7.00		114.8	114.0	3.56	0.00	0.04	4.3	ч.0	7.7
			Bottom	20.3	27.1	31.2	31 3	7.22	7 29	7 29	108.2	109.2	3.34	3 35		4.9	49	
			Dottoini	20.0	27.1	31.3	01.0	7.35	1.25	1.25	110.1	100.2	3.35	0.00		4.9	ч.0	
			Surface	10	27.7	31.4	31.4	7.62	7.61		115.5	115 3	3.73	3 74		1.8	17	
			Canado	1.0	21.1	31.4	01.4	7.60	7.01	7 56	115.1	110.0	3.75	0.14		1.6		
21/06/19	1409-1424	29/Cloudy	Middle	10.7	27.4	31.5	31.6	7.53	7 51	7.00	113.5	113.2	3.64	3.67	3 64	0.9	1.0	15
21/00/13	1403-1424	25/010003	Middle	10.7	21.4	31.6	01.0	7.48	7.01		112.8	110.2	3.69	5.07	0.04	1.1	1.0	1.0
			Bottom	20.4	27.3	31.7	31.7	7.26	7 33	7 33	109.3	110.3	3.50	3 53		1.7	1 9	
			Dottoini	20.4	21.5	31.7	01.7	7.39	7.00	1.00	111.3	110.0	3.55	0.00		2.0	1.5	
			Surface	10	27.7	31.1	31.1	7.40	7 47		111.7	112 7	3.61	3.64		3.2	33	
			Canado	1.0	21.1	31.1	01.1	7.53	7.17	7 39	113.7	112.7	3.66	0.01		3.4	0.0	
24/06/19	1555-1612	30/Cloudy	Middle	10.6	27.5	31.3	31.4	7.28	7 32	1.00	109.8	110.3	3.54	3 56	3 50	4.9	51	44
24/00/10	1000 1012	oo, cloudy	Middle	10.0	27.0	31.4	01.4	7.35	1.02		110.8	110.0	3.57	0.00	0.00	5.3	0.1	
			Bottom	20.2	27.2	31.5	31.6	7.16	7 23	7 23	107.6	108.6	3.29	3 31		4.8	49	
			Bottom	20.2		31.6	01.0	7.29			109.6		3.32	0.01		4.9		
			Surface	10	27.7	31.0	31.0	7.63	7 59		115.2	114.6	3.72	3 73		2.0	19	
			Ganade	1.0	21.1	31.0	01.0	7.54	1.00	7 50	113.9	111.0	3.74	0.10		1.8	1.0	
26/06/19	1526-1539	30/Cloudy	Middle	10 7	27.5	31.1	31.2	7.33	7 4 1		110.5	111 7	3.65	3 66	3 65	1.9	20	22
20/00/10	1020 1000	ee, cloudy	maano		2000	31.2	0	7.48			112.8		3.66	0.00	0.00	2.0	2.0	
			Bottom	20.4	27.2	31.3	31.4	7.25	7.31	7 31	108.8	109.7	3.56	3 57		2.6	28	
			Dottom	20.1		31.4	•	7.36			110.5		3.58	0.01		2.9	2.0	
			Surface	10	27.4	31.2	31.2	7.44	7.51		111.8	112.9	3.69	3 72		2.4	26	
						31.2	•=	7.58		7.40	113.9		3.74			2.7		
28/06/19	0851-0907	26/Cloudy	Middle	10 7	27.2	31.4	31.4	7.26	7 29		109.0	109.4	3.55	3 53	3 55	2.6	28	32
20.00/10	0001	20. 01000y			_/	31.4	01.4	7.31			109.7		3.50	0.00	0.00	2.9		0.2
			Bottom	20.3	27.0	31.6	31.7	7.17	7.21	7.21	107.5	108.1	3.38	3.40		4.2	4.4	
			20110111	10:0	29	31.7	0	7.25			108.7		3.41	0.10		4.5		

Mid-Ebb Tide

Monitoring Station: TKO-M4a

Data	Sampling	Ambient Temp	Manifanina	Danth (m)	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Tu	ırbidity (NT	U)	Susper	nded Solids	(mg/L)
Date	Duration	(°C) / Weather Condition	wonitoring L	Jeptn (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	25.8	31.4	31.4	7.49	7 50		109.8	110.0	3.71	3 73		3.3	3.5	
			Currado	1.0	20.0	31.3	01.4	7.51	7.00	7.42	110.1	110.0	3.74	0.10		3.7	0.0	
03/06/19	1053-1107	27/Cloudy	Middle	9.8	25.6	31.6	31.6	7.35	7.33		107.6	107.3	3.85	3.84	3.80	3.6	3.4	3.3
		,				31.6		7.31			107.0		3.83			3.2	-	
			Bottom	18.5	25.5	31.7	31.7	7.18	7.17	7.17	105.0	104.8	3.82	3.84		3.1	3.0	
						31.7		7.15			104.5		3.86			2.8		
			Surface	1.0	27.7	32.1	32.1	6.92	6.90		105.1	104.9	3.43	3.45		3.3	3.5	
						32.1		6.88		6.87	104.6		3.47			3.6		
05/06/19	1310-1323	30/Cloudy	Middle	9.6	27.6	32.1	32.2	6.85	6.83		103.3	103.6	3.70	3.76	3.68	3.2	3.4	3.6
						32.2		6.70			101.5		3.81			3.5		
			Bottom	18.2	27.5	32.2	32.2	6.67	6.69	6.69	101.3	101.3	3.85	3.83		4.2	4.1	
						31.4		7.75			121.5		3.78			3.2		
			Surface	1.0	29.8	31.4	31.4	7.73	7.74		121.2	121.4	3.76	3.77		3.6	3.4	
		22/5/				31.6		7.52		7.64	117.7		3.87			4.3		
08/06/19	1613-1629	32/Fine	Middle	9.7	29.7	31.5	31.6	7.55	7.54		118.2	118.0	3.89	3.88	3.89	4.5	4.4	4.4
			Dottom	10.4	20 F	31.7	21.7	7.34	7.26	7.26	114.7	115.0	4.00	4.01		5.2	E 2	
			Bottom	18.4	29.5	31.7	31.7	7.38	7.30	7.30	115.3	115.0	4.02	4.01		5.4	5.3	
			Surface	1.0	28.8	31.3	31.3	7.51	7 53		115.7	116.0	3.65	3.64		4.0	3.8	
			Sunace	1.0	20.0	31.3	51.5	7.54	7.55	7 44	116.2	110.0	3.63	3.04		3.6	5.0	
10/06/19	1545-1559	31/Fine	Middle	9.7	28.7	31.5	31.5	7.38	7.36		113.7	113.3	3.75	3.77	3.79	3.8	4.0	4.1
						31.4		7.34			112.9		3.79			4.1		
			Bottom	18.3	28.5	31.6	31.6	7.20	7.19	7.19	110.6	110.5	3.97	3.96		4.5	4.6	
						31.6		7.18			110.3		3.94			4.6		
			Surface	1.0	27.7	31.1	31.2	7.26	7.24		109.7	109.5	3.60	3.59		3.5	3.4	
						31.2		7.22		7.17	109.2		3.58			3.2		
12/06/19	0914-0927	29/Cloudy	Middle	9.8	27.5	31.3	31.3	7.09	7.11		100.9	107.2	3.73	3.72	3.73	3.3	3.2	3.2
						31.4		6.95			107.4		3.87			2.0		
			Bottom	18.5	27.4	31.4	31.4	6.93	6.94	6.94	104.4	104.6	3.89	3.88		3.3	3.1	
						31.0		6.84			102.8		3.43			3.1		
			Surface	1.0	27.4	30.9	31.0	6.80	6.82		102.3	102.6	3.40	3.42		3.4	3.3	
14/00/40	0045 0050	00/01	Midelle	0.7	07.0	31.5	24.5	6.73	0.75	6.78	101.2	404.4	3.82	2.04	2.00	2.6	0.7	2.4
14/06/19	0945-0956	28/Cloudy	Middle	9.7	27.3	31.4	31.5	6.76	6.75		101.6	101.4	3.79	3.81	3.68	2.8	2.7	3.4
			Pottom	10.2	27.1	31.5	21.6	6.69	6.69	6.69	100.3	100.2	3.85	2 02		4.5	12	
			Dollom	10.5	27.1	31.6	51.0	6.67	0.00	0.00	100.0	100.2	3.80	5.05		4.1	4.5	
			Surface	1.0	27.4	31.4	31.4	7.47	7,40		112.5	111.4	3.75	3,77		3.5	3.7	
			oundoo			31.4	•	7.32		7.33	110.2		3.79	0		3.9	0.1	
17/06/19	1055-1109	30/Cloudy	Middle	9.7	27.2	31.5	31.6	7.21	7.27		108.4	109.3	3.58	3.61	3.60	3.3	3.4	3.8
		,				31.6		7.33			110.2		3.64			3.4		
			Bottom	18.4	27.0	31.8	31.8	7.19	7.22	7.22	107.8	108.3	3.40	3.42		4.5	4.3	
						31.8	1	7.25			108.7		3.43			4.1		

Mid-Ebb Tide

Monitoring Station: TKO-M4a

Date	Sampling	Ambient Temp	Monitoring [Depth (m)	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	n (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	Ū)	Susper	nded Solids	(mg/L)
Dale	Duration	(C) / Weather Condition	wonitoning t	Septin (iii)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.5	31.0	31.0	7.34	7 37		110.5	111.0	3.68	3 70		4.9	47	
			Sunace	1.0	27.5	31.0	31.0	7.40	1.37	7 28	111.4	111.0	3.71	3.70		4.4	4.7	
10/06/10	1421 1420	28/Cloudy	Middle	0.8	27.5	31.1	31.1	7.24	7 20	1.20	108.8	108.2	3.61	3.64	3.61	2.7	3.0	4.0
19/00/19	1421-1430	28/01000	Wildule	5.0	27.5	31.1	51.1	7.15	7.20		107.5	100.2	3.66	3.04	3.01	3.2	5.0	4.0
			Bottom	18.5	27.1	31.3	31 3	7.03	7.07	7.07	105.4	105.0	3.52	3.51		4.4	4.5	
			Dottom	10.5	27.1	31.3	51.5	7.10	7.07	7.07	106.4	105.5	3.50	3.51		4.6	4.5	
			Surface	10	27.7	31.4	31 /	7.46	7 52		113.0	113.0	3.65	3.67		2.2	2.2	
			Ounace	1.0	21.1	31.4	51.4	7.57	1.52	7 4 2	114.7	110.0	3.69	5.07		2.2	2.2	
21/06/19	1420-1446	29/Cloudy	Middle	9.7	27.4	31.5	31.6	7.28	7 32	1.42	109.8	110.3	3.40	3 4 3	3.46	1.4	15	1.8
21/00/13	1423-1440	25/010003	Wilduic	5.7	27.4	31.6	51.0	7.35	1.52		110.8	110.0	3.45	0.40	0.40	1.6	1.0	1.0
			Bottom	18.3	27.3	31.7	317	7.16	7 21	7 21	107.8	108.5	3.28	3 30		1.7	16	
			Dottom	10.5	27.5	31.7	51.7	7.26	7.21	1.21	109.2	100.5	3.31	3.30		1.5	1.0	
			Surface	10	27.7	31.1	31.1	7.32	7 39		110.5	111.6	3.75	3 77		4.5	47	
			Currace	1.0	27.1	31.1	01.1	7.46	1.00	7.36	112.6	111.0	3.78	0.11		4.9	-1.7	
24/06/19	1616-1629	30/Cloudy	Middle	9.6	27.5	31.3	31.4	7.28	7 32	1.00	109.8	110.4	3.64	3.63	3.62	4.3	41	49
21/00/10	1010 1020	our cloudy	Mildule	0.0	21.0	31.4	01.4	7.36	1.02		110.9	110.1	3.61	0.00	0.02	3.9		1.0
			Bottom	18.2	27.2	31.5	31.6	7.26	7.31	7 31	109.1	109.8	3.43	3 46		5.9	59	
			Dottom	10.2	27.2	31.6	01.0	7.35	7.01	1.01	110.5	100.0	3.48	0.10		5.9	0.0	
			Surface	10	27.7	31.1	31.1	7.48	7 42		113.0	112 1	3.65	3.68		2.3	24	
			Cundoo			31.0	•	7.36		7 31	111.1		3.70	0.00		2.5		
26/06/19	1543-1559	30/Cloudy	Middle	9.6	27.5	31.2	31.2	7.22	7.21		108.9	108.7	3.53	3.56	3.55	2.0	1.9	2.0
						31.2		7.19			108.4		3.58			1.8		
			Bottom	18.1	27.2	31.3	31.4	7.05	7.09	7.09	105.8	106.4	3.41	3.43		1.8	1.7	
			Dottom			31.4	•	7.12		1.00	106.9		3.44	0.10		1.6		
			Surface	1.0	27.4	31.2	31.2	7.51	7.58		112.9	113.9	3.72	3.73		2.5	2.4	
						31.2		7.64		7.51	114.8		3.74			2.3		
28/06/19	0911-0925	26/Cloudy	Middle	9.6	27.2	31.3	31.4	7.39	7 44		110.9	111.6	3.59	3.61	3 59	1.8	19	22
						31.4		7.48			112.3		3.62			1.9		
			Bottom	18.2	27.0	31.6	31.7	7.36	7.29	7.29	110.3	109.3	3.43	3.45		2.4	2.3	
			2011011			31.7	•	7.22			108.2		3.46	0.10		2.1		

Mid-Ebb Tide

Monitoring Station : TKO-M5

Date San Dut	Sampling	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)		
	Duration				(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
03/06/19	1113-1128	27/Cloudy	Surface	xe 1.0	25.8	31.3 31.3	31.3	7.36 7.33	7.35		107.9 107.5	107.7	3.64 3.62	3.63		2.5 2.2	2.4	
			Middle	9.2	25.7	31.5 31.4	31.5	7.23	7.21	7.28	105.9	105.6	3.70 3.73	3.72	3.74	1.3	1.2	1.6
			Bottom	17.4	25.6	31.7	31.7	7.10	7.09	7.09	104.0 103.7	103.9	3.86	3.88		1.3	1.2	
05/06/19	1326-1339	30/Cloudy	Surface	1.0	27.6	32.0	32.1	7.05	7.03		106.9	106.7	3.60	3.58	3.76	3.7	3.6	3.4
			Middle	8.9	27.5	32.1	32.2	6.90	6.89	6.96	104.5	104.3	3.86	- 3.84 3.7 - 3.85		2.8	2.7	
			Bottom	16.8	27.4	32.2	32.2	6.86	6.88	6.88	104.1	103.9	3.82			3.8	3.9	
08/06/19	1634-1648	32/Fine	Surface	10	29.8	32.2 31.3	31.3	6.89 7.48	7 50		104.0 117.1	117.3	3.82 3.61	3.62		3.9 3.7	37	4.5
			Middle	1.0	20.0	31.3 31.5	01.0	7.51 7.27	7.00	7.39	117.5 113.8		3.63 3.77	- 3.75	0.70	3.7 4.8		
				9.2	29.7	31.4 31.6	31.5	7.29	7.28		114.1 111 9	114.0	3.73 3.91		3.76	4.6	4./	
			Bottom	17.3	29.6	31.6	31.6	7.12	7.14	7.14	111.3	111.6	3.88	3.90		5.0	5.1	
10/06/19	1603-1616	31/Fine	Surface	1.0	28.8	31.4 31.3	31.4	7.33 7.36	7.35	7.35 7.31 7.27	112.9 113.4	113.2	3.50 3.46	3.48		2.9 3.0	3.0	2.7
			Middle	Middle 9.3	28.7	31.5 31.5	31.5	7.25 7.29	7.27		111.7 112.3	112.0	3.66 3.68	3.67	3.65	2.6 2.7	2.7	
			Bottom	17.6	28.6	31.6 31.6	31.6	7.08 7.06	7.07	7.07	108.9 108.6	108.8	3.81 3.78	3.80		2.7 2.4	2.6	
12/06/19	0932-0945	29/Cloudy	Surface	Surface 1.0 Middle 9.1	27.7	31.2 31.2	31.2	7.42 7.40	7.41	7.34	112.3 112.0	112.2	3.55 3.57	3.56 3.67	3.67	3.1 3.3	3.2	3.1
			Middle		27.6	31.3 31.3	31.3	7.24 7.28	7.26		109.4 110.0	109.7	3.68 3.66			3.3 3.1	3.2	
			Bottom	17.2	27.4	31.4 31.4	31.4	7.06	7.05 7.05	106.3 105.9	106.1	3.77 3.80	3.79		3.0	2.9		
14/06/19	1003-1016	28/Cloudy	Surface	1.0	27.4	31.0 31.0	31.0	6.95 6.97	6.96	6.96 6.83	104.5 104.8	104.7	3.62 3.58	3.60		3.3 2.8	3.1	2.6
			Middle	8.9	27.2	31.5 31.4	31.5	6.81 6.84	6.83		102.2	102.4	3.79 3.75	3.77	3.74	2.7	2.5	
			Bottom	16.8	27.2	31.6 31.6	31.6	6.77	6.76 6.76	6.76	101.8	101.6	3.88	3.86		2.1	2.3	
17/06/19	1115-1129	30/Cloudy	Surface	1.0	27.4	31.4	31.4	7.23	7.29		108.8	109.7	3.83	3.82		3.1	3.3	3.2
			Middle	9.1	27.2	31.6	31.6	7.12	7.16	7.22	107.1	107.6	3.75	3.77	3.75	3.3	3.1	
			Bottom	17.1	27.0	31.8 31.8	31.8	7.02	7.07	7.07	105.2 106.6	105.9	3.65 3.69	3.67		3.2 3.5	3.4	

Mid-Ebb Tide

Monitoring Station : TKO-M5

Date	Sampling Duration	Ambient Temp (°C) / Weather Condition	Monitoring Depth (m)		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)		
					(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
19/06/19	1445-1503	28/Cloudy	Surface	1.0	27.5	31.0	31.1	7.56	7.60	7 4 9	113.8	3.52	3.54		4.0	3.8		
						31.1		7.64	7.00		115.0	114.4	3.55	3.04		3.5	5.0	
			Middle	Q 1	27.4	31.1	31.1	7.43	7 38	1.45	111.7	111.0	3.32	3 33	3.36	2.8	2.8	3.1
				0.1	27.4	31.1	01.1	7.33	1.00		110.2	111.0	3.34	0.00		2.8	2.0	
			Bottom	17.2	27.1	31.2	31.3	7.12	7.16	7.16	106.7	107.3	3.19	3 20		2.8	27	
						31.3		7.20			107.9		3.21	5.20		2.5	2.1	
21/06/19	1454-1512	29/Cloudy	Surface	10	27.7	31.4	31.4	7.34	7 39		111.2	112.0 3.54	3.54	3 55		1.3	13	
				1.0	27.1	31.4	31.4 7.44 7.39 112.7 112.0 3.55 3.55	0.00		1.3	1.0							
			Middle	9.0	27 4	31.5	31.6	7.25	7 21	1.00	109.4	108 7 3.28	3.28	3 29	3 34	1.5	16	1.3
				5.0	27.4	31.6	51.0	7.16	1.21		107.9	100.7	3.30	0.20	0.04	1.6	1.0	
			Bottom	17.0	27.3	31.7	31.7	7.08	7 13	7.13	106.6	3.18	3.18	3.20		1.0	0.9	
				17.0		31.7		7.17	7.10		107.9	107.0	3.21			0.8	0.0	
24/06/19	1637-1652	30/Cloudy	Surface	10	27.7	31.1	31.1	7.44	7.51		112.3	113.3	3.46	3 4 8		5.7	5.6	4.1
				1.0	27.1	31.1	01.1	7.57	7.01	7 47	114.3	110.0	3.50	0.10		5.5	0.0	
			Middle	9.2	27.5	31.3	31.4	7.39	7 44		111.4	112 1	3.23	3.26 3	3 31	3.6	35	
				5.2	21.5	31.4	51.4	7.48	7.44		112.8	112.1	3.29	0.20	0.01	3.3	0.0	
			Bottom	17.3	27.2	31.6	31.6	7.25	7.18	7.18	109.0	108.0	3.18	3 20		2.9	31	
					27.2	31.6	00	7.11	7.10		106.9	100.0	3.22	0.20		3.3	0.1	
26/06/19	1607-1619	30/Cloudy	Surface	10	27.7	31.0	31.0	7.76	7 73		117.2	116.8 3.80	3 78		1.6	18		
				1.0	27.7	31.0	01.0	7.70	1.10	7 65	116.3	110.0	3.75	0.10	3 53	1.9	1.0	1.7
			Middle	9.0	27.5 31.1	31.1	31.2	7.64	7 58	7 58	115.2	114.2	3.54	3 52		1.7	18	
				0.0	20.00	31.2	01.2	7.51	1.00		113.2		3.50	0.02	0.00	1.8		
			Bottom	16.9	27.2	31.4	31.4	7.43	7.40 7.40	7 40	111.5	111.0 3.28 3.31	3.28	3 30		1.6	15	
				10.0		31.4	01.4	7.36		1.40	110.5		0.00		1.4	1.0		
28/06/19	0932-0948	26/Cloudy	Surface	10	27 4	31.2	31.2	7.35	7 4 1	7 41	110.5	111.3 3.6 3.7 109.6 3.4 3.4	3.68	3 70	3.48	1.2	12	1.0
						31.2		7.46	7.35	7 35	112.1		3.72	0.10		1.1		
			Middle	8.9	27.2	31.4	31.4	7.23	7.30	.30	108.5		3.43	3 4 2		1.1	12	
						31.4		7.37	1.00		110.6		3.40	0.72		1.3	1.2	
			Bottom	16.8	27.0	31.6	31.6	7.11	7 19	7 19	106.6	107 7	3.30	3.33		0.6	0.7	
				10.0		31.6		7.26	1.13	1.13	108.8	107.7	3.36			0.8	0.7	
Mid-Flood Tide

Monitoring Station : TKO-C1a

Data	Sampling	Ambient Temp	Monitorin	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.7	31.3	21.2	7.53	7 5 2	Ŭ	113.9	112.0	3.49	2 40	Ŭ	2.7	2.0	
			Surface	1.0	21.1	31.2	51.5	7.51	7.52	7 44	113.6	113.0	3.47	3.40		3.0	2.9	
03/06/19	1555-1610	20/Fine	Middle	11.0	27.5	31.4	31.4	7.35	7 37	7.77	110.9	111 1	3.52	3 54	3 58	1.9	19	26
00,00,10	1000-1010	20/1 110	Wildale	11.0	21.0	31.4	01.4	7.38	1.01		111.3		3.56	0.01	0.00	1.9	1.0	2.0
			Bottom	21.0	27.3	31.6	31.6	7.12	7 14	7 14	107.2	107.5	3.73	3 72		2.9	3.0	
			Dottom	20	27.0	31.5	00	7.16			107.7		3.70	0.12		3.1	0.0	
			Surface	1.0	27.4	31.9	31.9	7.05	7.07		106.5	106.8	3.37	3.39		3.6	3.7	
						31.9		7.08		7.00	107.0		3.40			3.8		
05/06/19	0905-0917	30/Cloudy	Middle	11.0	27.2	32.0	32.1	6.91	6.93		104.0	104.3	3.68	3.67	3.64	3.6	3.7	3.5
						32.1		6.94			104.5		3.65			3.8		
			Bottom	21.0	27.2	32.1	32.2	6.88	6.87	6.87	103.7	103.5	3.89	3.88		3.3	3.2	
						32.2		6.85			103.3		3.87			3.1		
			Surface	1.0	28.9	31.5	31.5	7.71	7.72		119.2	119.4	3.60	3.59		3.4	3.4	
						31.5		7.73		7.65	119.5		3.58		+	3.3		
08/06/19	0853-0908	30/Fine	Middle	11.0	28.7	31.7	31.7	7.55	7.57		116.3	116.7	3.71	3.73	3.74	3.3	3.6	3.7
						31.6		7.59			117.0		3.74			3.9		
			Bottom	20.9	28.6	31.8	31.8	7.40	7.45	7.45	115.0	114.8	3.92	3.90		4.3	4.2	
						31.8		7.43			114.5		3.88			4.0		
			Surface	1.0	27.7	21.2	31.2	7.52	7.54		113.0	114.0	3.40	3.41		4.2	4.3	
						31.2		7.33		7.48	111.6		3.56			2.5		
10/06/19	1033-1048	29/Cloudy	Middle	10.9	27.5	31.3	31.3	7.40	7.42		112.2	111.9	3.53	3.55	3.56	3.5	3.6	3.8
						31.4		7.79			109.8		3.69			3.7		
			Bottom	20.8	27.4	31.4	31.4	7.20	7.28	7.28	109.5	109.7	3 73	3.71		3.7	3.5	
						31.1		7.45			114.4		3.35			3.1		
			Surface	1.0	28.7	31.2	31.2	7.49	7.47		115.2	114.8	3.38	3.37		3.2	3.2	
						31.3		7.34		7.41	112.6		3.44			2.8		
12/06/19	1334-1350	31/Cloudy	Middle	10.8	28.5	31.3	31.3	7.37	7.36		113.0	112.8	3.46	3.45	3.48	2.8	2.8	3.0
			D	00.0	00.0	31.4		7.23	7.00	7.00	110.6	110.1	3.65	0.00		3.1	0.4	
			Bottom	20.6	28.3	31.4	31.4	7.21	7.22	7.22	110.2	110.4	3.61	3.63		3.0	3.1	
			Surface	1.0	27.6	31.0	21.1	6.88	6.97		103.7	102 5	3.37	2.24		2.8	2.0	
			Surrace	1.0	27.0	31.1	31.1	6.85	0.87	6 92	103.3	103.5	3.31	3.34		2.8	2.8	
14/06/10	1455 1509	20/Cloudy	Middlo	10.0	27.5	31.2	21.2	6.81	6 90	0.03	102.7	102.6	3.68	2.67	2 62	2.9	2.0	26
14/00/19	1455-1506	29/Cloudy	Midule	10.9	21.5	31.3	51.5	6.79	0.80		102.4	102.0	3.65	3.07	3.02	2.8	2.9	2.0
			Bottom	20.8	27.4	31.0	31.3	6.73	6 75	6 75	101.3	101.6	3.88	3.86		2.1	2.1	
			Dottom	20.0	21.4	31.5	51.5	6.77	0.75	0.75	101.8	101.0	3.84	3.00		2.0	2.1	
			Surface	10	27.5	31.4	31.4	7.67	7 71		115.6	116.2	3.61	3 64		4.1	4.3	
			Ganade	1.0	21.0	31.4	01.4	7.74	7.7 1	7 66	116.7	110.2	3.66	0.01		4.4	4.0	
17/06/19	1603-1616	31/Cloudy	Middle	10.8	27.3	31.6	31.6	7.52	7.61	7.00	113.2	114.5	3.50	3.52	3.51	3.9	3.8	3.8
11/00/10		o noioudy	Mildulo	10.0	21.0	31.6	01.0	7.69	7.01		115.8	114.0	3.54	0.02	0.01	3.6	0.0	0.0
			Bottom	20.6	27.2	31.8	31.8	7.42	7,40	7,40	111.7	111.4	3.34	3,36		3.4	3.5	
						31.8		7.38			111.1		3.38			3.5		

Mid-Flood Tide

Monitoring Station : TKO-C1a

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Dale	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.6	31.0	31.0	7.81	7 76		117.8	117.0	3.50	3 53		4.0	30	
			Ounace	1.0	27.0	31.0	51.0	7.70	1.10	7.66	116.1	117.0	3.55	0.00		3.8	0.0	
19/06/19	0847-0902	27/Cloudy	Middle	10.8	27.4	31.1	31.1	7.61	7 57	1.00	114.4	113.8	3.42	3 45	3 4 3	3.0	32	32
10,00,10	0011 0002	Zholoudy	iniadio			31.1	•	7.52			113.1		3.48	0.10	0.10	3.3	0.2	0.2
			Bottom	20.5	27 1	31.3	31.3	7.44	7 50	7 50	111.5	112.4	3.29	3 30		2.7	2.5	
			Bottom	20.0		31.3	01.0	7.56		1.00	113.3		3.31	0.00		2.3	2.0	
			Surface	1.0	27.5	31.4	31.4	7.74	7.78		116.7	117.3	3.62	3.63		2.0	1.9	
					_	31.4	-	7.82		7.70	117.9		3.64			1.8	-	
21/06/19	0856-0910	28/Cloudy	Middle	10.8	27.3	31.5	31.5	7.59	7.63		114.1	114.6	3.52	3.54	3.49	0.8	0.9	1.3
		,				31.5		7.66			115.1		3.55			0.9		
			Bottom	20.5	27.2	31.7	31.7	7.42	7.48	7.48	111.5	112.4	3.28	3.30		1.4	1.3	
						31.6		7.53			113.2		3.31			1.1		
			Surface	1.0	27.7	31.1	31.1	7.62	7.59		115.1	114.7	3.53	3.56		3.1	3.0	
						31.0		7.56		7.51	114.2		3.58			2.8		
24/06/19	0926-0937	28/Cloudy	Middle	10.8	27.4	31.3	31.4	7.34	7.43		110.5	111.8	3.43	3.44	3.50	3.5	3.3	3.4
						31.4		7.51			113.1		3.44			3.1		
			Bottom	20.5	27.1	21.6	31.6	7.19	7.24	7.24	107.9	108.6	3.50	3.52		3.8	3.9	
						31.0		7.20			116.8		3.04			4.0		
			Surface	1.0	27.6	31.0	31.0	7.73	7.80		118.3	117.6	3.03	3.72		2.0	2.6	
						31.0		7.66		7.74	115.1		3.53			2.5		
26/06/19	0950-1004	29/Cloudy	Middle	10.8	27.4	31.2	31.2	7.00	7.69		115.9	115.5	3.54	3.54	3.51	2.1	2.3	2.3
						31.4		7.59			114.0		3.28			1.9		
			Bottom	20.6	27.2	31.4	31.4	7.43	7.51	7.51	111.5	112.8	3.30	3.29		2.1	2.0	
						31.2		7.67			115.8		3.65			1.8		
			Surface	1.0	27.6	31.2	31.2	7.78	7.73		117.5	116.7	3.70	3.68		2.0	1.9	
						31.3		7.54		7.66	113.3		3.43			1.8		
28/06/19	1429-1445	28/Cloudy	Middle	10.8	27.3	31.4	31.4	7.66	7.60		115.1	114.2	3.48	3.46	3.46	1.6	1.7	2.1
			Detter	20.0	07.0	31.6	04.7	7.39	7.00	7.00	111.1	110.1	3.21	2.04		2.8	0.7	
			Bottom	20.6	27.2	31.7	31.7	7.25	7.32	7.32	109.0	110.1	3.26	3.24		2.6	2.7	

Mid-Flood Tide

Monitoring Station : TKO-M4a

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Tu	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Date	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.8	31.3	31.4	7.60	7.62		115.2	115.6	3.58	3.60		2.3	2.4	
						31.4		7.64		7.55	115.9		3.62			2.4		
03/06/19	1613-1626	29/Fine	Middle	9.9	27.6	31.6	31.6	7.49	7.48		113.3	113.1	3.77	3.76	3.73	2.3	2.3	2.3
						31.5		7.46			112.9		3.75			2.3		
			Bottom	18.8	27.5	31.7	31.7	7.34	7.35	7.35	110.9	111.1	3.81	3.83		2.1	2.3	
						31.7	•	7.36			111.2		3.84			2.4		
			Surface	1.0	27.5	31.9	32.0	6.97	6.96		105.4	105.2	3.25	3.27		2.9	3.0	
						32.0		6.94		6.87	105.0		3.29			3.1		
05/06/19	0919-0929	30/Cloudy	Middle	9.9	27.2	32.0	32.1	6.79	6.78		102.2	102.1	3.74	3.72	3.58	4.4	4.5	3.7
		,				32.1		6.77			101.9		3.70	-		4.6	-	-
			Bottom	18.8	27.1	32.2	32.2	6.72	6.70	6.70	101.2	101.5	3.78	3.75		3.5	3.7	
						32.2	-	6.68			101.7		3.72			3.8	-	
			Surface	1.0	28.8	31.4	31.5	7.62	7.74		120.5	120.8	3.65	3.63		3.2	3.0	
						31.5		7.85		7.70	121.1		3.61			2.7		
08/06/19	0912-0926	30/Cloudy	Middle	9.8	28.6	31.6	31.6	7.68	7.67	-	118.2	118.1	3.70	3.71	3.73	3.9	3.7	3.4
		,				31.6		7.66	-		117.9	-	3.72	-		3.5	-	-
			Bottom	18.6	28.4	31.7	31.7	7.51	7.53	7.53	115.2	115.5	3.85	3.84		3.6	3.7	
						31.7		7.55			115.8		3.83			3.7		
			Surface	1.0	27.8	31.3	31.3	7.69	7.67		116.5	116.2	3.58	3.56		3.8	3.6	
						31.2		7.65		7.61	115.9		3.54			3.4		
10/06/19	1052-1106	29/Cloudy	Middle	9.8	27.6	31.4	31.4	7.54	7.56		113.9	114.2	3.67	3.69	3.67	4.2	4.1	3.7
		,				31.4		7.57			114.4		3.70			4.0		-
			Bottom	18.5	27.4	31.5	31.5	7.33	7.32	7.32	110.6	110.5	3.77	3.76		3.6	3.4	
						31.5		7.31			110.3		3.75			3.2		
			Surface	1.0	28.8	31.2	31.2	7.40	7.39		114.0	113.9	3.52	3.51		2.7	2.6	
						31.2		7.38		7.33	113.7		3.49			2.5		
12/06/19	1353-1407	31/Cloudy	Middle	9.9	28.6	31.4	31.4	7.25	7.27		111.4	111.6	3.60	3.62	3.63	2.6	2.7	2.5
						31.3		7.28			111.8		3.64			2.8		
			Bottom	18.7	28.4	31.5	31.5	7.09	7.11	7.11	108.6	108.9	3.76	3.75		2.1	2.2	
						31.5		7.13			109.2		3.74			2.3		
			Surface	1.0	27.6	31.0	31.0	6.91	6.93		104.2	104.5	3.42	3.40		4.8	5.0	
						31.0		6.94		6.83	104.7	-	3.38			5.1		
14/06/19	1510-1523	29/Cloudy	Middle	10.1	27.4	31.4	31.4	6.75	6.74		101.6	101.4	3.74	3.72	3.67	3.0	2.9	3.9
		-				31.4		6.72			101.2		3.70			2.7		
			Bottom	19.2	27.3	31.5	31.5	6.68	6.66	6.66	100.4	100.2	3.92	3.90		3.6	3.8	
						31.5		6.64			99.9		3.87			3.9		
			Surface	1.0	27.5	31.4	31.5	7.81	7.76		117.8	117.0	3.54	3.57		3.5	3.6	
						31.5		7.70		7.73	116.1		3.59			3.7		
17/06/19	1620-1635	31/Cloudy	Middle	9.9	27.3	31.6	31.6	7.63	7.70		114.9	116.0	3.42	3.45	3.45	3.6	3.7	3.6
		-				31.6		7.77			117.0		3.48			3.8		
			Bottom	18.8	27.2	31.8	31.9	7.52	7.59	7.59	113.2	114.2	3.33	3.35		3.3	3.5	
		1		1	1	31.9	1	7.65	1	1	115.2		3.36	1		3.6	1	

Mid-Flood Tide

Monitoring Station : TKO-M4a

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxygen	(mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Duto	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.6	31.0	31.0	7.56	7 62		114.0	114.8	3.62	3 63		3.2	31	
			Currade	1.0	21.0	31.0	01.0	7.67	7.02	7 55	115.6	114.0	3.64	0.00		2.9	0.1	
19/06/19	0906-0921	27/Cloudy	Middle	99	27 4	31.1	31.1	7.54	7 49	1.00	113.3	112.5	3.56	3 54	3 56	3.7	36	32
10,00,10	0000 0021	21/010000	iniadio	0.0		31.0	•	7.43			111.7		3.52	0.01	0.00	3.4	0.0	0.2
			Bottom	18 7	27 1	31.2	31.3	7.21	7 26	7 26	108.1	108.8	3.49	3.51		3.1	3.0	
			Dottom			31.3	00	7.30			109.4	10010	3.52	0.01		2.8	0.0	
			Surface	1.0	27.5	31.4	31.4	7.68	7.71		115.8	116.3	3.47	3.49		1.0	1.1	
			Canado		27.00	31.3	•	7.74		7.59	116.7		3.50	0.10		1.2		
21/06/19	0913-0926	28/Cloudy	Middle	9.8	27.3	31.5	31.5	7.52	7 48		113.0	112.4	3.36	3 38	3 43	0.5	0.5	0.8
2.000,10	0010 0020	20, 010000	iniadio	0.0	27.00	31.5	00	7.43			111.7		3.39	0.00	0.10	0.4	0.0	0.0
			Bottom	18.5	27.2	31.7	31.7	7.28	7.31	7.31	109.4	109.8	3.41	3.43		0.8	0.9	
			Dottom	10.0		31.7	•	7.33			110.2	10010	3.44	0.10		1.0	0.0	
			Surface	10	27 7	31.1	31.1	7.54	7 59		113.9	114.6	3.56	3 57		4.9	51	
			Canado			31.1	•	7.63	1.00	7.55	115.2		3.57	0.01		5.3	0.1	
24/06/19	0939-0951	28/Cloudy	Middle	9.8	27.4	31.3	31.4	7.46	7.52		112.3	113.2	3.64	3.65	3.50	4.0	4.2	4.5
						31.4	•	7.57			114.0		3.65			4.4		
			Bottom	18.5	27 1	31.6	31.6	7.29	7 33	7 33	109.4	110.0	3.26	3.28		4.4	4.3	
			Dottom	10.0		31.6	00	7.36	1.00		110.5		3.30	0.20		4.2		
			Surface	1.0	27.6	31.0	31.0	7.63	7.71		115.1	116.3	3.51	3.53		1.9	2.1	
						31.0		7.78		7.63	117.4		3.55			2.2		
26/06/19	1007-1023	29/Cloudy	Middle	97	27 4	31.1	31.1	7.52	7 56		113.0	113.6	3.46	3 48	3 42	1.7	17	18
20,00,10	1001 1020	20, 010000	iniadio	0.1		31.1	•	7.59	1.00		114.1		3.50	0.10	0.12	1.6		
			Bottom	18.4	27.2	31.3	31.4	7.41	7.48	7.48	111.3	112.3	3.26	3.25		1.6	1.7	
						31.4	•	7.54			113.2		3.24			1.7		
			Surface	10	27.6	31.2	31.2	7.71	7 79		116.4	117.6	3.63	3.66		1.9	20	
			Canado		20.00	31.2	02	7.86		7 73	118.7		3.68	0.00		2.1	2.0	
28/06/19	1451-1508	28/Cloudy	Middle	9.8	27.3	31.3	31.4	7.63	7 67		114.7	115.2	3.21	3 24	3 36	2.1	21	22
20.00.10		20,010003		0.0		31.4	•	7.70			115.7		3.26	0.2.	0.00	2.0		
			Bottom	18.5	27.2	31.6	31.7	7.48	7 52	7 52	112.4	113.0	3.15	3 18		2.8	26	
			Dottoill	10.0	£1.£	31.7	01.7	7.55	1.02	1.02	113.5	110.0	3.20	0.10		2.4	2.0	

Mid-Flood Tide

Monitoring Station : TKO-M5

Outling Outling <t< th=""><th>Date</th><th>Sampling</th><th>Ambient Temp</th><th>Monitorir</th><th>ng Depth</th><th>Temp</th><th>Salinit</th><th>y (ppt)</th><th>Dissolv</th><th>ved Oxyger</th><th>ı (mg/L)</th><th>Dissolve Satura</th><th>d Oxygen tion (%)</th><th>Τι</th><th>urbidity (NT</th><th>U)</th><th>Susper</th><th>ided Solids</th><th>(mg/L)</th></t<>	Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	y (ppt)	Dissolv	ved Oxyger	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	ided Solids	(mg/L)
930809 161140 28 56 17 31	Build	Duration	Condition	(n	ו)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
0306/9 1631-64 29Fine 16 - 315 7.32 7.32 7.33 7.34 7.34 7.35 7.30 7.35 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.30 7.37 7.30 7.37 7.33 7.37 7.37 7.33 7.37 7.37 7.33 7.37 7.37 7.33 7.37 7.37 7.37 7.37 7.37 <				Surface	1.0	27.7	31.4	31.4	7.41	7.43		112.3	112.5	3.53	3.52		1.5	1.4	
0306/19 1631-164 287 in transmission 1631-164 287 in transmission 17.0 10.7 10							31.4		7.44		7.37	112.7		3.50			1.3		
Image: bold bold bold bold bold bold bold bold	03/06/19	1631-1645	29/Fine	Middle	9.3	27.6	31.5	31.5	7.32	7.31		110.7	110.6	3.65	3.67	3.65	1.2	1.1	1.0
Image: state in the state in thestate in the state in the state in the state in the st							31.5		7.30			110.4		3.69			1.0		
0 0 0 1				Bottom	17.6	27.4	31.6	31.7	7.13	7.15	7.15	107.5	107.8	3.76	3.78		0.5	0.6	
9600049 9032-0443 Surface 1.0 2.7 3.20 7.03 7.10 7.10 7.00							31.7		7.17			108.1		3.79			0.7		
0 0				Surface	1.0	27.4	32.0	32.0	7.09	7.11		107.1	107.4	3.30	3.34		2.8	2.6	
0506/19 0932-0943 300/cloudy Middle 9.2 27.2 0.1 9.2 6.8 6.66 0.0.2 10.5 0.50 3.65 3.57 0.0 3.8 3.1 060019 0930-0943 300/cloudy Middle 9.4 27.2 32.1 32.2 6.86 6.87 6.87 103.3 103.6 3.72 3.74 2.6 2.6 3.8 3.75 3.74 2.6 2.6 3.8 3.75 3.74 2.6 2.6 3.8 3.75 3.74 2.6 2.6 3.8 3.7 3.74 3.74 3.44 3.43 3.75 3.74 3.74 3.44 3.43 3.75 3.76 3.6 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67 3.65 3.67							32.0		6.88		6.99	107.0		3.67			2.3		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	05/06/19	0932-0943	30/Cloudy	Middle	9.2	27.2	32.1	32.1	6.84	6.86		103.2	103.5	3.63	3.65	3.57	3.8	3.8	3.1
1 1							32.1		6.85			103.3		3.72			2.6		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	17.4	27.2	32.2	32.2	6.89	6.87	6.87	103.8	103.6	3.75	3.74		3.0	2.8	
0806/19 0930-0943 30/Fine 1.0 2.29 31.3 31.4 7.59 7.63 7.65 117.1 117.5 3.44 3.33 3.77 7.65 117.1 117.5 3.44 3.37 7.65 117.1 117.5 3.44 3.37 7.37 115.1 115.1 115.7 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 3.56 3.57 7.66 11.5 11.57<				0	4.0	00.0	31.4		7.67	7.00		117.8	447.5	3.41	0.40		3.2		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Surrace	1.0	28.9	31.3	31.4	7.59	7.63	7.55	117.1	117.5	3.44	3.43		4.0	3.6	
0600 rs 0600 rs 0600 rs 0600 rs 0600 rs 07.0 rs <t< td=""><td>08/06/10</td><td>0020 0042</td><td>20/Eino</td><td>Middlo</td><td>0.4</td><td>20.0</td><td>31.5</td><td>21.5</td><td>7.46</td><td>7 4 9</td><td>7.55</td><td>115.1</td><td>115.4</td><td>3.58</td><td>2.57</td><td>2 55</td><td>3.3</td><td>2.5</td><td>2.0</td></t<>	08/06/10	0020 0042	20/Eino	Middlo	0.4	20.0	31.5	21.5	7.46	7 4 9	7.55	115.1	115.4	3.58	2.57	2 55	3.3	2.5	2.0
$ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	08/00/19	0930-0943	30/Fille	Midule	9.4	20.0	31.5	51.5	7.49	7.40		115.6	115.4	3.56	3.57	3.00	3.7	3.5	3.9
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	17 7	28.7	31.6	317	7.38	7 37	7 37	113.7	113.6	3.63	3 65		4.4	4.6	
$ 1006/19 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1131-1144 \\ 1111-$				Dottoini	17.7	20.7	31.7	51.7	7.36	1.51	1.51	113.4	110.0	3.67	0.00		4.8	4.0	
$ 10'06'19 \ 1131 - 1144 \ 29'Cloudy \ 10'' 10'' 1131 - 1144 \ 29'Cloudy \ 10'' 117.8 \ 20'' 10'' 11.4 \ 31.4 \ 31.5 \ 3$				Surface	1.0	27.8	31.3	31.3	7.47	7.48		113.2	113.4	3.33	3.32		3.5	3.6	
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							31.3		7.49		7.41	113.5		3.30			3.7		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	10/06/19	1131-1144	29/Cloudy	Middle	9.4	27.7	31.4	31.4	7.35	7.34		111.4	111.2	3.44	3.45	3.47	2.5	2.7	3.2
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$							31.4		7.32			110.9		3.46			2.8		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				Bottom	17.8	27.5	31.5	31.5	7.21	7.19	7.19	108.9	108.6	3.61	3.63		3.6	3.5	
$ 1206/19 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-1426 \\ 1411-142 \\ 1411-1426 \\ 1411-142 \\ 1411-1426 \\ 1411-142 \\ 1411-1426 \\ 1411-142 \\ 1411-1426 \\ 1411-14 \\ 1411-1426 \\ 1411-142 \\$							31.5		7.17			108.3		3.65			3.3		
12/06/19 $ 1411-1426 $ $ 31/Cloudy $ $ 17.5 $ $ 28.7 $ $ 31.2 $ $ 31.4 $ $ 7.16$				Surface	1.0	28.8	31.1	31.1	7.51	7.53		115.5	115.9	3.47	3.46		3.2	3.1	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $							31.1		7.33		7.42	112.8		3 53			2.7		
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$	12/06/19	1411-1426	31/Cloudy	Middle	9.3	28.7	31.2	31.2	7.30	7.32		112.3	112.6	3.56	3.55	3.56	2.7	2.6	2.9
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$				_			31.3		7.16			109.8		3.71			2.8		
$ 14/06/19 \ 1527-1540 \ 29/Cloudy \ \begin{array}{c} Surface \\ 29/Cloudy \end{array} \ \begin{array}{c} Surface \\ 1.0 \\ 29/Cloudy \end{array} \ \begin{array}{c} 31.1 \\ $				Bottom	17.5	28.5	31.4	31.4	7.14	7.15	7.15	109.5	109.7	3.67	3.69		3.2	3.0	
$ 14/06/19 \ 1527-1540 \ 29/Cloudy \ 1000 \ 29/Cloudy \ 1000 \ 2$				Ourfease	1.0	07.0	31.1	24.4	7.02	7.00		105.8	100.0	3.39	0.07		7.7	7.0	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$				Surface	1.0	27.0	31.1	31.1	7.04	7.03	6.96	106.1	106.0	3.35	3.37		7.8	7.8	
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	14/06/19	1527 1540	29/Cloudy	Middle	0.2	27.4	31.4	31.5	6.71	6 70	0.00	101.0	100.8	3.90	3.02	3 74	2.4	24	12
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	14/00/19	1527-1540	29/010003	Midule	5.2	27.4	31.5	51.5	6.68	0.70		100.6	100.0	3.94	5.52	5.74	2.4	2.4	4.2
$\begin{array}{c c c c c c c c c c c c c c c c c c c $				Bottom	17 4	27.3	31.5	31.6	6.69	6.67	6 67	100.6	100.4	3.94	3.92		2.2	23	
$17/06/19 1642-1654 31/Cloudy 1642-1654 31/Cloudy 1.0 27.5 \frac{31.4}{31.4} 31.4 \frac{7.70}{7.82} 7.76 \\ \hline 1.0 27.5 \frac{31.4}{31.4} 31.4 \frac{7.70}{7.82} 7.76 \\ \hline 1.0 7.82 7.76 \\ \hline 1.0 7.82 7.76 \\ \hline 1.0 7.82 7.76 \\ \hline 1.17.9 117.0 3.67 3.64 \\ \hline 1.17.9 3.67 3.64 3.67 3.64 \\ \hline 1.17.9 3.67 3.64 3.67 3.64 3.67 3.64 3.67 3.64 3.67 3.64 3.67 3$				Dottom		20.0	31.6	01.0	6.65	0.01	0.01	100.1		3.90	0.02		2.4	2.0	
17/06/19 1642-1654 31/Cloudy 1642-1654 31/Cl				Surface	1.0	27.5	31.4	31.4	7.70	7.76		116.1	117.0	3.67	3.64		3.4	3.5	
17/06/19 1642-1654 31/Cloudy Middle 9.2 27.3 31.6 7.65 7.60 115.2 114.5 3.35 3.37 3.42 3.5 3.3 17/06/19 1642-1654 31/Cloudy Middle 9.2 27.3 31.6 7.55 7.60 115.2 114.5 3.35 3.37 3.42 3.5 3.3 3.1 31.8 7.36 110.8 3.22 3.4 3.4 3.4							31.4		7.82		7.68	117.9		3.60			3.6		
31.6 7.55 113.7 3.38 3.1 31.8 7.36 110.8 3.22 3.4	17/06/19	1642-1654	31/Cloudy	Middle	9.2	27.3	31.6	31.6	7.65	7.60		115.2	114.5	3.35	3.37	3.42	3.5	3.3	3.5
							31.6		7.55			113.7		3.38			3.1		
Bottom 17.4 27.1 31.8 31.8 7.47 7.42 7.42 7.42 112.5 111.7 3.29 3.26 3.7 3.6				Bottom	17.4	27.1	31.0	31.8	7.30	7.42	7.42	112.5	111.7	3.22	3.26		3.4	3.6	

Mid-Flood Tide

Monitoring Station : TKO-M5

Date	Sampling	Ambient Temp	Monitorir	ng Depth	Temp	Salinit	ty (ppt)	Dissolv	ved Oxygen	ı (mg/L)	Dissolve Satura	d Oxygen tion (%)	Τι	urbidity (NT	U)	Susper	nded Solids	(mg/L)
Duto	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.6	31.1	31.1	7.77	7 80		117.1	117.6	3.40	3 42		3.0	29	
			Gundoe	1.0	21.0	31.0	01.1	7.83	7.00	7 74	118.1	111.0	3.44	0.12	ļ	2.7	2.0	
19/06/19	0929-0940	27/Cloudy	Middle	93	27.4	31.1	31.1	7.65	7 69	7.14	115.0	115.6	3.25	3 27	3 28	2.0	20	29
	0020 0010	21/010000	inidalo	0.0		31.1	•	7.72	1.00		116.1		3.29	0.21	0.20	2.0	2.0	2.0
			Bottom	17.6	27 1	31.2	31.3	7.34	7 4 1	7 41	110.0	111 1	3.14	3 15		3.9	37	
			Dottom			31.3	0.1.0	7.48			112.1		3.16	0.10		3.5	0	
			Surface	1.0	27.5	31.4	31.4	7.55	7.61		113.8	114.7	3.40	3.43		1.3	1.4	
						31.4	_	7.66		7.50	115.5		3.45		ļ	1.5		
21/06/19	0933-0943	28/Cloudy	Middle	9.1	27.3	31.5	31.5	7.36	7.39		110.6	111.0	3.16	3.18	3.27	1.1	1.2	1.4
						31.5		7.41			111.4		3.19			1.3		
			Bottom	17.2	27.2	31.7	31.7	7.15	7.22	7.22	107.5	108.6	3.20	3.22		1.5	1.5	
						31.7		7.29			109.6		3.24			1.4		
			Surface	1.0	27.7	31.1	31.1	7.71	7.75		116.4	117.0	3.33	3.35		3.7	3.6	
						31.1		7.79		7.67	117.6		3.36		ł	3.4		
24/06/19	0957-1007	28/Cloudy	Middle	9.3	27.4	31.3	31.4	7.62	7.58		114.7	114.1	3.21	3.23	3.25	2.4	2.5	3.2
						31.4		7.54			113.5		3.24			2.6		
			Bottom	17.6	27.1	31.5	31.6	7.30	7.42	7.42	110.5	111.4	3.15	3.18		3.3	3.5	
						31.0		7.48			112.3		3.20			3.6		
			Surface	1.0	27.6	21.1	31.1	7.04	7.90		120.1	119.2	3.50	3.52		2.0	2.4	
						31.1		7.90		7.84	120.1		3.04		ł	2.2		
26/06/19	1029-1043	29/Cloudy	Middle	9.2	27.4	31.2	31.2	7.01	7.77		116.2	116.8	3.20	3.30	3.34	1.5	1.6	2.0
						31.3		7.62			114.4		3.17		-	1.7		
			Bottom	17.3	27.2	31.4	31.4	7.52	7.60	7.60	113.6	114.0	3.22	3.20		2.0	1.9	
						31.2		7.90			119.4		3.42			2.5		
			Surface	1.0	27.6	31.2	31.2	7.81	7.86		117.9	118.7	3.44	3.43		22	2.4	
						31.4		7.72		7.82	116.1		3.27		1	0.9		
28/06/19	1515-1533	28/Cloudy	Middle	9.1	27.3	31.4	31.4	7.84	7.78		117.8	117.0	3.28	3.28	3.30	1.0	1.0	1.5
			5.4			31.6	a	7.62			114.5		3.16		1	1.1		
			Bottom	17.1	27.2	31.7	31.7	7.75	7.69	7.69	116.5	115.5	3.20	3.18		1.3	1.2	



Appendix D5

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





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







Suspended solids (Depth-average) at Mid-Flood Tide (3RS project)



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





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



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



Appendix E

Weather Condition

Der	Mean Pressure (hPa)		Air Temperat	ure	Mean Dew Point	Mean Relative Humidity	Total Rainfall (mm)	Prevailing Wind Direction	Mean Wind Speed
Day	(Absolute Daily Max	Mean (deg. C)	Absolute Daily Min	(deg. C)	(%)	()	(degrees)	(km/h)
1	***	30.1	26.6	24.0	24.5	88	45.0	190#	4.7#
2	***	31.9	26.5	24.0	24.3	89	2.5	190	4.3
3	***	29.6	26.7	24.4	24.5	88	23.0	210	5.1
4	***	31.8	27.2	24.4	25.6	92	90.5	220	3.7
5	***	31.1	28.2	25.8	26.1	89	0.0	200	4.1
6	***	32.6	29.2	27.0	25.8	83	0.0	190	4.5
7	***	33.8	29.7	26.7	25.1	77	0.5	230	6
8	***	32.9	29.4	26.6	25.1	78	0.0	190	6.6
9	***	32.1	29.5	27.7	25.7	80	4.5	220	8.2
10	***	31.5	28.5	24.5	25.5	84	2.5	200	6
11	***	28.7	26.2	24.0	25.5	96	119.0	70	3
12	***	29.0	26.2	24.8	25.5	96	1.5	10	4.4
13	***	29.1	26.2	24.9	25.6	96	67.0	10	2.8
14	***	32.5	27.3	23.7	23.4	81	13.0	60	4.9
15	***	30.4	27.0	22.9	22.9	79	0.0	60	5.8
16	***	29.0	27.0	25.9	23.7	82	0.0	60	7.8
17	***	28.1	26.9	26.1	25.1	90	7.5	70	6.2
18	***	29.7	27.7	26.2	26.5	93	4.0	350	2.3
19	***	31.9	28.2	25.7	26.3	90	13.0	180	3.4
20	***	32.8	29.3	26.3	26.2	84	2.0	180	4.7
21	***	34.0	30.3	28.4	26.0	79	0.0	190	7.1
22	***	33.4	30.4	28.1	25.8	77	1.5	210	8.5
23	***	33.2	30.1	28.0	25.9	79	2.5	190	8.8
24	***	30.8	28.1	24.2	26.1	89	17.5	230	4.9
25	***	29.6	26.0	24.0	25.2	95	39.5	10	2.4
26	***	31.7	27.7	25.5	25.9	90	3.0	190	2.8
27	***	33.2	29.6	27.0	26.4	83	0.0	230	4.7
28	***	31.4	28.9	27.1	27.2	91	25.0	230	3.6
29	***	33.8	29.9	27.5	27.0	85	4.5	230	4.3
30	***	33.4	29.3	26.1	26.6	86	3.0	190	3.8

Daily Extract of Meteorological Observations , June 2019 - Tseung Kwan O

*** unavailable

data incomplete

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



Appendix F

Event-Action Plans

	Contractor		 Readify any unacceptable practise appropriate 	 Submit proposals for remedial actions to IC(E) within 3 working days of notification Implement the agreed Amend proposal if Amend proposal if 		 Take immediate action to avoid further exceedance Submit propossis for remedial actions to IO(E) within 3 working days of notification Implement the agreed Amend proposal if appropriate.
LITY EXCEEDANCE	ER		1. Notify Contractor	 Confirm receipt of notification of failure in writing Notify the Contractor Ensure remedial measures properly implemented 		 Confirm receipt of notlification of failure in writing Notify the Confractor Ensure remedial measures properly implemented
VENT/ACTION PLAN FOR AIR QUAL ACTION	IC(E)	ACTION LEVEL	Check monitoring data submitted by the ET Check contractor's working method	 Check monitoring data submitted by the ET Leader Check the Contractor's working method Check the Contractor's working method Discuss with ET and Contractor on possible remedial measures Advise the ER on the effectivoness of the proposed remedial measures Supervise implementation of remedial measures 	LIMIT LEVEL	 Check monitoring data submitted by the ET Loader Check Contractor's working method <
Ē	ET Leader		 Identify source, investigate the causes of exceedance and propose remedial moasures Inform ER, IC(E) and Contractor Repeat messurement to confirm finding A. Increase monitoring frequency to daily 	 Identify source, investigate the causes of exceedance and propose remedial measures Inform KC(E) and Contractor Regreat measurements to confirm finding Increase monitoring frequency to daily Discuss with IC(E) and Contractor on remedial actions If exceedance confirmes, arrange meeting with IC(E) and ER. If exceedance stops, cease additional monitoring 	Restored and	 Identify source, investigate the causes of exceedance and propose remedial measures Inform ER, Contractor and EPD Repeat measurement to confirm Rending Increase monitoring frequency to daily Assess the effectiveness of Contractor's remedial actions and the results.
EVENT			1. Exceedance for one sample	2. Exceedance for two or more consecutive samples		1. Excerdance for one sample

and the second se	_	Contraction of the land of the
	Contractor	 Take immediate action to avoid further exceedances actions to IC(E) within 3 working days of notification Implement the agreed proposals Resubmit proposals if proposals Resubmit proposals
ITY EXCEEDANCE	ER	 Confirm receipt of notification of failure in writing Notify Contractor In consultation with the IC(E), agree with the Contractor on the remedial measures to be implemented Ensure remedial measures are properly implemented If exceedances confinues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is absted
	IC(E)	 Discuss amongst ER, ET and Contractor on the potential remedial actions Review Contractor's remedial actions whenever necessary to assure their effectivenass and advise the ER accordingly Supervise the implementation of remedial measures
	ET Leader	 Identify source, investigate the causes of exceedance and propose remedial measures Nolity IC(E), ER, EPD and Contractor Repeat mesurement to confirm finding Increase monitoring frequency to daily Carry out analysis of contractor's working procedures to determine possible mitigation to be implemented factors the remedial actions to be discuss the remedial actions to be taken Arrange meeting with IC(E) and ER to discuss the remedial actions to be taken Arrange actions and keep IC(E), EPD and ER informed of the results If exceedance stops, cease additional monitoring
	-	nce 6 24 3 2
EVENT		2. Exceeda for two or more consecut samples

Y

T	I I	2 - c ^K
Contractor	 Submit noise mitgation proposals to IC(E). Implement noise mitigation proposals. 	Take immediate action to avoi further exceedance Submit proposals for remedia actions to IC(E) within 3 working days of notification. Implement the agreed Resubmit proposals if problem still not under control. Stop the relevant activity of works as determined by the E until the exceedances is abated.
F	- 0 -	- 0 0 4 0
OISE EXCEEDANCE	Confirm receipt of notification of failure in writing. Notify the Contractor. Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are property implemented.	Confirm receipt of notification of faikure in writing. Notify the Contractor: Require the Contractor to propose remedial measures for the analysed noise problem. Ensure remedial measures are properly implemented. If eccentractor secontinue, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedances is absiled.
X N	ri alei 4	- NA 4 13
EVENT/ACTION PLAN FC	Review the analysed results submitted by the ET. Review the proposed remedial measures by the Contractor and advise the ER accordingty. Supervise the implementation of remedial measures.	 Discuss amongst the ER, the ET Leader and the Contractor on the potential remedial actions. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly. Supervise the implementation of remedial measures.
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CT and a	Notify the IC(E) and the Contractor. Carry out investigation to Report the results of investigation to the IC(E) and the Contractor and Discuss with the Contractor and formulate remedial measures. Increase monitoring frequency to check miligation effectiveness	Notify the IC(E), the ER, the EPD and the Contractor. Identify source. Repeat measurement to confirm findings. Increase monitoring frequency. Carry out analysis of Contractor's working procedures to determine possible miligation to be implemented. Inform the IC(E), the ER and the EPD the causes & actions taken for the exceedances. Assess effectiveness of Contractor's remedial actions and keep the IC(E), the EPD and the ER informed of the results of the exceedance due to the construction works stops, cease additional monitoring
	મંત્રે છે.	ಳ್ಳಿಗಳ ಭ್ರೇಸ್ ಹ
EVENT	Action Level	Level

			ACTION	_				
L	ET Leader	Contra	ctor		ER		IEC	
ion lavel 1.	Identify source(s) of impact:	1. Notify the ER an	d IEC in writing		Volify EPD and other relevant	ц÷	Check monitoring deta	
ng exceeded 2.	Repeat in-situ messurement to	within 24 hours o	of Identification of		povermental agencies in writing		submitted by ET	
one	confirm findings:	exceedance			within 24 hours of the	ભં	Confirm ET assessment if	
noling day 3.	Notify Contractor in writing within	Redify unaccept	table practice;	_	dentitication of the exceptance		ecceedance is due / not due	-
	24 hours of identification of the	Check all blant is	and equipment:	ed	Olsouss with IEC, ET and		to the works	
	exceedance	 Submit investina 	tion report to IEC		Contractor on the proposed	ei	Discuss with ET, ER and	
4	Check monitoring data, all plant,	and ER within 3	working days of		miligation measures;		Contractor on the miligation	
	equipment and Contractor's	the identification	of an	ल्वं	Require contractor to propose		measures	
	working methods:	encedance			remodial measures for the	Ý	Review contractor's	_
uộ	Carry out investigation	Consider change	es of working		analysed problem if related to the		mitigation measures	
6	Report the results of investigation	method if exceed	dance is due to	-	construction works		whenever necessary to	_
	to the Contractor within 3 working	the construction	works	र्च	Ensure remedial measures are		ensure their effectiveness	_
	davs of identification of	 Discuss with ET 	, IEC and ER and		property implemented		and advise the ER	
	exceedance and advise	propose mitigat	ion measures to	ൾ	Assess the effectiveness of the		acordingly .	
	contractor if exceedance is due to	IEC and ER if ex	ccectance is due		mitigation measure	цý	Supervise the	ound:
	contractor's construction works	to the constructi	on works within 4				implementation of mitigation	Theorem 1
~	Discuss miligation measures with	working days of	identification of				- source	
	Contractor if exceedance is due	an exceedance						-
	to the construction works within 4	7. Implement the a	igneed mitigation					-
	working days	measures within	N resonable time					
	Repeat measurement on next day	scele						-
	of exceedance if exceedance is							-
	due to the construction works							-

	-	-								and inter		-	-			_			-		-		-	****	1.0				_
	IEC	. Check monitoring data	submitted by ET	Confirm ET assessment	if exceedance is due /	not due to the works	 Discuss with ET, ER and 	Contractor on the	mitigation measures.	 Review contractor's 	mitigation measures	whenever necessary to	ensure their	effectiveness and advise	the ER accordingly	Assess the effectiveness	of the implemented	mitigation measures.											
		-		64 		_	67									40				_									_
DR WATER QUALITY	ER	Notify EPD and other relevant	governmental agencies in	writing within 24 hours of the	identification of the	exceedance	Discuss with IEC, ET and	Contractor on the proposed	miligation measures;	Require contractor to propose	remedial measures for the	analysed problem If related to	the construction works	Ensure remedial measures	are property implemented	Assess the effectiveness of	the miligation measure												
Щ. Ч		ці.					N			eś			_	v í		uș													
EVENT AND ACTION PLAN	Contractor	1. Notify IEC and ER in writing	within 24 hours of	identification of exceedance	 Rectify unacceptable practice; 	Check all plant and	equipment;	 Consider changes of working 	methods;	Submit the results of the	investigation to IEC and ER	within 3 working days of the	identification of an	exceedance	Discuss with ET, IEC and ER	and propose mitigation	measures to IEC and ER	within 4 working days of	identification of an	exceedance	Implement the agreed	mitigation measures within	reasonable time scale						
	ET Leader	1. Identify source(s) of impact;	 Kepeat in-stul measurement 	to confirm findings	Notify Contractor In writing	within 24 hours of	identification	Check monitoring data, all	plant, equipment and	Contractor's working methods;	Carry out investigation	Report the results of	investigation to the Contractor	within 3 working days of	identification of exceedance	and advise contractor if	exceedance is due to	contractor's construction	works	Discuss mitigation measures	with IEC and Contractor within	4 working of identification of	an exceedance	Ensure mitigation measures	are implemented;	Prepare to increase the	monitoring frequency to deity;	 Repeat measurement on next 	day of exceedance.
l					2		<u>8</u> 0																						
Event		Action level	Euroo J	exceeded by	more than on	consecutive	sempling day																						



ALITY EXCEEDANCE		ER	EPD and other relevant 1. Check monitoring data	mental agencies in submitted by ET	within 24 hours of 2. Confirm ET assessment	cation of exceedance If exceedance is due /	s with IEC, ET and not due to the works	ctor on the proposed 3. Discuss with ET, ER and	Ion measures; Contractor on the	st Contractor to critically mitigation measures.	the working methods; 4. Review proposals on	a remedial measures miligation measures	perty implemented submitted by Contractor	s the effectiveness of and advise the ER	plemented mitigation accordingly.	Ires. Assess the effectiveness	of the implemented	mitigation measures		-											
FAND ACTION PLAN FOR WATER QU	ACTION	Contractor	 Notify IEC and ER in writing: 1. Notify 	within 24 hours of the govern	identification of the writing	exceedance	 Rectify unacceptable practice; 2. Discus 	3. Check all plant and Contra	equipment; mitigat	 Consider changes of working 3. Reque 	methods: review	Submit the results of the4. Ensure	Investigation to IEC and ER are pro	within 3 working days of the 5. Asses	identification of an the im	mosedance	Discuss with ET, IEC and ER	and propose militation	measures to IEC and ER	within 4 working days of the	identification of an	exceedance	Implement the agreed	miligation measures within	ressonable time scale						
EVENI		ET Leader	 Repeat in-situ measurement 	to confirm findings;	Identify source(s) of impact:	3. Notify Contractor in writing	within 24 hours of	identification of the	exceedance	 Check monitoring data, all 	plant equipment and	Contractor's working methods:	5 Carry out Investigation	6. Report the results of	investigation to the Contractor	within 3 working days of	identification of exceedance	and advise contractor if	exceedance is due to	contractor's construction	works	Discuss mitigation measures	with IEC, ER and Contractor	within 4 working of	identification of an	exceedance	 Ensure mitigation measures 	are implemented;	 Increase the monitoring 	frequency to daily until no	BX08608U06 OL FILLIK FAVEN
Event			Limit level	being	exceeded hv	one sampling	dav	600																							



ACTION ACTION Repeat In-statement ACTION ER Limit Level 1. Repeat In-statement 1. Notify EPD and other relevant 1. Check monitoring dia contractor IEC Deling ET Leader 1. Repeat In-statement 1. Notify EPD and other relevant 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Notify EPD and other relevant 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Notify EPD and other relevant 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Notify EPD and other relevant 1. Check monitoring dia contractor 1. Check monitoring dia contractor 1. Contractor on the contractor on the contractor on the monitoring dia contractor in measures and diables contractor in measures and diable contr	Actrion Actrion ER Contractor ER Er <th>Event</th> <th>_</th> <th></th> <th>EVEN</th> <th>ΤA</th> <th>ND ACTION PLAN FOR W</th> <th>ATE</th> <th>ER QUALITY EXCEEDANCI</th> <th>ц</th> <th></th> <th></th>	Event	_		EVEN	ΤA	ND ACTION PLAN FOR W	ATE	ER QUALITY EXCEEDANCI	ц		
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being to confirm findings; more than one within 24 hours of within 24 hours of sampling days within 24 hours of within 24 hours of within 24 hours of admitterior of the worksedance within 24 hours of admitterior of the worksedance within 24 hours of admitterior of the worksedance admitterior of the worksedance within 24 hours of admitterior of the worksedance admitterior of the worksedance within 24 hours of admitterior of the worksedance contractor admitterior admitterior of the worksedance goventmental admitterior admitterior of the worksedance contractor admitterior admit	being acceled by more than one within 24 hours of more than one within 24 hours of within 24 hours of serroling days acceledance ac	Limit Level	t	l-	Repeat in-situ measurement	Ē	Notify ER and IEC in writing	÷	Notify EPD and other relevant	÷	Check monitoring data	
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Appendix G

Works Programme

Three Months Rolling Programme (1-June-2019 to 31-August-2019)

Item	Description	From	То	Jun-19 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	Jul-19
1	Section 1A	1-Jun-19	10-Jul-19		
1.1	Operation of Fill Bank, surveillance system and tipping halls	1-Jun-19	10-Jul-19		
1.2	Operation of crushing plants	1-Jun-19	10-Jul-19		
1.3	Operation of the existing and expanded dewatering plants	1-Jun-19	10-Jul-19		
1.4	Collection and delivery of Public Fill from CWPFBP and MWPFRF to TKOFB	1-Jun-19	10-Jul-19		
1.5	Breaking up the incoming precast concrete units	1-Jun-19	10-Jul-19		
1.6	Carry out repair works for damages caused by Super Typhoon	1-Jun-19	10-Jul-19		
1.7	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	1-Jun-19	10-Jul-19		
2	Section 2A	1-Jun-19	10-Jul-19		
2.1	Operation of Fill Bank, surveillance system and tipping halls	1-Jun-19	10-Jul-19		
2.2	Breaking up the incoming precast concrete units	1-Jun-19	10-Jul-19		
2.3	Operation of glass cullet storage compartment at Portion B7	1-Jun-19	10-Jul-19		
2.4	Construction of transformer room and meter room	1-Jun-19	10-Jul-19		
2.5	Carry out preliminary sorting on Public Fill for Three Runway System (3RS) project	1-Jun-19	10-Jul-19		
3	Section 3	1-Jun-19	30-Jun-19		
3.1	Design and construction of of seawalls at Zone B (approx. 900m)	1-Jun-19	30-Jun-19		
4	Section 3A	1-Jun-19	30-Jun-19		
4.1	Design, construction and operation of new berthing facilities at Zone B	1-Jun-19	30-Jun-19		
4.2	Design, construction and operation of new navigation channel and turning basin inassociated with the berthing facilities at Zone B	1-Jun-19	30-Jun-19		
4.3	Design and construction of seawalls at Zone B (approx. 1500m)	1-Jun-19	30-Jun-19		
5	Section 4	1-Jun-19	31-Aug-19		
5.1	Collection and delivery of Public Fill to the Designated Reclamation Sites in the Mainland	1-Jun-19	31-Aug-19	그는 같은 것 같은 것은 동안을 가지? 것 같은 것 같은 것은 것 같이 있는 것이 같이 같이 없다.	
6	Section 6	1-Jun-19	31-Aug-19		
6.1	Removal of existing stockpiled Public Fill at Portion A5b down to +5.2mPD	1-Jun-19	31-Aug-19		
7	Section 7	1-Jun-19	20-Jun-19		
7.1	Removal of existing stockpiled Public Fill at Portion A5c down to +5.2mPD and +5.2mPd/+6.0mPD	1-Jun-19	20-Jun-19		

Aug-19



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 : 0.5/0.6/19Time : 1.5=0.0

:

:

: Sunny / Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy Weather

Wind

: Calm / Light / Breeze / Strong

Temperature

Humidity



Inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	Jose		Not
Name:	TSBOL TON WINE	S.h.Sun	Ciadenda
Title	ALOW	6.	Z.T



Environmental Checklist	Impl	emen	tation	Remark
Environmental Checklist	Ves	No	S^ Ν/Δ	
Fugitive Dust Emission	100			
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. 	\checkmark			
 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.	\checkmark			
All vehicles shall be restrict to a maximum speed of 10 km per hour.				
 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. 	V			
 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. 	V			
 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. 	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). 	V			
Noise Impact				
 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		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. 	√			
 Noisy equipment and mobile plant shall always be site away from NSRs. 			-	



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



Environmental Checklist	Impl	emen Stage	tation s*	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. 	V			
 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 				
 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. 	V			
 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. 	V			
Other Environmental Factors				
 C&D waste sorted from mixed C&D material shall be removed from the temporary buffer storage area on a daily basis and transfer to SENT landfill for disposal. 	√			
 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste. 	\checkmark			
 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 	\checkmark			
 All generators, fuel and oil storage are within bundle areas. 	V			
 Oil leakage from machinery, vehicle and plant is prevented. 				
The Environmental Permit should be displaced conspicuously on site.	\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.	V			
 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. 	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 27/05/19, Silting screen was replaced.		190605_001	No	
2	Fill materials were found accumulated along the concrete pavement near the pier at Area A9.	To clean up the fill materials properly.	190605_002	Yes	12/06/19

Remark

	Name	Title	Signature	Date
Checked by	Frankie Tang	ET Representative	A	05 June 2019





<u>Photo</u>



CEDD Contract No.: CV/2015/07



Inspection Date	:	12/6/19
Time	:	15-15
Weather Wind	:	Sunny / Fine (Cloudy / Overcast / Drizzle / Rain / Storm / Hazy Calm / Light / Breeze / Strong
Temperature	:	30°C
Humidity	:	High / Moderate / Low

Inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	131302	Acc	Mak
Name:	7500 200 W. ol	5.4-Sun	Mak ter War
Title	ALOW	Ęs,	E.T



	Impl	ement	tation	Remark
Environmental Checklist		Stages	5*	
	Yes	No	N/A	
Fugitive Dust Emission				
 Dust control / mitigation measures shall be provided to prevent dust nuisance. 	\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. 	\checkmark			
 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. 	\checkmark			
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. 	V			
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. 	√			
 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. 				
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. 	\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 shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD. 	V			
 When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides. 	\checkmark			
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	\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. 	\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). 	√			
Noise Impact				
 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. 	\checkmark			
Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	\checkmark			
Air compressors and hand held breakers should have noise labels.				
 Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum. 				
 Noisy equipment and mobile plant shall always be site away from NSRs. 			1	



			Implementation		Remark
	Environmental Checklist	\$	Stages	s*	
ļ		Yes	No	N/A	
Wate	er Quality				
3	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.	\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.	V			
a	Manholes should be covered and sealed.	\checkmark			
8	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	\checkmark			
	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	\checkmark			
a	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	\checkmark			
в	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.				
a	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.	V			
	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.	V			
3	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.	V			
3	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.	V			
3	Oil intercept in addition of sand / silt removal facilities shall be provided at the car parking areas.				
u	Oil interceptor shall be provided at work shop.				
8	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.				
8	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.	V			
u	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	V			
8	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.				
a	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	√			
	The work activities shall not cause any visible foam, oil, grease, scum, litter or other objectionable matters to be present on the water in the vicinity of the barging facilities.	√			
ä	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.	√			
•	A waste collection vessel shall be deployed to remove floating debris.	√]		



Environmental Checklist	Impl	emen Stage	tation s*	Remark
Landscape and Visual	Yes	No	N/A	
 The design of the fill bank and platform heights adopted should allow the fill bank to fit into the general topography of the surrounding land. Straight edged slopes should be avoided. 	√			
 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 	1			
 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. 	V			
 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. 	V			
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. 	V			
 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste. 	\checkmark			
 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 	\checkmark			
All generators, fuel and oil storage are within bundle areas.	\checkmark			
Oil leakage from machinery, vehicle and plant is prevented.	\checkmark			
The Environmental Permit should be displaced conspicuously on site.	V			
 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. 	\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. 	√			



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 05/06/19, Fill materials were cleaned.		190612_001	No	

Remark

	Name	Title	Signature	Date
Checked by	Frankie Tang	ET Representative	Atte	12 June 2019
Checked by	Frankie Tang	ET Representative	Atte	12 June 2019



<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 : $\frac{12}{20} \frac{10}{20} \frac{10}{9}$ Time : $\frac{15}{3} \frac{100}{100}$

 Weather
 : Sunny / Fine / Cloudy / Overcast / Drizzle / Rain / Storm / Hazy

 Wind
 : Calm / Light / Breeze / Strong

Temperature

Humidity

: J : High / Moderate / Low

Inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	Anora		Nal
Name:	TSAND (Dho wh		Clasticles
Title	Acon		Ce · F



		Impl	ement	tation	Remark
	Environmental Checklist	Voc	No	5° Ν/Δ	
Euro	itivo Duot Emission	103	140		
rug					
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	\checkmark			
2	A buffer zone of at least 100m shall be maintained between the edge of the stockpiling area and the nearest ASRs at the TKO Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities should be allowed.	√			
	Water sprays shall be provided and used to dampen materials.				
8	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	\checkmark			
8	All vehicles shall be restrict to a maximum speed of 10 km per hour.	\checkmark			
G	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			
8	Frequent watering of work site shall be at least three times per day.	\checkmark			
8	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.				
a	Every vehicle shall be washed to remove any dusty materials from its body and wheels before leaving the fill bank.				
3	All plant and equipment should be well maintained e.g. without black smoke emission.				
•	Open burning should be prohibited.	V			
3	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.	V			
8	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.	V			
в	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.				
8	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.				
29	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			
33	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).	√			
Noi	se Impact				
8	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	V			
a	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	\checkmark			
1	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.				
2	Air compressors and hand held breakers should have noise labels.				
at .	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	\checkmark			
8	Noisy equipment and mobile plant shall always be site away from NSRs.	\checkmark			



Environmental Obserbilist		Implementation			Remark
	Environmental Checklist	Yee	stages	5" N/A	
Wate	er Quality	103	NO	INA	
a	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	V			
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.				
5	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.	\checkmark			
a	Manholes should be covered and sealed.				
a	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.				
8	A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front.	\checkmark			
12	A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront.	\checkmark		· · · · ·	· · · · · · · · · · · · · · · · · · ·
	The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.				· · · · · · · · · · · · · · · · · · ·
8	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.	V			
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.	V			
20	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.	V			
8	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.	√			
8	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.	√			
8	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.	\checkmark			
	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.	\checkmark			
2	Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water.	\checkmark			
8	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.	√			
8	All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport.	V			
•	Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer.				
	Barges shall not be filled to a level which may cause the overflow of material during loading or transportation. Barge effluents shall be properly collected and treated before disposal.	√			
9	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.	V			
	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.	↓ √			
	A waste collection vessel shall be deployed to remove floating debris.	$$			l



Environmental Checklist		ement Stages	ation s*	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. 	√			
 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 	V			
 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. 	V			
 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. 	V			
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. 	V			
 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste. 	\checkmark			
 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 	V			
 All generators, fuel and oil storage are within bundle areas. 	\checkmark			
Oil leakage from machinery, vehicle and plant is prevented.	\checkmark			
The Environmental Permit should be displaced conspicuously on site.	\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. 	V			
 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. 	V			



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

Remark

	Name	Title	Signature	Date
			\frown	
Checked by	Frankie Tang	ET Representative		19 June 2019
	, , , , , , , , , , , , , , , , , , ,		- And -	



Inspection Date	:	2416/19
Time	:	14=30
Weather	:	Sunny / Fine / Cloudy / Overcast / (Qrizzle / Rain / Storm / Hazy
Wind	:	Calm / Light / Breeze / Strong
Temperature	:	29°(
Humidity	:	High / Moderate / Low

Inspected by	CEDD	Contractor / Sub-Contactor	ET
Signature:	\mathcal{A}		Mak
Name:	Y (0720 G	Sivp	Mak Scei Wai
Title	ToW	Pi	E,T



	Environmental Checklist		emen	tation	Remark
	Environmental Checklist	Yes	No	S" N/A	
Fua	itive Dust Emission				
		1			
	Dust control / mitigation measures shall be provided to prevent dust nuisance.	N I			
	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.	×			
N	Water sprays shall be provided and used to dampen materials.	\checkmark			
8	Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	\checkmark			
8	All vehicles shall be restrict to a maximum speed of 10 km per hour.	V			
8	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.	V			
8	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.				
a	Wheel washing facilities including high-pressure water jet shall be provided at the entrance of work site.				
8	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.				
8	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.	V			
	Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shot concrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	√			
	When fill material is transfer by belt conveyor systems, the conveyors shall be enclosed on top and 2 sides.	\checkmark			
	The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	\checkmark			
a	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			
6	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).	√			
Noi	se Impact				
a	The approved method of working, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted.	1			
8	Only well maintained plant should be operated on-site and plant should be serviced regularly during the construction works.	1			
5	Powered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials.	1			
8	Air compressors and hand held breakers should have noise labels.		1		
u	Machines and plants that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	√			
	Noisy equipment and mobile plant shall always be site away from NSRs.	\checkmark			



Environmental Checklist		Implementation Stages*		Remark
	Yes	No	N/A	
Water Quality				
 Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms. 		√		Item 1
The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	√			
 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. 	V			
 Manholes should be covered and sealed. 	\checkmark			
 Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding. 				
 A buffer distance of at least 100m shall be maintained between the boundary of the public fill stockpiling area and the sea front. 	\checkmark			
 A buffer distance of at least 20m shall be maintained between the boundary of the C&DMSF and the seafront. 	V		1	
The stormwater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	\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. 	√			
 Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, followed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD. 	√			
 Existing and newly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times. 	√			
 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. 	V			
 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. 	\checkmark			
 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.				
 Tipping halls enclosed with top and 3-side to prevent spillage of material into marine water. 				
The barges shall be in right size such that adequate clearance in maintained between the vessels and the seabed at all states of the tide to ensure the undue turbidity is not generated by turbulence from vessel movement or propeller wash.	√			
 All vessels used for transportation of fill material shall have tight fitting seals to their bottom openings to prevent leakage of material during transport. 	√			
 Adequate environmental control measures shall be provided to prevent / avoid dropping of fill material into the sea during the transfer. 	\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. 	V			
 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. 	√			
A waste collection vessel shall be deployed to remove floating debris.				l



Environmental Checklist			tation s*	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.	V			
 The maximum stockpiling height at the fill bank shall be limited to a maximum of +35.2mPD. 	\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. 	\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. 	\checkmark			
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. 	V			
 Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnece ssary generation of waste. 	\checkmark			
 Any unused materials or those with remaining functional capacity should be recycled and stored properly. 				
All generators, fuel and oil storage are within bundle areas.	V			
Oil leakage from machinery, vehicle and plant is prevented.	\checkmark			
The Environmental Permit should be displaced conspicuously on site.	\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. 	V			
 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. 	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	U channel was found accumulated mud near CP5.	To clean the mud and replace the filter properly.	190624_001	Yes	02/07/19

Remark

Nordan

	Name	Title	Signature	Date	
Checked by	Frankie Tang	ET Representative	A	24 June 2019	



<u>Photo</u>



Appendix I

Implementation Schedule of Mitigation Measures



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

Environmental Mitigation Implementation Schedule

	Location	Implementation Status			
Environmental Protection Measures		Implemented	Partially	Not	Not
		Implemented	implemented	implemented	Applicable
Air 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	Northorn Site				
Industrial Estate. Within the buffer zone, no dusty material shall be stockpiled and no loading / unloading and similar activities	Boundary	\checkmark			
should be allow ed.	Boundary				
Water sprays shall be provided and used to dampen materials.	All areas	V			
Regular cleaning and watering the site shall be provided to minimize the fugitive dust emissions.	All areas	V			
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 baying the potential to create dust shall not be loaded to a level bigher than the side and tail 	Site Egross	N			
boards, and shall be covered by a clean tarpaulin.	Olle Lyress	v			
The designated site main haul rout shall be paved or regular watering.	All haul roads	\checkmark			
Frequent w atering of w ork site shall be at least three times per day.	All areas	\checkmark			
Wheel w ashing facilities including high pressure w ater jet shall be provided at the entrance of w ork 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	All aroas	N			
sprayed with water or protected by other method approved by CEDD.	All dieds	v			
 Final slope surfaces, especially those facing to the north of the site shall be treated by compaction, follow ed by hydroseeding, vegetation planting or sealing with shotcopyrete, later, 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	V			
The belt scraper shall be equipped with bottom plates or other similar means to prevent falling of material from the return belt.	C&DMFS	V.			
The level of stockpiling belt conveyor shall be adjustable such that the vertical distance between the belt conveyor and the		1			
material landing point is maintained at no more than 1m.	C&DMFS	N			
All plant and equipment should be w ell maintained e.g. w ithout 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)	All areas	\checkmark			
Regulation (APCO Cap.311).					
Noise Impact					
 Approved method of w orking, equipment and sound-reducing measures (e.g. use of silenced type of equipment, etc.) shall be adapted 	All areas	\checkmark			
 Only well maintained plant should be operated on-site and plant should be serviced regularly during the site works. 	Allareas	V			
 Pow ered mechanical equipment (PME) should be covered or shielded by appropriate acoustic materials. 	All areas	, V			
 Air compressors and hand held breakers should have noise labels. 	All areas	, V			
 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	N			
Noisy equipment and mobile plant shall alw ays be site aw ay from NSRs.	All areas				



На	andling of Surplus Public Fill (2016-2018) – Tseung Kwan O Area 137 Fill Bank	Location	Implementation Status			
Сс	ontract No.: CV/2015/07 Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable
W	ater Quality					
	Drainage system should be adequate and well maintained to prevent flooding and overflow, especially after rain storms.	All areas				
	The permanent drainage channels should have sediment basin, traps and baffles and maintain properly.	All areas				
•	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				
	Manholes should be covered and sealed.	All areas				
	Unnecessary water retained in receptacles and standing water should be avoided to prevent mosquito breeding.	All areas				
•	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				
	A buffer distance of at least 20m shall be maintained betw een the boundary of the C&DMSF and the seafront.	C&DMFS				
-	The stormw ater intercepting system shall be effective to collect of runoff and remove suspended solids before discharge.	All areas				
•	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, follow ed by hydroseeding, vegetation planting or sealing with shotconcrete, latex, vinyl, bitumen, or other suitable surface stabilizer approved by CEDD.	Temporary Slopes	\checkmark			
•	Existing and new ly constructed Catchpits, sand and silt removal facilities and intercepting channels shall be maintained, and the deposited silt and grit shall be removed weekly and on a need basis especially at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	All areas	\checkmark			
•	A w heel w ashing bay shall be provided at the site exit and w ash-w ater 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			
•	Sew age from toilets shall be discharged in to a foul sew er, 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 w ork 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	V			
•	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

		Location	Implementation Status			
	Environmental Protection Measures		Implemented	Partially implemented	Not implemented	Not Applicable
La	ndscape 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 / brow n) 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			
0	her Environmental Factors					
•	C&D waste sorted from mixed C&D material shall be transfer to SENT landfill for disposal.	All areas	\checkmark			
٠	Plan and stock construction materials carefully to minimise generation of waste.	All areas	\checkmark			
٠	Any unused materials or those with remaining functional capacity should be recycled.	All areas	\checkmark			
٠	All generators, fuel and oil storage are within bunded areas.	All areas				
•	Oil leakage from machinery, vehicle and plant is prevented.	All areas				
•	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

Monitoring Schedule for the Coming Month



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

Tseung Kwan O Area 137

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

Sun	Mon	Tue	Wed	Thu	Fri	Sat
30	1/7	2 <u>WQM</u> Mid-ebb (10:51-12:51) Mid-flood (15:28-17:28)	3 <u>24 hr TSP</u> <u>24-hr RSP</u> Weekly SI (pm)	4 <u>WQM</u> Mid-flood (08:00-10:00) Mid-ebb (13:26-15:26)	5 <u>1-hr TSPX2</u>	6 <u>WQM</u> Mid-flood (08:00-10:00) Mid-ebb (14:07-16:07)
7	8 <u>1-hr TSPX1</u> <u>MM</u> <u>WQM</u> Mid-flood (09:00-11:00) Mid-ebb (14:54-16:54)	9 <u>24 hr TSP</u> 24-hr RSP	10 <u>1-hr TSPX2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (10:36-12:36) Mid-ebb (16:15-18:15)	11	12 <u>1-hr TSPX1</u> <u>WQM</u> Mid-ebb (08:06-10:06) Mid-flood (14:36-16:36)	13
14	15 24 hr TSP 24-hr RSP WOM Mid-ebb (10:25-12:25) Mid-flood (15:32-17:32)	16	17 <u>1-hr TSPX2</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-ebb (10:40-12:40) Mid-flood (16:22-18:22)	18	19 <u>1-hr TSPX1</u> <u>WQM</u> Mid-flood (08:00-10:00) Mid-ebb (13:50-15:50)	20
21 <u>24 hr TSP</u> 24-hr RSP	22 <u>1-hr TSPX1</u> <u>WQM</u> Mid-flood (08:00-10:00) Mid-ebb (14:22-16:22)	23	24 <u>1-hr TSPX1</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (09:15-11:15) Mid-ebb (15:33-17:33)	25	26 <u>1-hr TSPX1</u> <u>WQM</u> Mid-flood (10:16-12:16) Mid-ebb (16:10-18:10)	27 <u>24 hr TSP</u> 24-hr RSP
28	29 <u>1-hr TSPX2</u> <u>WQM</u> Mid-ebb (09:01-11:01) Mid-flood (15:10-17:10)	30	31 <u>1-hr TSPX1</u> <u>Weekly SI (pm)</u> <u>WQM</u> Mid-flood (10:32-12:32) Mid-ebb (15:16-17:16)	1/8	2 24 hr TSP 24-hr RSP WQM Mid-flood (08:00-10:00) Mid-ebb (13:13-15:13)	3

July 2019



Appendix L

Complaint Log



Complaint Logs

Log Ref.	Location	Received Date	Details of Complaint	Investigation / Mitigation Action	
001	Barge handling area (BHA) at Tseung Kwan O 137	15 May 2017	One complaint received on 15 May 2017, which was forwarded to ET on 11 August 2017, from CEDD (Complaint NCF-N08/RE/00014875-17 Sent By CSO[RN]3 [CASE#2- 3943858817 Int.Comm. – WS170513A57354] against illegal dumping at sea without permit in TKO137 fill bank.	 Refer to the ET site investigation on 14 August 2017, the contractor clarified that the contractor conducted vessel loading test at Tseung Kwan O 137 Fill bank on 13 May 2017 and the material was then unloaded from the vessels. 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. 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. Details of Action(s) Taken by the Contactor: The contractor started to dump fill materials from 19 May 2017 after receiving the valid dumping permit. The contractor dump fill materials were followed by the valid dumping permit and the permit was kept apply every three month The contractor kept the permit for ET reference. 	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.	 Refer to the ET weekly site inspection on 18 October 2017, no defective observation related to dust emission and discharge of water was recorded during the investigation. Details of Action(s) Taken by the Contactor: Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank; Mist spraying systems at the site entrance are operated properly; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet; Site vehicle for transporting materials are covered properly by using clean tarpaulin sheets; Regular cleaning at the site haul road is provided to minimize the fugitive dust emission; Silt curtains are provided at the outward side of the basin near the Fill Bank; Drainage systems are adequate and maintained to prevent flooding and overflow; Catchpits, sand and silt removal facilities and intercepting channels are maintained and functioning properly. 	Closed

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

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.	 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). Details of Action(s) Taken by the Contactor: 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; Regular water spraying by water lorries is provided for road cleaning at Wan Po Road; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; Site vehicles for transporting materials are covered properly by using clean tarpaulin sheets; Regular cleaning at the site haul road is provided. 	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 染程度極爲嚴重,促請政府有 關部門嚴正跟進!	 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. 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. Details of Action(s) Taken by the Contactor: Drainage system were adequate and well maintained to prevent flooding and overflow; Sand and silt removal facilities, e.g. silting screen, were provided before the discharge point; 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; 	Closed

東業德勤測試顧問有限公司 ETS-TESTCONSULT LTD.

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	 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). Details of Action(s) Taken by the Contactor: 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; Regular water spraying by water lorries is provided for road cleaning at Wan Po Road; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; Site vehicles for transporting materials are covered properly by using clean tarpaulin sheets; Regular cleaning at the site haul road is provided. 	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.	 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. 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. Details of Action(s) Taken by the Contactor: Drainage system were adequate and well maintained to prevent flooding and overflow; Sand and silt removal facilities, e.g. silting screen, were provided before the discharge point; 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; Catchpits and 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; 	Closed



				N N	
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.	 Refer to the ET site investigation on 02 July 2019, no defective observation related to dust emission was recorded during the investigation. 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. Details of Action(s) Taken by the Contactor: Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank; 	Closed
	Kwan O 137 Fill Bank	2019	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	dust emission was recorded during the investigation.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.Details of Action(s) Taken by the Contactor:	
			environmental nuisance.	 Regular water spraying by water lorries is provided for dust suppression inside the Fill Bank; Mist spraying systems at the site entrance are operated properly; Site vehicles are washed to remove any dusty materials from their bodies and wheels by using high pressure water jet manually at the entrance of work site before leaving; All dusty material is sprayed with water prior to loading, unloading or transfer so as to maintain the material wet; Truck speed within the site is limited within 10 km/h; Regular cleaning at the site haul road is provided to minimize the fugitive dust emission; 	



			-			
F	T	S-Testconsult L	td – Enviro	nmei	<u>ital Tea</u>	m (ET)
		Complain	t Investigati	ion F	Report	
Contrac	t ľ	No.CV/2015/07 Ha	ndling of Sur	plus]	Public Fi	ll (2016-2018) –
		Tseung	Kwan O 137 I	Fill B	ank	
Details of the C	Con	nplaint			Log	No. : 006
Date and Time	of	Complaint	04 June 2019			
Location						·
Tseung Kwan O 13	37 F	ill Bank	11 - 11 - 11 - 11 - 11 - 11 - 11 - 11			
Circumstances	:					
One complaint rec muddy water probl	eive em	ed on 04 June 2019, which at 137 fill bank.	h was forwarded to	ET on	11 June 20	19, from public regarding the
Follow action(s	5)	Anna ann an ann an tha an tha ann an tha ann an tha ann ann an tha				
Follow up by		ET			Date	14 June 2019
Details of Follo	W	up action(s)				
After received the on 14 June 2019 to Fill Bank to nearby	deta o inv / en	ils of the complaint from the vestigate this event. During vironment. (Attachment A)	he Contractor on 11 the site inspection, 1	June 20 no mud)19, ET have dy water was	performed a site investigation observed discharged from the
Besides, refer to the Suspended Solids of condition of marin	e m duri e wa	arine water monitoring rest ng the concerning period (<i>/</i> ater near the TKO137FillI I	ults during that perio Attachment B). This Bank.	od, no e reflects	xceedance w that this occ	as recorded on Turbidity and surrence did not affect the
		Water Qua	ality Action and L	.imit Lo	evels	
Parameter	Τ	Action Leve	el		L	.imit Level
DO (mg/L)	<u>St</u> <5 <u>Bt</u> <4	<u>irface & Middle</u> 5.45 mg/L (5%-ile of base <u>ottom</u> 4.72 mg/L (5%-ile of base	eline data) eline data)	<u>Surfac</u> <5.10 <u>Bottor</u> <2.00	<u>e & Middle</u> mg/L (1%-il n mg/L	le of baseline data)
SS (mg/L) (Depth- averaged)	>6 >1	3.74 mg/L (95%-ile of bas 120% of the upstream co the same tide on the sai	seline data) or ntrol station's SS me dav	>7.67 >130% at the	mg/L (99%- 6 of the ups same tide c	ile of baseline data) or tream control station's SS on the same day
Turbidity (NTU) (Depth-	>4 >2 11	4.28 NTU (95%-ile of bas 120% of the upstream co rbidity at the same tide o	seline data) or Introl station's In the same day	>4.58 >130% turbidi	NTU (99%- 6 of the ups ty at the sai	ile of baseline data) or tream control station's me tide on the same day

Details of Action(s) Taken by the Contactor

1. Drainage system were adequate and well maintained to prevent flooding and overflow;

2. Sand and silt removal facilities, e.g. silting screen, were provided before the discharge point;

3. 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;

4. Catchpits and 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;

Conclusion

Refer to the ET site investigation and marine water quality monitoring results, the overall marine water quality was considered to be acceptable during this period. The Contractor has implemented control measures to prevent impact to the environment but some improvement should be carried out.

Due to this event, the Contractor was reminded to take more effort on sand and silt removal facilities to avoid pollutants to the nearby environment.



Prepared by:	Frankie Tang	Signature:	At
Designation:	ET Representative	Date:	15 June 2019
Checked by:	C. L. Lau	Signature:	· /
Designation:	Environmental Team Leader	Date:	15 June 2019



Attachment A



Photos during ET site investigation at TKO137 on 14 June 2019





Attachment B

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Monitoring Station : TKO-C1

Date Samplir Duratio	Sampling	Ambient Temp (°C) / Weather	Monitori	Monitoring Depth		Salinity (ppt)		Dissolved Oxygen (mg/L)				Dissolved Oxygen Saturation (%)		n Turbidity (NTU)			Suspended Solids (mg		
	Duration	Condition	1)	m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average	
			Surface	10	27.7	31.3	313	7.55	7 57		114.2	114.5	3.64	2.62		2.2	2.2		
						31.3		7.58	1.01	749	114.7	114.5	3.61	5.05		2.1	2.2		
03/06/19	1537-1551	29/Fine	Middle	10.9	27.5	31.5	315	7.42	7 41	1.45	112.1	1110	3.75	2 77	2 70	1.5	14		
	2571112				21.0	31.4	01.0	7.40	1.41		111.6	111.5	3.79	3.11	3.75	1.3	1.4	2.0	
		Bottom	20.7	27.4	31.6	31.6	7.23	7 25	7 25	109.1	100.4	3.98	2.07		2.7	26			
						31.6		7.27	1.20	1.20	109.7	103.4	3.96	5.57		2.4	2.0		
			Surface	10	27.4	31.8	31.8	7.02	7.04		106.0	106.3	3.62	364		3.0	20		
						31.7	01.0	7.06	7.04	6.96	106.5	100.0	3.66	5.04		2.9	5.0		
05/06/19	0850-0902	30/Cloudy	Middle	112	27.3	31.9	32.0	6.87	6.88	0.50	103.6	103.8	3.84	2 92	2 70	3.9	4.1	25	
		,			21.0	32.0	02.0	6.89	0.00		103.9	103.0	3.80	3.02	3.79	4.2	4.1	3.5	
	E	Bottom	21.4	27.2	32,1	32.1 32.1	6.75	6.72	6.73	101.8	101.5	3.93	2.02		3.6	26	}		
		L				32.1	02.1	6.71	0.75	0.73	101.2	101,5	3.90	3,92		3.4	3.5		

Security Statement of Contract Statements



Monitoring Station : TKO-M4

Date Sampling Duration		Ambient Temp	Monitoring Depth		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)				Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)		
Date	Duration	(C) / Weather Condition	(ก	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average	
			Surface	1.0	27.8	31.4	314	7.62	7.64		115.6	115.9	3.44	3.43		2.1	2.0		
			Gunade	1.0	21.0	31.3	01.4	7.66	1.04	7 55	116.1	110.0	3.42	0.40		1.9	2.0		
03/06/19	1650-1702	29/Fine	Middle	5.0	27.6	31.5	31.5	7.45	7.46	1.55	112.7	112.9	3.51	2 52	3.57	1.6	17	1.8	
	1000 1102	20/1 11/6	Wildle	0.0	21.0	31.5	01.0	7.47	1.10		113.0	112.5	3.55	0.00	0.07	1.7	1.1		
		Bottom	89	27.5	31.7	317	7.35	734	7 34	111.0	110.9	3.76	3 75		1.7	18			
]			0.0	27.0	31.6		7.33	1.01	1.01	110.7	110.0	3.73	0.70		1.8	1.0		
			Surface	10	27.4	31,9	319	7.17	7 16		108.3	108.1	3.57	3.54		3.3	3.5		
				1.0		31.9		7.14		7 10	107.9	100.1	3.51	0.04		3.6	0.0		
05/06/19	0946-0958	30/Cloudy	Middle	5 1	273	32.0	32.0	7.03	7.05	1 1.10	106.0	106.2	3.72	3.74	3.60	3.1	21	2.9	
00/00/10	0040-0000	50/Cloudy	Wildule	0.1	21.5	32.0	52.0	7.06	1.05		106.4	100.2	3.76	3.14	3.05	3.0	3.1	3.0	
1			Bottom	92	27.3	32.0	32.1	6.92	6.94	6.94	104.3	104.5	3.77	3.78]	5.1	5.0		
L		L	Dontoini	9.2	£7.5	32.1		6.95	0.54	0.54	104.7	104.5	3.79	5.70		4.8	3.0		



Monitoring Station : TKO-C1a

Date	Sampling	Ambient Temp	Monitori	Monitoring Depth (m)		Salinit	ly (ppt)	Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)		
	Duration	Condition	(r	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	27.7	31.3	313	7.53	7.52		113.9	113.8	3.49	3.49		2.7	2.0	
						31.2		7.51	1.02	7 44	113.6	110.0	3.47	5.40		3.0	2,9	
03/06/19	1555-1610	29/Fine	Middle	11.0	27.5	31.4	314	7.35	7 37	7.44	110.9	1111	3.52	3.54	3.58	1.9	10	26
						31.4		7.38			111.3		3.56	5.54	5.00	1.9	1.5	2.0
			Boltom	21.0	27.3	31.6	316	7.12	7 14	7,14	107.2	107.5	3.73	3 72		2.9	2.0	
						31.5	•	7,16		•	107.7	.07.0	3.70	5.72		3.1	3.0	
			Surface	1.0	27.4	31.9	319	7,05	7.07		106.5	106.8	3.37	2 30		3.6	27	
						31.9	01.0	7.08	1.01	7.00	107.0	100.0	3.40	5.55		3.8	3,1	
05/06/19	0905-0917	30/Cloudy	Middle	11.0	27.2	32.D	32.1	6.91	693	7.00	104.0	104.3	3.68	2.67	764	3.6	27	25
						32.1		6.94	0.00		104.5	104.5	3.65	3.07	3.04	3.8	3.7	3.5
			Bottom	210	27.2	32.1	32.2	6.88	6.87	6.87	103.7	103.5	3.89	2 00		3,3	2.2	
L	I	I				32.2		6.85	0.01	5.07	103.3	103.5	3.87	3.00		3.1	3.2	



Monitoring Station : TKO-M4a

Date Sampl	Sampling	Ambient Temp	Monitoring Depth		Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Susper	Suspended Solids (mg/L)		
	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average	
			Surface	10	27.8	31.3	31.4	7,60	7.62		115.2	115.6	3.58	3.60		2.3	24		
			Gunace	1.0	27.0	31.4	51.4	7.64	1.02	7 55	115.9	113.0	3.62	3.00		2.4	2.4		
03/06/19	1613-1626	29/Fine	Middle	0.0	27.6	31.6	316	7.49	7 48	1.35	113.3	113.1	3.77	3.76	3 72	2.3	22	22	
00/00/10	1010-1020	20/1 1110	WINGUE	3.5	21.0	31.5	31.0	7,46	1.40		112.9	110.1	3.75	5.70	5.75	2.3	2.5	2.5	
		Bottom	18.8	27.5	31.7	317	7.34	7 35	5 7.35	110.9	1111	3.81	3.83		2.1	23			
			Lonom	10.0	27.5	31.7	31.7	7.36	1.50	7.55	111.2	1.1.1	3.84	3.00		2.4	2.5		
			Surface	10	27.5	31,9	32.0	6.97	6.96		105.4	105.2		#DIV/01		2.9	3.0		
						32.0	02.0	6.94	0.00	6.87	105.0	100,2				3.1	0.0		
05/06/19	0919-0929	30/Cloudy	Middle	9.9	27.2	32.0	32.1	6.79	6.78	0.07	102.2	102.1		#DIV/0	#51//01	4.4	4.5	37	
00.00.10	00100020	00.00000		0.0	27.2	32.1	04.1	6,77	0.10		101.9	102.1		#BIVIO:	#01070	4.6	4.5	5.7	
		Bottom	18.8	77.1	32.2	.2 32.2	6.72	6 70	6.70	101,2	101.5		#DIV/01		3.5	37			
l			Bendin	.0,0		32.2	~~	6.68	0.70	0.70	101.7	1.51.5		#010/0		3.8]		

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Monitoring Station : TKO-M5

Date Sampling	Sampling	Ambient Temp (°C) / Weather	Monitoring Depth	Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)			Dissolved Oxygen Saturation (%)		n Turbidity (NTU)			Suspended Solids (mg/L)			
Date	Duration	(°C) / Weather Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	10	27.7	31,4	31.4	7.41	7.43		112.3	112.5	3.53	3.52	ł	1.5	14	
			QUILACE	1.0	21.1	31.4	51.4	7.44	1.45	737	112.7	112,0	3.50	0.02		1.3		
00/00/40	03/06/19 1631-1645 29/Fine	Minister	0.2	27.6	31.5	21.5	7.32	721	1.01	110.7	110.6	3.65	3.67	3.65	1.2	1 11	10	
03/06/19 1631-1645	29/Fine	wildule	9.3	27.0	31.5	31.5	7.30	1 7.51		110.4	1,10.0	3.69	0.07	0.00	1.0			
		Deller	17.6	27.4	31.6	217	7.13	7 15	7.15	107.5	107.8	3.76	3.78		0.5	0.6		
			Bollom	17.0	27.4	31.7] 31.7	7.17	1.13	7.15	108.1	107.0	3.79	0.70	1	0.7	0.0	
	[Curdence	1.0	07.4	32.0	1 33.0	7.09	7 1 1	_	107.1	107.4	3.36	3.34		2.8	26	
			Sunace	1.0	27.4	32.0	32.0	7.13] /.//	6.00	107.6] '07.4	3.31	0.04		2.3	2.0	
05/06/19 0932-0943	20/01	A fieldle	0.0	27.2	32.1	22.1	6.88	6.96	0.55	103.7	103.5	3.67	3.65	3 57	3.8	3.8	3.1	
	0932-0943	30/Cloudy	IVIIdale	9.2	21.2	32.1	32.1	6.84	0.00		103.2	103.5	3.63	5.05] 5.57	3.8	5.5	0.1
			Batter	47.4	07.0	32.1		6,85	6.97 6.97	6.97	103,3	103.6	3.72	3.74		2.6	2.8	
		Buttom	ottom 17.4	21.2	32.2	32.2	6.89] 0.07	0.07	103.8] '03.0	3.75	3.74		3.0	2.0		

Mid-Ebb Tide



Monitoring Station : TKO-C1

Date Sampling Duration		Ambient Temp	Monitorir	Monitoring Depth (m)		Salinity (ppt)		Dissolved Oxygen (mg/L)				Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L		
	Duration	Condition	(n	n)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average	
			Surface	10	25.6	31.3	314	7,38	7.40		107.1	107.7	3.75	3.74		0.8	0.0		
					20.0	31.4		7.41	1.40	7 34	108.3	107.7	3.73	9.14		0.9	0.5		
03/06/19	1015-1030	27/Cloudy	Middle	10.7	25.4	31,5	315	7.29	7.28	1.04	106.3	106.1	3.96	3.05	2 02	2.2	2.1	1.5	
		2				31.5		7.26	1.20		105.8	100.1	3.93	3.30	0.52	2.0	2.1	1.5	
		Bottom	20.4	25.2	31.7	317	7.08	7.06	7.06	102.9	102.6	4.05	4.07		1.4	16			
				20.1		31.6	01	7,04	1.00	1.00	102.3	102.0	4.09	4.07		1.7	1.0		
			Surface	1.0	27.6	31.9	310	6.93	6 95		105.0	105.3	3.81	2.92		2.2	2.1		
						31.9	01.0	6.97	0.00	6.85	105.5	105.5	3.85	3,05		2.0	2.1		
05/06/19	1238-1252	30/Cloudy	Middle	10.8	27.5	31.9	32.0	6,74	6.76	0,00	101.9	102.1	3.93	3 95	2 0 2	2.9	3.1		
						32.0	02.0	6,77	0.70		102.3	102.7	3.96	3,35	0.55	3.2	5.1	2.0	
			Bottom	20.6	27.4	32.1	32.2	6.70	6.69	6.60	101.3	101.1	4.02	4.01		2.9	3.1		
L		L		20.0		32.2		6.67	0.03	0.03	100.9	101.1	3,99	01		3.3	3.1		

Mid-Ebb Tide



Monitoring Station : TKO-M4

Date Sampling Date	Ambient Temp	Monitoring)enth (m)	Temp	Salinity (ppt)		Dissolv	ved Oxyger	(mg/L)	Dissolved Oxygen Saturation (%)		n Turbidity (NTU)			Susper	s (mg/L)		
Date	Duration	Condition	Workoring	Septin (m)	(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average
			Surface	1.0	25.7	31,4	314	7.54	7.53		110.4	110.2	3.52	3.51		1.0	11	
			Cunace	1.0	20,1	31.4	91.4	7.51	1.00	7 44	110.0	110.2	3.50	0.01]	1.1		
03/06/19	1133-1146	27/Cloudy	Middle	49	25.5	31,6	316	7.34	7 35	1.14	107.2	107.4	3.68	3 70	3.68	2.2	22	21
00/00/10	1100 1140	2//010000	Middle		20.0	31,5	01.0	7,36	1.55		107.5	107.4	3.72	3.10	5.00	2.1	2.2	2.1
		Bottom	87	25.4	31.7	31.7	7.19	7 17	7 17	105.0	104 7	3.85	3.84		3.3	3.2		
				0	20.4	31.7	01.1	7.15	1.17		104.4	104.1	3.82	0.04		3.0	0.2	
			Surface	10	27.6	32.0	32.0	7.02	7.04		106.5	106.7	3.74	3.72		3.0	32	
					21.0	32.0	02.0	7.05	7.01	6 93	106.9	100.1	3.70	0.72		3.4	0.2	
05/06/19	1238-1252	30/Cloudy	Middle	10.8	27.5	32.1	32.1	6.81	6.82	0.00	103.0	103.2	3.88	3.87	3.95	3.5	3.5	22
00,00,10	1200 1202	30, 0,000 day	winduic	10.0	27.5	32.1	52.1	6.83	0.02		103.4	105.2	3.85	3.07	0.00	3.4	3.5	
			Bottom	20.6	27.4	32.1	32.1	6.77	6.78	6.78	102.4	102.6	3.95	3.07		3,4	2.2	
L				20.0	27.4	32.1	52.1	6.79	0.70	0.70	102.7] '02.0	3,99	3.57		3.1	3,5	


Mid-Ebb Tide

Monitoring Station : TKO-C1a

Sampling		Ambient Temp	Ambient Temp	Ambient Temp	Ambient Temp	Monitorir	ig Depth	Temp	Salini	ty (ppt)	Dissolv	Dissolved Oxygen (mg/L)		Dissolve Satura	d Oxygen tion (%)	Turbidity (NTU)		U)	Suspended Solids (mg/L)									
Duration (°C) / Weather Condition	(°C) / Weather Condition	(m)		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average											
			Curtana	1.0	25.7	31.3	- 31.3	7.45	7.44		109,1	108.9 3.55	3.57		4.1	4.2												
			Sunace	1.0	25.7	31.3		7.42	1.77	7 36	108.6	100.5	3.59	5.57		4.3	7.2											
03/06/19 1034-10	1024 1050) 27/Cloudy	Middle	10.0	25.5	31.4	31.5	7.26	7 28	7 28	106.0	106.3 3.78	3 77	374	3.2	3.0	36											
	1034-1030			10.5	23.5	31.5	51.5	7.30	1.20		106.6	100.0	3.76	5.11	0.14	2.8	0.0											
			Bottom	ttom 20.7	25.3	31.6	316	7.07 7.05	7.06	7.06 7.06	102.9	102.8 3.8	3.89	3.88		3.2	3.5											
						31.6] 31.0		1.00		102,6		3.87			3.7												
								Surface	1.0	27.6	32.0	32.0	6.98	6.97		105.9	105.7	3.59	3 57		3.9	3.8						
			Surface	1.0	27.0	32.0	32.0	6.95	0.57	6.87	105.5	100,1	3.55	1 3,57		3.7												
05/06/19 1255-1	1255-1209	20/Cloudy	Middlo	10.6	27.5	32.0	32.1	6.78	6 77	0.01	102.7	102.5	3.82	3.84	3 75	3.4	3.7	3.6										
	1200-1000	308 30/Cioudy	whudle	10.0	27.5	32,1	52.1	6.75] 0.77		102.3	102.0	3,85	0.04 0.70	0.10	3,9												
												Bo	Bottom	20.2	27.4	32.1	32.1	6.74	6.76	6.76	101.9	102.1	3,83	3.86		3,1	3.3	
									Bottom	20.2	21.4	32.1	J 52.1	6.77	0.70	0.70	102.3		3.88	0.00		3.5 3.3	5.0					

Mid-Ebb Tide



Monitoring Station: TKO-M4a

Samplin	Sampling	Ambient Temp			Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)		Dissolved Oxygen Saturation (%)		Turbidity (NTU)		Suspended Solids (mg/L)						
Date	Date Duration (°C) / Weather Condition		wonitoring Depth (m)		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average		
	1		Surface	1.0	25.9	31.4	21.4	7,49	· 7 50		109.8	110.0	3.71	3 73		3.3	35			
03/06/19 1053-1107 27/Cloudy		Surrace	1,0	25.0	31.3	51.4	7.51	7.50	7 42	110.1	110,0	3.74	0.70		3.7	0.0				
			0.0	05.0	31.6	21.6	7.35	7.32	1.72	107.6	1073	3.85	3.84	3.80	3.6	34	33			
	1053-1107	27 Cloudy	witcute	9.0	25.0	31.6	7 01.0	7,31	1 1.33		107,0	107.5	3.83	0.04	0.00	3.2	0.7	0.0		
			Rottom	10.5	25.5	31.7	31.7	7.18	7 17	7 17	105.0	104.8 3.82	3.82	3.84	1	3.1	30			
			Bollom	19.5	25.5	31.7		7.15		1.11	104.5		3,86	0.01		2.8				
	Τ		Surface	10	27.7	32.1	22.1	6.92	6 00	90	105,1	104.0	3.43	3 45		3,3	3.5	3.6		
]	Sunace	1.0	21.1	32.1] 32.1	6.88	0.30		104.6	104.5	3.47	0.10		3.6				
05/06/19 1310-1323	1040 4000	20/Ol-urb	Middle	0.6	27.6	32.1	33.3	6.81	6 92] 0.07	103.3	103.6	3.78	3.76	3.69	3.2	34			
	1310-1323	30/Cloudy		e 9.6	21.0	32.2	32.2	6.85	0.00		103.8	100.0	3.74] 3.70	3.03	3.5				
			Bo	B-#	Dettern 1	D-# 10.2	27.5	32.2	22.0	6.70	6.60 6.60	6.69	101.5	101.2	3.87	3.86		4.2	41	
							Bottom	18.2	27.5	32.2] 32.2	6.67	0.09	6.69	101.1	,01.0	3.85	0,00		4.0



Mid-Ebb Tide

Monitoring Station : TKO-M5

Date Sampling Uuration Condition		Ambient Temp			Temp	Salinity (ppt)		Dissolved Oxygen (mg/L)		Dissolved Oxygen Saturation (%)		Turbidity (NTU)			Suspended Solids (mg/L)														
		Nonitoring Depth (m)		(°C)	Value	Average	Value	Average	Depth- average	Value	Average	Value	Average	Depth- average	Value	Average	Depth- average												
	1		Curtana	1.0	25.0	31.3	21.2	7,36	7 35		107.9	107.7	3.64	3.63		2.5	24												
03/06/19 1113-1128			Sunace	1.0	25.0	31.3	31,3	7.33	7.55	7.29	107.5	107.1	3.62	0.00		2.2	 .												
	4142 4122	28 27/Cloudy	Middle	14:2-1-	0.2	25.7	31.5	21.5	7.23	7.21	1.20	105.9	105.6	3.70	3.72	3.74	1.3	1.2	1.6										
	1113-1128			9.2	25.7	31.4	01.0	7.19	1.21	1.21	105.3	105.0	3.73		0.14	1.1		-											
			Pallam	17.4	05 G	31.7	31.7	7,10	7.00	7 09	104.0	103.9	3.86	3.88		1.3	12												
			Bottom	17.4	25,6	31.7		7.08	1.05 1.05	103,7	105.5	3.89			1.1		<u> </u>												
			Curtain	1.0	07.0	32.0	22.4	7,05	7.02	0.00	106.9	106.7	3.60	3.58		3.7	3.6												
			Sunace	1.0	27.0	32.1	32.1	7.01	7.03		106.4	100.1	3.56	0.00		3.4	0.0												
05/06/19 1326-13	1000 1000	20/01	Midallo		27.6	32.1	22.2	6.90	6 80	0.50	104.5	104.3	3.86	3.84	3.76	2.8	27	3.4											
	1326-1339	30/Cibudy	Middle	0.9	27.5	32.2	32.2	6.87	0.03		104.1	104.0	3.82	0.04	5.70	2.5													
			D-H	10.0	27.4	32.2	20.0	6.86	C 99 C 99	6.00	103.7	103.0	3.88	3.85		3.8	39												
																Bottom	Bottom 16,8	27.4	32.2	32.2	6.89	0.00	6.88	104.0	100.5	3.82	0.00		3.9



03 July 2019

Date:

			• •						
ЕТ	S-Testconsult L	td – Environr	nental Te	eam (ET)					
Complaint Investigation Report									
Contract No.CV/2015/07 Handling of Surplus Public Fill (2016-2018) – Tseung Kwan O 137 Fill Bank									
Details of the Complaint Log No. : 007									
Date and Time of	Complaint	27 June 2019							
Location									
Tseung Kwan O 137 F	`ill Bank								
Circumstances:									
One complaint receive emission at the fill ban	ed on 27 June 2019, which k. The complainant compl	ch was forwarded to E ained that the dust caus	ET on 28 June ed an environm	2019, from public against dust ental nuisance.					
Follow action(s)									
Follow up by	ET		Date	02 July 2019					
Details of Follow	up action(s)								
Refer to the ET site inv during the investigatio	vestigation on 02 July 2019 n. (Attachment A)), no defective observat	ion related to d	ust emission was recorded					
Air Qualilty and	Marine Water Qualit	y Monitoring Data	1 Review						
No impact air quality monitoring stations fro	monitoring result of 1-h om 24 to 28 June 2019. (At	r TSP and 24-hr TSP tachment B)	was exceeded	Action and Limit Level at all					
Details of Action(s) Taken by the Cont	actor							
 Regular water spra2. Mist spraying syst Site vehicles are v jet manually at the All dusty material Truck speed withi Regular cleaning at 	aying by water lorries is pr tems at the site entrance are vashed to remove any dust e entrance of work site befor is sprayed with water prio n the site is limited within at the site haul road is prov	ovided for dust suppres e operated properly; y materials from their b ore leaving; r to loading, unloading 10 km/h; ided to minimize the fu	sion inside the odies and whee or transfer so a gitive dust emi	Fill Bank; Is by using high pressure water s to maintain the material wet; ssion;					
Conclusion									
Due to the complaint, Contractor will take m	the Contractor has implem ore effort on the dust suppl	ented control measures ression to avoid polluta	to reduce dust nts to the nearb	impact to the environment. The y environment.					
Prepared by:	Frankie Tang		Signature:	Alter .					
Designation:	Environmental Officer		Date:	03 July 2019					

Prepared by:Frankie TangSignature:Designation:Environmental OfficerDate:Checked by:C. L. LauSignature:

Environmental Team Leader

Designation:



Attachment A







Attachment B



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

(a) 1-hr TSP Monitoring Results

Location: TKO-A1

Date	Result ($\mu g/m^3$)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Exceedance
24/06/2019	103	376	500	No
24/06/2019	76	376	500	No
26/06/2019	162	376	500	No
28/06/2019	132	376	500	No
28/06/2019	193	376	500	No
28/06/2019	142	376	500	No

Location: TKO-A2a

Date	Result ($\mu g/m^3$)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Exceedance
24/06/2019	97	376	500	No
24/06/2019	102	376	500	No
26/06/2019	139	376	500	No
28/06/2019	231	376	500	No
28/06/2019	232	376	500	No
28/06/2019	186	376	500	No

(b) 24-hr TSP Monitoring Results

Location: TKO-A1

Date	Result ($\mu g/m^3$)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Exceedance
27/06/2019	81	210	260	No

Location: TKO-A2a

Date	Result ($\mu g/m^3$)	Action Level (µg/m ³)	Limit Level (µg/m ³)	Exceedance
27/06/2019	68	210	260	No



Figures



Tseung Kwan O Area 137 Fill Bank







