

Drainage Services Department

Contract No. CM 12/2019

Expansion of Sha Tau Kok Sewage Treatment Works

Environmental Team Services for Construction Phase (2020-2021)

2nd Annual EM&A Review Report for June 2020 to May 2021

[October 2021]

	Name	Signature
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Your reference:

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Date: 20 October 2021

Attention: Mr Alex Lam

BY EMAIL & POST
(email: thlam@dsd.gov.hk)

Dear Sirs

Agreement No.: CM 14/2018
Independent Environmental Checker Services for
Expansion of Sha Tau Kok Sewage Treatment Works
2nd Annual Environmental Monitoring and Audit Review Report (June 2020 – May 2021)

We refer to emails of 4 and 11 October 2021 from AECOM Asia Co. Ltd attaching the 2nd Annual Environmental Monitoring and Audit Review Report (June 2020 – May 2021).

We have no further comment and hereby verify the captioned Report in accordance with Clause 2.6(ii) of the Environmental Permit no. EP-517/2017/A and Section 12.5 of the Environmental Monitoring and Audit Manual.

Should you have any queries, please do not hesitate to contact the undersigned or our Ms Karen Po at 2618 2831.

Yours faithfully
ANewR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/PKWK/lsm

cc DSD – Mr Alex Leung (email: alexleung_dsd@dc1803.com.hk)
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EXECUTIVE SUMMARY

(i) Introduction

This is the 2nd Annual EM&A Summary Report prepared by AECOM for the Expansion of Sha Tau Kok Sewage Treatment Works. This report summarized the monitoring results and audits findings of the EM&A programme under the issued EP (EP No.: EP-517/2017/A) and in accordance with the EM&A Manual during the reporting period from 01/06/2020 to 31/05/2021.

(ii) Summary of Main Works Undertaken and Key Measures Implemented

The main works undertaken during the reporting period are as follows:

Jun 2020	<ul style="list-style-type: none"> • TSTP testing and commissioning • Set up of submarine outfall drilling rig for TSTP
July 2020	<ul style="list-style-type: none"> • TSTP Testing and Commissioning • Set up of submarine outfall drilling rig (Land)
Aug 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Pilot Hole Drilling (Land)
Sep 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Submarine Outfall pilot hole drilling (Land)
Oct 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land)
Nov 2020	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Set up for Casing installation (Sea)
Dec 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Submarine Outfall pilot hole drilling (Land)
Jan 2021 & Feb 2021	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Casing installation (Sea)
Mar 2021 & Apr 2021	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Submarine Outfall pilot hole drilling (Sea)
May 2021	<ul style="list-style-type: none"> • Excavation • Submarine Outfall pilot hole drilling (Land) • Submarine Outfall pilot hole drilling (Sea) • Sewer laying works in Shun Hing Street and Tong To Village

Implementation of the key mitigation measures during the reporting period are as follow:

- All construction plants / machineries should be checked / serviced on a regular basis during the courses of construction to minimize the emission of noise generation and eliminate dark smoke emission.
- All C&D materials generated should be transported and stored at temporary storage area. Cover should be provided during transportation of dusty materials. Suitable materials should be sorted for reuse on-site. Only non-inert C&D material should be disposed off-site to NENT Landfill.
- All dump trucks should be equipped with mechanical covers to prevent the dust emission during transportation when necessary.
- Dust control measures, such as water spraying, should be provided during demolition works when necessary.
- Maintaining of wet surface on access road and keep slow speed in the site.
- Wastewater to be treated by wastewater treatment facilities before discharge.
- Conditions in the Environmental Permit and Discharge License should be followed.
- Fueling of equipment should be conducted carefully on-site by mobile tanker to avoid storage of fuel and oil spillage.
- Provision of drip trays for equipment likely cause spillage of chemical / fuel, and provide routine maintenance.
- Predict required quantity of concrete accurately and collect the unused fresh concrete at designated locations in the site for subsequent disposal.
- Install acoustic barrier surround the site demolition area.
- Application of silent plant.
- Provide sufficient mitigation measures as recommended in approved EM&A Manual requirement.

- Floating single silt curtain shall be deployed to fully enclose the works area at sea side prior to the installation of pipe piles for temporary scaffold and remove the silt curtain after the completion of steel casing installation.

(iii) Summary of Exceedances, Investigation and Follow-up

No non-compliance of odour monitoring was noted in the reporting period, except 1 non-compliance was found on 30 July 2020 and the operator was reminded to inspect the deodorization facility frequently.

No Action or Limit Level exceedance of construction noise was recorded in the reporting period. No noise complaints related to 0700 – 1900 hours on normal weekdays was received in the reporting period.

A total of 49 Action Level exceedances and 135 Limit Level exceedances of water quality were recorded in the reporting period. The exceedances were considered not related to the Project and no abnormalities were observed from the UV disinfection system.

(iv) Complaint Handling, Prosecution and Public Engagement

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

No public engagement activity was conducted in the reporting period.

(v) Reporting Change

A revised proposal for changes of the environmental monitoring methodology and requirement (Operation Phase of Odour Monitoring) had submitted to EPD on 28 May 2020 and approved by EPD on 3 June 2020.

The following EP submission (EP No.: EP-517/2017/A) was submitted during the reporting period:

The Condition 2.15

The odour commissioning test report was submitted to EPD on 16 June 2020.

The revised odour commissioning test report was submitted to EPD on 30 September 2020.

The Condition 3.4:

The 13th Monthly EM&A Report (June 2020) was submitted to EPD on 13 July 2020.

The 14th Monthly EM&A Report (July 2020) was submitted to EPD on 14 August 2020.

The 15th Monthly EM&A Report (August 2020) was submitted to EPD on 11 September 2020.

The 16th Monthly EM&A Report (September 2020) was submitted to EPD on 14 October 2020.

The 5th Quarterly EM&A Summary Report (June to August 2020) was submitted to EPD on 20 October 2020.

The 17th Monthly EM&A Report (October 2020) was submitted to EPD on 11 November 2020.

The 18th Monthly EM&A Report (November 2020) was submitted to EPD on 14 December 2020.

The 6th Quarterly EM&A Summary Report (June to August 2020) was submitted to EPD on 23 December 2020.

The 19th Monthly EM&A Report (December 2020) was submitted to EPD on 14 January 2021.

The 20th Monthly EM&A Report (January 2021) was submitted to EPD on 11 February 2021.

The 21th Monthly EM&A Report (February 2021) was submitted to EPD on 12 March 2021.

The 22th Monthly EM&A Report (March 2021) was submitted to EPD on 14 April 2021.

The 7th Quarterly EM&A Summary Report (December 2020 to February 2021) was submitted to EPD on 14 April 2021.

The 23th Monthly EM&A Report (April 2021) was submitted to EPD on 13 May 2021.

1 INTRODUCTION

1.1 Background

- 1.1.1. The Project in Sha Tau Kok mainly comprises of the following items:
- i) Increase the treatment capacity of Sha Tau Kok Sewage Treatment Works (STKSTW) to 5,000 m³/day at Average Dry Weather Flow (ADWF) in Phase 1, with suitable allowance to cater for a further increase of treatment capacity to 10,000 m³/day at ADWF in Phase 2;
 - ii) Construct a Temporary Sewage Treatment Plant (TSTP);
 - iii) Demolish the existing Sha Tau Kok Sewage Pumping Station (STKSPS) and decommission the rising main between STKSPS and STKSTW;
 - iv) Construct a new gravity sewer; and
 - v) Decommission the existing submarine outfall and construct a new one.
- 1.1.2. The Project site will be within the existing STKSTW while the construction of the gravity sewers and demolition of STKSPS will be carried out in Sha Tau Kok Town. The proposed submarine outfall will be constructed by Horizontal Directional Drilling (HDD) method under the seabed of Starling Inlet.
- 1.1.3. The Environmental Impact Assessment (EIA) Report for Expansion of Sha Tau Kok Sewage Treatment Works (Register No: AEIAR-207/2017) was approved on 14 February 2017. A Variation of an Environmental Permit (EP) EP-517/2017/A was issued on 18 October 2019 and it is the current permit for the Project.
- 1.1.4. Fugro Technical Services Limited (FTS) has been appointed to work as the additional services for Environmental Team (ET) services at early stage of construction phase (27 May 2019 to 26 February 2020) to implement the EM&A programme for the Project.
- 1.1.5. Since 27 February 2020, AECOM Asia Co. Ltd (AECOM) has been appointed as the ET to undertake the EM&A programme during construction phase (2020 – 2021) of the Project.
- 1.1.6. The EM&A programme of this Project shall be implemented in accordance with the requirements and procedures set out in the EM&A Manual and the EP No. EP-517/2017/A.
- 1.1.7. A baseline noise monitoring work was conducted between 25 February 2019 and 11 March 2019 and an Environmental Monitoring Report (Noise) Report (Report No.: 0118/18/ED/0259D) had submitted to EPD on 2 April 2019 and was approved by EPD on 21 June 2019.
- 1.1.8. A baseline water quality monitoring was conducted between 26 February 2019 and 23 Mar 2019 and an Environmental Monitoring Report (Water) Report (Report No.: 0118/18/ED/0307E) had submitted to EPD on 14 Jun 2019 and comments of report were received from EPD on 21 November 2019. An updated Environmental Monitoring Report (Water) Report (Report No.: 0118/18/ED/0307F) had submitted to EPD on 6 January 2020 and the report was approved by EPD on 2 March 2020.
- 1.1.9. A pre-construction survey on night roosting site for great egret was conducted in October 2019 and a Pre-construction Survey Report (Report No.: 0118/18/ED/0382 03) had submitted to EPD on 12 December 2019 and the report was found in order by Agriculture, Fisheries and Conservation Department on 30 December 2019.
- 1.1.10. A proposal for changes of the environmental monitoring methodology and requirement (Operation Phase of Odour Monitoring) had submitted to EPD on 29 April 2020 and comments from EPD were received on 26 May 2020. A revised proposal was submitted on 28 May 2020 and approved by EPD on 3 June 2020.
- 1.1.11. The construction phase and EM&A programme of the Project commenced on 27 May 2019. The operation of TSTP was commenced on 22 July 2020.

1.2 Scope of Report

- 1.2.1 This is the 2nd Annual EM&A Review Report prepared by AECOM for the Expansion of Sha Tau Kok Sewage Treatment Works. This report summarized the monitoring results and audits findings of the EM&A programme under the issued EP (EP No.: EP-517/2017/A) and in accordance with the EM&A Manual during the reporting period from 01/06/2020 to 31/05/2021.

1.3 Project Organization

- 1.3.1 The project organization structure is shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

Party	Position	Name	Telephone
DSD Drainage Services Department	Engineer	Gary Leung / Alvin Ho	2594 7594/ 2594 7269
ER Black & Veatch Hong Kong Limited	Resident Engineer	Anthony Leung / Kendrick Wong	2946 8708
IEC ANewR Consulting Limited	Independent Environmental Checker	James Choi	2618 2836
Contractor Build King – Kum Shing J.V.	Environmental Officer	Jimmy Wong / Ping Ngan	6576 7729/ 9516 9431
ET AECOM Asia Company Limited	ET Leader	Y W Fung	3922 9393

1.4 Construction Programme and Activities

- 1.4.1 The construction phase of the Project under the EP commenced on 27 May 2019. The operation of TSTP was commenced on 22 July 2020.
- 1.4.2 Details of the construction works undertaken during the reporting period are listed below:

Jun 2020	<ul style="list-style-type: none"> • TSTP testing and commissioning • Set up of submarine outfall drilling rig for TSTP
July 2020	<ul style="list-style-type: none"> • TSTP Testing and Commissioning • Set up of submarine outfall drilling rig (Land)
Aug 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Pilot Hole Drilling (Land)
Sep 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Submarine Outfall pilot hole drilling (Land)
Oct 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land)
Nov 2020	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Set up for Casing installation (Sea)
Dec 2020	<ul style="list-style-type: none"> • Demolition of the existing STKSTW • Submarine Outfall pilot hole drilling (Land)
Jan 2021 & Feb 2021	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Casing installation (Sea)
Mar 2021 & Apr 2021	<ul style="list-style-type: none"> • Expanded STKSTW piling • Submarine Outfall pilot hole drilling (Land) • Submarine Outfall pilot hole drilling (Sea)
May 2021	<ul style="list-style-type: none"> • Excavation • Submarine Outfall pilot hole drilling (Land) • Submarine Outfall pilot hole drilling (Sea) • Sewer laying works in Shun Hing Street and Tong To Village

- 1.4.3 The Construction Programme is shown in **Appendix B**.
- 1.4.4 The general layout plan of the Project site is shown in **Figure 1**.

1.5 Status of Environmental Licenses, Notification and Permits

- 1.5.1 The environmental licenses and permits for the Project and valid in the reporting period are summarized in **Table 1.2**.

Table 1.2 Summary Status of Environmental License, Notification and Permit

License/ Notification/ Permit	Reference No.	Valid Period	
		From	To
Environmental Permit	EP-517/2017/A	18/10/2019	N/A
Wastewater Discharge License	WT00033567-2019	02/05/2019	31/05/2024
	WT00035755-2020	12/06/2020	30/06/2022
	WT00037838-2021	21/04/2021	30/04/2026
Chemical Waste Producer Registration	5213-652-B2548-01	14/12/2018	N/A
Billing Account	WFG19965	02/01/2019	N/A
Construction Noise Permit	GW-RN0218-20	28/03/2020	14/09/2020
	GW-RN0644-20	15/09/2020	05/03/2021
	GW-RN0808-20	27/11/2020	08/05/2021
	GW-RN0877-20	14/12/2020	13/03/2021
	GW-RN0169-21	14/03/2021	13/06/2021
	GW-RN0266-21	16/04/2020	30/06/2021
	GW-RN0273-21	09/05/2021	02/11/2021
	PP-RN0005-21	08/02/2021	24/03/2021
PP-RN0016-21	13/04/2021	12/05/2021	

2 ENVIRONMENTAL MONITORING REQUIREMENTS

2.1 Odour Monitoring (Operation Phase for TSTP)

- 2.1.1 In accordance with the EM&A Manual, a commissioning test for the deodorization facilities of the TSTP was performed on 12 June 2020, exhaust air flow rate, temperature of exhaust and H₂S concentration were recorded during the measurement. The measurement details were presented in the odour commissioning test report. The odour commissioning test report was submitted to EPD on 16 June and re-submitted on 30 September 2020. Further comments from EPD was received on 9 December 2020 and the revised report was submitted on 12 May 2021.

Impact Monitoring Requirement

- 2.1.2 In accordance with the EM&A Manual, as there is no non-compliance was recorded during the weekly odour monitoring in the first two months (i.e. August and September 2020), monitoring frequency is recommended to reduce from weekly to monthly in the subsequent four months (i.e. October 2020 to January 2021) and further reduce to quarterly in the remaining six months (i.e. February to July 2021) of the first year of the TSTP operation if no non-compliance is found.
- 2.1.3 Quarterly monitoring of odour emission at the exhausts of deodorization facilities (TSTP No.1 and TSTP No.2) will be conducted in the period of February to July 2021. Odour monitoring will be performed at the exhaust of operating deodorization facility at TSTP. The approved alternative method for odour monitoring is presented in **Table 2.1**.

Table 2.1 Approved Alternative Odour Monitoring Methodology

Measurement Locations	Parameter	Equipment
At the Exhaust of TSTP No.1 and TSTP No.2	<ul style="list-style-type: none"> ▪ Exhaust air flow rate ▪ Temperature of exhaust ▪ H₂S Concentration (ppm) 	H ₂ S Analyzer Anemometer

Monitoring Locations

- 2.1.4 As the operation mode of the deodorization system at TSTP shall be one in operation and one in standby. The odour monitoring locations is presented in **Table 2.2** and shown in **Figure 2**.

Table 2.2 Location of Odour Monitoring

ID	Monitoring Location	Operation mode
TSTP No.1	At the exhaust of TSTP No.1	Standby / Operation
TSTP No.2	At the exhaust of TSTP No.2	Standby / Operation

Monitoring Parameters and Frequency

- 2.1.5 **Table 2.3** summarizes the monitoring parameters, frequency and duration of odour monitoring.

Table 2.3 Monitoring Parameters, Frequency

Measurement Parameters	Frequency
15-minute H ₂ S Measurement (every 5 minutes measure one reading) - Average value of the three 5-minute readings will be used. Exhaust air flow rate, ambient temperature, temperature of exhaust, weather condition and wind speed will be recorded.	<ul style="list-style-type: none"> • At least once per week in the first two months. (i.e. Aug and Sep 2020) • Monthly in the subsequent four months. (i.e. Oct 2020 to Jan 2021) • Quarterly in the remaining six months. (i.e. in between Feb to Jul 2021)

Results and Observation

- 2.1.6 A total of 16 sessions of odour monitoring was performed and monitoring results are summarized in **Table 2.4**. No non-compliance of odour monitoring was noted in the reporting period except 1 non-compliance on 30 July 2020 and the operator was reminded to inspect the deodorization facility frequently.

Table 2.4 Summary of Odour Monitoring Results in the Reporting Period

Location	Ambient		Exhaust				
	Temp., °C	Wind speed, m/s	Temp., °C	Air velocity, m/s	Average Air flow rate, m ³ /s	H ₂ S concentration, ppm	H ₂ S Conc. Expressed in Odour Unit (*), OU/m ³
Exhaust of TSTP No.1	20.0 – 33.0	0.75 - 1.98	25.1 - 35.7	7.01 - 8.42	2.00 - 2.37	<0.003	6.4
Exhaust of TSTP No.2	25.1 – 35.0	0.44 - 1.98	24.9 - 36.5	5.25 - 15.34	1.57 - 4.3	<0.003	6.4

Note: * equivalent detection threshold criterion: 1OU= 0.00047ppm of H₂S

2.2 Noise Monitoring

Monitoring Requirements

- 2.2.1 In accordance with the EM&A Manual, impact noise monitoring was conducted for at least once per week during the construction phase of the Project. The Action and Limit levels for construction noise is provided in **Table 2.5**.

Table 2.5 Action and Limit Levels for Construction Noise

Station ID	Noise Sensitive Receivers	Description	Action Level	Limit Level
NM1	NSR 6	Block 45, Sha Tau Kok Chuen	When one documented complaint is received from any one of the noise sensitive receivers	75 dB(A)*
NM2	NSR 8	Building along Shun Lung Street		

Note: *75 dB(A) for residential premises.

Monitoring Locations

- 2.2.2 Monitoring stations NM1 and NM2 were set up at the proposed locations in accordance with EM&A Manual. **Figure 3** shows the location of the monitoring stations. **Table 2.6** describes the details of the monitoring stations.

Table 2.6 Location of Impact Noise Monitoring Stations

Station ID	Noise Sensitive Receivers	Description	Type of measurement
NM1	NSR 6	Block 45, Sha Tau Kok Chuen	Free-field
NM2	NSR 8	Building along Shun Lung Street	Free-field

Note: For Free-field measurement, a correction of +3dB(A) should be made to the measured results.

Monitoring Parameters and Frequency

- 2.2.3 **Table 2.7** summarizes the monitoring parameters, frequency and duration of impact noise monitoring.

Table 2.7 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. L _{eq} , L ₁₀ and L ₉₀ would be recorded.	At least once per week

Monitoring Results and Observations

- 2.2.4 A total of 52 sessions of construction noise monitoring was performed in the reporting period. The monitoring results for construction noise are summarized in **Table 2.8** and noise monitoring results are presented graphically in **Appendix D**.

Table 2.8 Summary of Construction Noise Monitoring Results in the Reporting Period

Station ID	Construction Noise Level, dB(A)*, L _{eq} (30 min)	Baseline Level, dB(A)	Limit Level, dB(A)
NM1	50.8 – 64.9	65	75
NM2	52.9 – 64.5	65	75

Note: *A correction of +3 dB(A) was made to the free field measurements.
L_{eq} (30min) was measured at 0700-1900 hours on normal weekdays.

- 2.2.5 No Action or Limit Level exceedance of construction noise was recorded in the reporting period. No noise complaints related to 0700 – 1900 hours on normal weekdays was received in the reporting period.
- 2.2.6 The event and action plan is annexed in **Appendix F**.

Other factor influencing the monitoring results

- 2.2.7 Major noise sources during noise monitoring in the reporting period were mainly road traffic noise, human activities and construction equipment noise.

2.3 Water Quality Monitoring

Monitoring Requirements (Construction Phase)

- 2.3.1 In accordance with the recommendations of the EIA, water quality monitoring is required during the installation, maintenance and removal of sheetpiles and sediment removal works for construction of diffuser.
- 2.3.2 Water quality monitoring programme for marine construction works was commenced on 9 November 2020. As informed by DSD, no marine construction work was conducted and the marine water quality monitoring for marine construction works was suspended since 21 December 2020. The marine water quality monitoring was resumed on 20 January 2021.

Monitoring Requirements (1-year Operation phase for TSTP)

- 2.3.3 In accordance with the EM&A Manual, marine water quality and continuous effluent quality monitoring for first year operation of TSTP were conducted in the reporting period. The Action and Limit levels for marine water quality and effluent quality is presented in **Appendix C**.
- 2.3.4 Water quality monitoring programme for operation phase of TSTP was commenced on 22 July 2020.
- 2.3.5 No emergency discharge was happened in the reporting period.

Monitoring Locations

- 2.3.6 In accordance with the EM&A Manual, marine water quality and effluent quality monitoring stations are summarized in **Table 2.9** and shown in **Figure 4**.

Table 2.9 Location of Water Quality Monitoring Stations for 1-Year TSTP Operation and Construction Phase

Station	Description	Easting	Northing	1-Year TSTP Operation	Construction Phase
FCZ1A	Sha Tau Kok Fish Culture Zone – West	841565	844299	-	✓
FCZ1B	Sha Tau Kok Fish Culture Zone – West	841565	844299	✓	
FCZ7*	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	842282	844451	✓	✓
FCZ8*	Temporary Relocation Site for Fish Rafts of the Sha Tau Kok Fish Culture Zone	841511	843959	✓	✓
SGA	Seagrass Colony	841064	844580	✓	✓
M1A	Mangrove Stand	840744	844853	✓	✓
H1A	Horseshoe Crab	840645	844398	✓	✓
H4A	Horseshoe Crab	840304	843546	✓	✓
N1	Impact Station of the Expanded STKSTW (Ebb Tide)	842863	845378	✓	✓
N2	Impact Station of the Expanded STKSTW (Flood Tide)	842109	844631	✓	✓
C	Control Station	844690	845886	✓	✓
Effluent	At the effluent discharge point of TSTP	-	-	✓	-

Note:

Due to accessibility and safety concern during the baseline period, alternative water quality monitoring stations of SGA, M1A, H1A and H4A were proposed and adopted.

* No sediment dredging was conducted at Sha Tau Kok Fish Culture Zone, Approach Channel, Boat Shelter, etc in the reporting period. Therefore, no relocation for FCZ1 and monitoring at FCZ7 and FCZ8 is not required.

Monitoring Parameters and Frequency

- 2.3.7 **Table 2.10** summarizes the monitoring parameters, frequency of water quality monitoring.

Table 2.10 Marine Water and Effluent Quality Monitoring Parameters, Frequency

Monitoring Parameters, unit	Frequency
In-situ Measurement: <ul style="list-style-type: none"> • Temperature, °C • pH • Salinity, ppt • Dissolved Oxygen (DO), mg/L • Turbidity, NTU Laboratory Analysis: <ul style="list-style-type: none"> • Suspended Solids (SS), mg/L • Biochemical Oxygen Demand (BOD₅), mg/L • Total Phosphorus (TP) mg/L • Total Nitrogen (TN), mg/L • Ammonia Nitrogen (NH₃-N), mg/L • Total Inorganic Nitrogen, (TIN), mg/L • <i>E.coli</i>, cfu/100mL 	For Marine Water Quality: 1-year Operation phase for TSTP Once per day for 3 days per week for 1-year (the interval between two sets of monitoring should not be less than 36 hours) For Continuous Effluent Quality Monitoring: Daily for 1-year
In-situ Measurement: <ul style="list-style-type: none"> • Temperature, °C • pH • Salinity, ppt • Dissolved Oxygen (DO), mg/L • Turbidity, NTU Laboratory Analysis: <ul style="list-style-type: none"> • Suspended Solids (SS), mg/L 	For Marine Water Quality: <ul style="list-style-type: none"> • Construction Phase Both Mid-Ebb and Mid-Flood tides on the same day (the interval between two sets of monitoring should not be less than 36 hours)

Monitoring Results and Observations

- 2.3.8 Construction and operation water quality monitoring was conducted at all designated monitoring stations and continuous effluent quality monitoring was conducted in the reporting period. No emergency discharge was happened in the reporting period.
- 2.3.9 A total of 134 sessions of marine water quality monitoring for TSTP and 65 sessions for marine construction; and 312 sessions of effluent quality monitoring were performed in the reporting period. Graphical presentations of the monitoring results are provided in **Appendix E**.
- 2.3.10 Number of exceedances recorded in the reporting period at each monitoring station are summarised in **Table 2.11**.

Table 2.11 Summary of Water Quality Exceedances

Station	Exceedance Level	DO (S&M)	DO (Bottom)	Salinity	Turbidity	SS	NH3-N	TN	TIN	TP	BOD5	E.Coli	Total
N1	Action	0	0	0	0	2	0	1	0	0	0	0	3
	Limit	0	0	0	0	0	0	0	0	0	0	1	1
N2	Action	0	0	0	0	4	0	0	0	0	3	0	7
	Limit	0	0	0	0	2	1	1	0	2	1	0	7
FCZ1A	Action	0	0	0	0	2	0	0	0	0	0	0	2
	Limit	0	0	0	0	2	0	0	0	0	0	0	2
FCZ1B	Action	0	0	0	0	1	0	2	0	0	1	0	4
	Limit	0	0	0	0	4	2	1	0	3	0	0	10
H4A	Action	0	0	0	0	4	0	0	0	2	0	0	6
	Limit	0	0	0	0	12	3	4	0	5	4	1	29
H1A	Action	0	0	0	0	2	0	2	0	4	0	0	8
	Limit	0	0	0	0	11	3	1	0	5	5	1	26
M1A	Action	0	0	0	0	2	0	2	0	4	0	0	8
	Limit	0	0	0	0	12	2	2	0	5	5	0	26
SGA	Action	0	0	0	0	2	1	0	0	5	0	0	8
	Limit	0	0	0	0	12	3	3	0	6	5	1	30
Effluent	Action	0	0	0	0	0	0	0	0	0	2	1	3
	Limit	0	0	0	0	0	0	0	0	0	0	4	4
Total	Action	0	0	0	0	19	1	7	0	15	6	1	49
	Limit	0	0	0	0	55	14	12	0	26	20	8	135

- 2.3.11 Total of 49 Action Level exceedances of water quality, include 19 of SS, 1 of NH₃-N, 7 of TN, 15 of TP, 6 of BOD₅ and 1 of *E.Coli*, were recorded in the reporting period. Total of 135 Limit Level exceedances of water quality, include 55 of SS, 14 of NH₃-N, 12 of TN, 26 of TP, 20 of BOD₅ and 8 of *E.Coli*, were recorded in the reporting period.
- 2.3.12 Based on the investigation findings, the exceedances of marine water quality were either similar to baseline or caused by local factors. Therefore, the exceedances were considered not related to the Project. The detail investigation findings on water quality exceedances were summarized in the corresponding monthly EM&A reports.
- 2.3.13 For effluent quality, as checked and reported by the plant operator, no abnormalities were observed from the UV disinfection system. The plant operator was reminded to check the plant operation properly and voice out to engineer immediately in case of any issues observed.
- 2.3.14 The event and action plan is annexed in **Appendix F**.

2.4 Waste Management Status

- 2.4.1 Auditing of waste management practices during regular site inspections will confirm that the waste generated during construction are properly, stored, handled and disposed of. The construction Contractor(s) will be responsible for the implementation of any mitigation measures to reduce waste or redress issues arising from the waste materials.
- 2.4.2 The C&D waste under this contract should be disposal of at North East New Territories (NENT) Landfill and Tseung Kwan O Area 137 Fill Bank (TKO137FB).
- 2.4.3 Monthly summary of waste flow table is detailed in **Appendix G**. The summary of quantities of inert C&D wastes and C&D materials generated in the reporting period are shown in **Table 2.12** and **Table 2.13**.

Table 2.12 Summary of Quantities of Inert C&D Wastes Generated

Type of Waste	Total Cumulated in the reporting period	Disposal Location
Total Quantity Generated (in '000m ³)	7.294	-
Hard Rock and Large Broken Concrete (in '000m ³)	0.000	-
Reused in the Contract (in '000m ³)	0.000	-
Reused in other Projects (in '000m ³)	0.000	-
Disposed as Public Fill (in '000m ³)	7.294	TKO137FB
Imported Fill (in '000m ³)	0.000	-

Table 2.13 Summary of Quantities of C&D Wastes Generated

Type of Waste	Total Cumulated in the reporting period	Disposal Location
Metals (in '000 kg)	0.000	-
Paper/ cardboard packaging (in '000 kg)	0.000	-
Plastics (in '000 kg)	0.000	-
Chemical Waste (in '000 kg)	0.000	-
Others, e.g. general refuse (in '000m ³)	3.115	NENT

2.5 Landscape and Visual

- 2.5.1 A total of 26 inspections of the implementation of landscape and visual mitigation measures were conducted in the reporting period. No observations and recommendations was made during the audit sessions in the reporting period. A summary of the mitigation measures implementation schedule is provided in **Appendix H**. The event and action plan is annexed in **Appendix F**.

3 IMPLEMENTATION STATUS ON ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Report, the EP and EM&A Manual and no non-compliance on the implementation was noted in the reporting period. The implementation status of the environmental mitigation measures of the reporting period is summarized in **Appendix H**.

4 ENVIRONMENTAL SITE INSPECTION AND AUDIT

4.1 Site Inspection

4.1.1 Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix H**.

4.1.2 A total of 52 weekly site inspections were carried out in the reporting period. A joint site inspection with IEC were carried out on 24 June 2020, 29 July 2020, 31 August 2020, 30 September 2020, 28 October 2020, 28 November 2020, 30 December 2020, 27 January 2021, 24 February 2021, 31 March 2021, 28 April 2021 and 26 May 2021. A joint site inspection with EPD was carried out on 8 October 2020. The particular observations/comments and recommendations given during the site inspections are summarized in **Table 4.1**. The site inspection details are presented in the corresponding Monthly EM&A Report.

Table 4.1 Observations/Comments and Recommendations of Site Inspection

Parameters	Observations/ Recommendations
Water Quality	<ul style="list-style-type: none"> The Contractor was reminded to bund the excavated materials by sandbags to prevent potential surface runoff to the drainage system.
	<ul style="list-style-type: none"> The Contractor was reminded to clean up the drainage channel frequently to prevent potential surface runoff from the site.
	<ul style="list-style-type: none"> Silty water generated from GI works was observed seepage into drainage channel. Sandbags should be provided for the drainage channel and silty water should be collected properly to avoid surface runoff from site.
	<ul style="list-style-type: none"> The wastewater treatment facility (Wetsep) was observed in low pH (i.e. below 4). The Contractor should check the facility frequently to ensure the facility is in functional properly.
	<ul style="list-style-type: none"> Muddy water seepage from the site entrance during wheel washing was found. The Contractor should enhance the wheel washing facility system especially wastewater collection to avoid surface runoff from site.
	<ul style="list-style-type: none"> The Contractor was reminded to bund and cover the manhole to prevent potential runoff from site.
	<ul style="list-style-type: none"> Muddy water overflow from the site entrance was observed, immediately action was taken by Contractor. Although the muddy water was clear immediately. The Contractor was advised to enhance the control measures of site drainage system to avoid any site runoff from site.
Air Quality	<ul style="list-style-type: none"> Silty water seepage from the work area were observed. The Contractor should clean up the silty water immediately and to enhance the control measures on site properly.
	<ul style="list-style-type: none"> Breaking work carried without dust control measure was observed. The Contractor was advised to provide water spraying to the dusty work for dust suppression.
Noise	<ul style="list-style-type: none"> Open stockpile was observed next to Tung To Village. The Contractor should cover the stockpile properly to minimize dust emission.
	<ul style="list-style-type: none"> The Contractor was reminded to provide the noise barriers along the breaking works area and wrap the breaker tips with noise barrier properly to minimize noise impacts.
Waste/ Chemical Management	<ul style="list-style-type: none"> The Contractor was reminded to store the empty chemical containers at chemical waste storage area properly.
	<ul style="list-style-type: none"> The Contractor was reminded to label the chemical containers and provide drip tray for the chemical containers to avoid leakage, if any.
	<ul style="list-style-type: none"> The Contractor was reminded to clean up the water which accumulated inside the drip trays frequently.
	<ul style="list-style-type: none"> No drip tray was provided for storage the chemical containers. The Contractor was reminded to provide drip tray for storage the chemical containers to prevent leakage, if any.

Parameters	Observations/ Recommendations
	<ul style="list-style-type: none"> Oil stain was observed on ground/ deck of HDD. The Contractor should remove the oil stain and disposal of as chemical waste properly. The Contractor was reminded to remove the oil stain at inside of site boundary and treat it properly.
Landscape & Visual	<ul style="list-style-type: none"> Nil
Permits/ Licenses	<ul style="list-style-type: none"> As the position of site entrance was changed. The Contractor was reminded to post the relevant environmental permit and license at the existing site entrance properly. The discharge license copy displayed at the site entrance was observed missing. The Contractor was reminded to display the discharge license on site properly.

4.2 Summary of Complaints, Notification of Summons, Successful Prosecutions and Public Engagement Activities

- 4.2.1 No complaints, notification of summons and successful prosecution was received in the reporting period.
- 4.2.2 No public engagement activities were conducted in the reporting period.
- 4.2.3 Statistics on complaints, notifications of summons, successful prosecutions and public engagement activities are summarized in **Appendix I**.

5 ON-SITE TIME FOR ET AND IEC TEAM

- 5.1.1 According to the EP Condition 2.1 and 2.4, the minimum on-site time of at least 8 hours per week during office hours were proposed by the ET and IEC and their teams respectively in order to discharge the duties of the team of ET and IEC as stipulated in the EP and EM&A requirements of the project. The on-site time & duties of ET and IEC during the reporting period are summarized in **Appendix J**.

6 CONCLUSIONS AND RECOMMENDATIONS

- 6.1.1 No non-compliance of odour monitoring was noted in the reporting period, except 1 non-compliance was found on 30 July 2020 and the operator was reminded to inspect the deodorization facility frequently.
- 6.1.2 No Action or Limit Level exceedance of construction noise was recorded in the reporting period. No noise complaints related to 0700 to 1900 hours on normal weekdays was received in the reporting period.
- 6.1.3 A total of 49 Action Level exceedances and 135 Limit Level exceedances of water quality were recorded in the reporting period. The exceedances were considered not related to the Project and no abnormalities were observed from the UV disinfection system.
- 6.1.4 A total of 52 weekly environmental site inspections were carried out in the reporting period. Recommendations on remedial actions were given to the Contractors for the deficiencies identified during the site audits.
- 6.1.5 No complaints, notification of summons and successful prosecution was received in the reporting period.
- 6.1.6 The EM&A programme effectively monitored the environmental impacts from the construction activities and no particular recommendation was advised for the improvement of the EM&A programme in the reporting period.
- 6.1.7 Potential environmental impacts due to the construction activities, including air quality, noise, water quality, waste, landscape and visual, will be monitored or reviewed. The ET will continue to implement the environmental monitoring & audit programme in accordance with the EM&A Manual and Environmental Permit requirements. The recommended environmental mitigation measures shall be implemented on site and regular inspections as required will be carried out to ensure that the environmental conditions are acceptable.

FIGURES



Figure 1 General Layout Plan

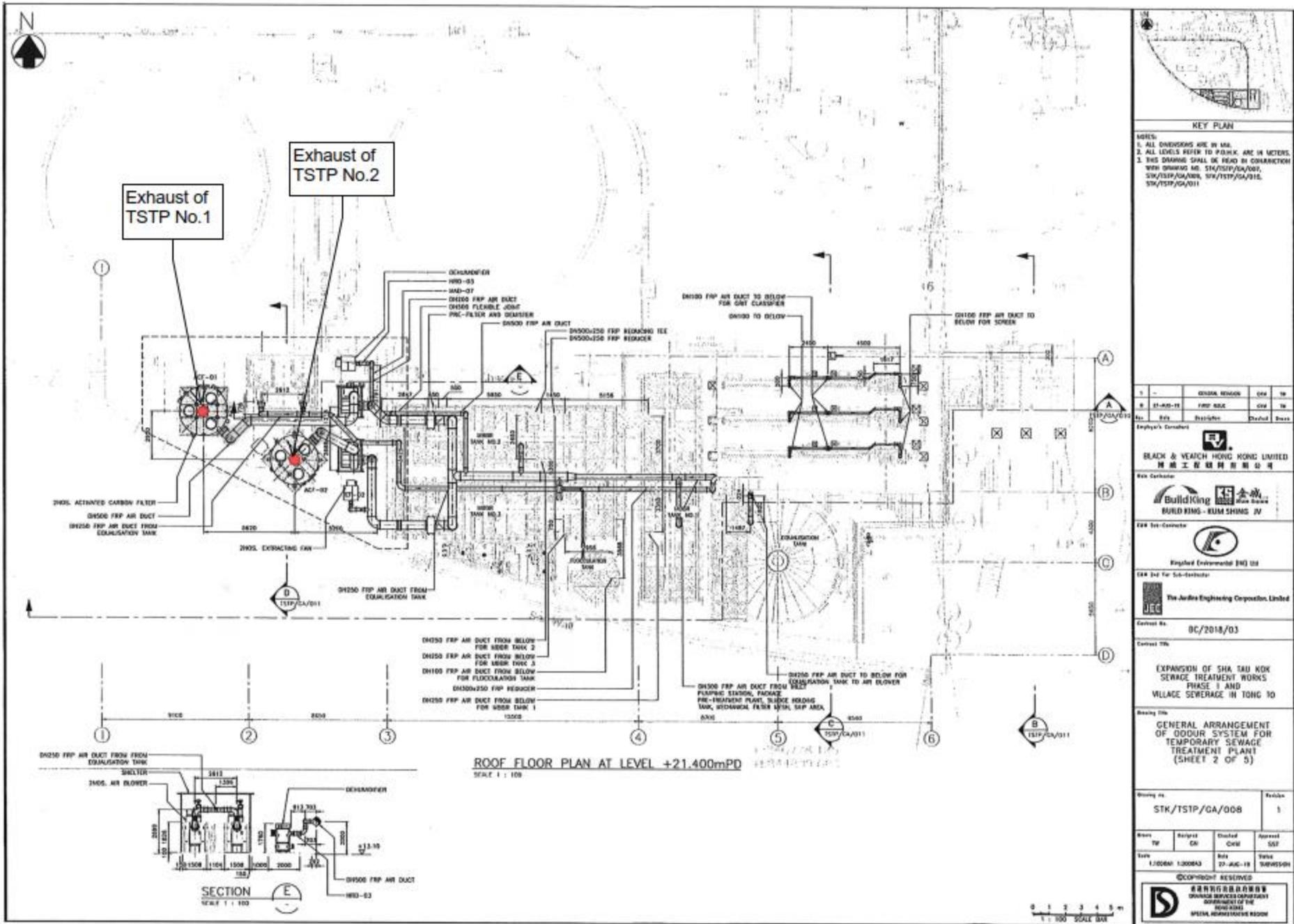


Figure 2 Locations of Odour monitoring for 1-Year Operation of TSTP

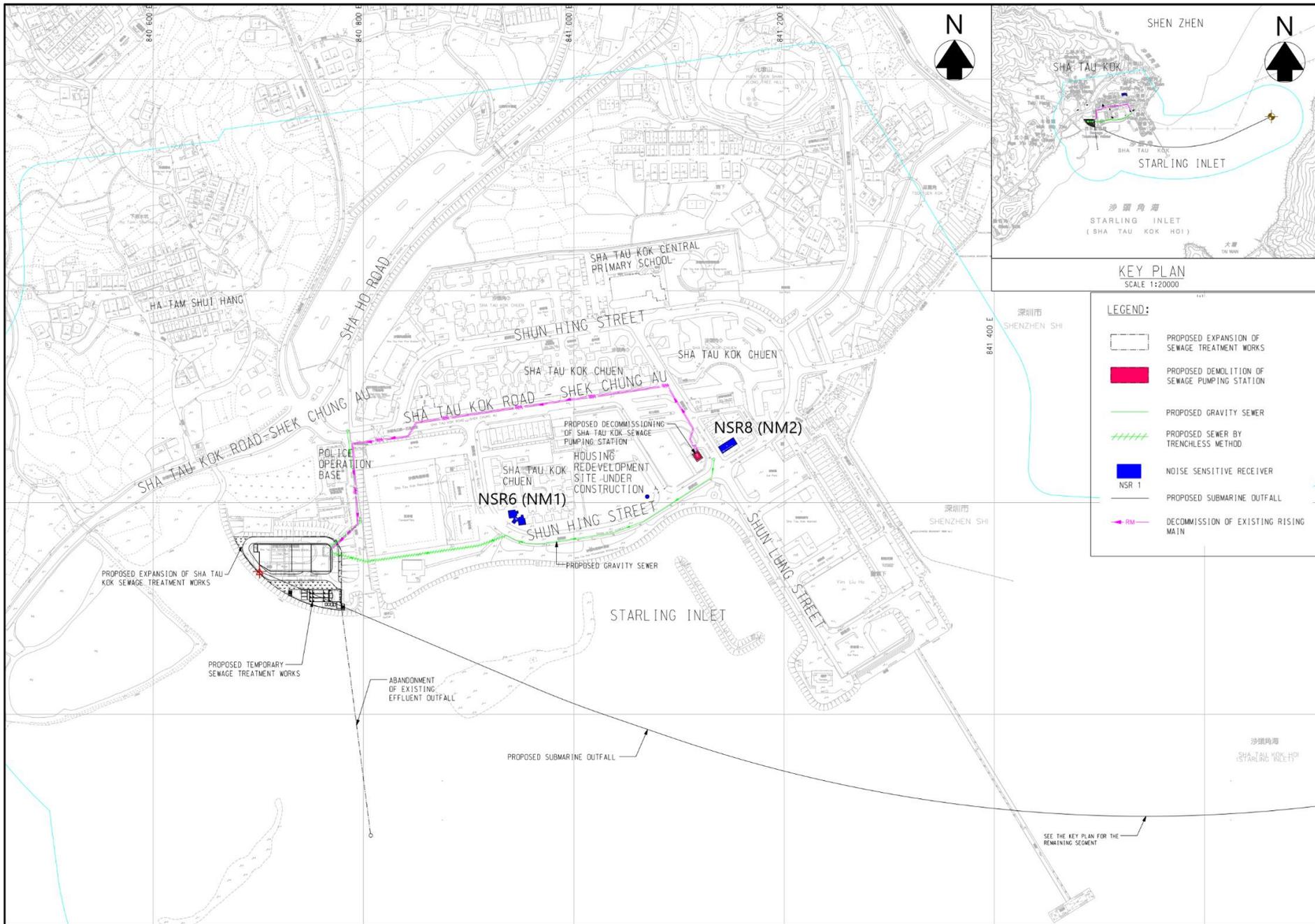


Figure 3 Location of Noise Monitoring Stations

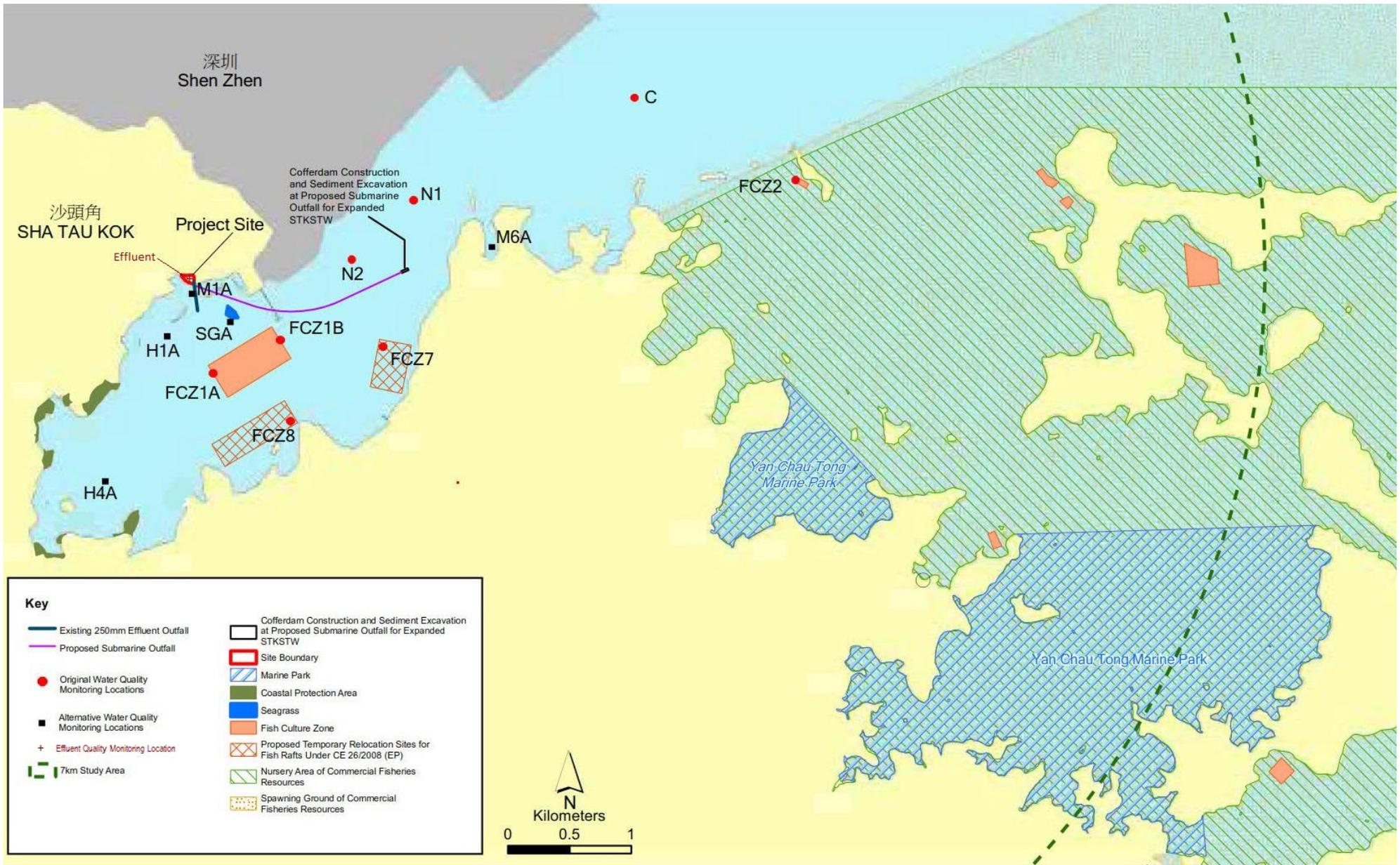
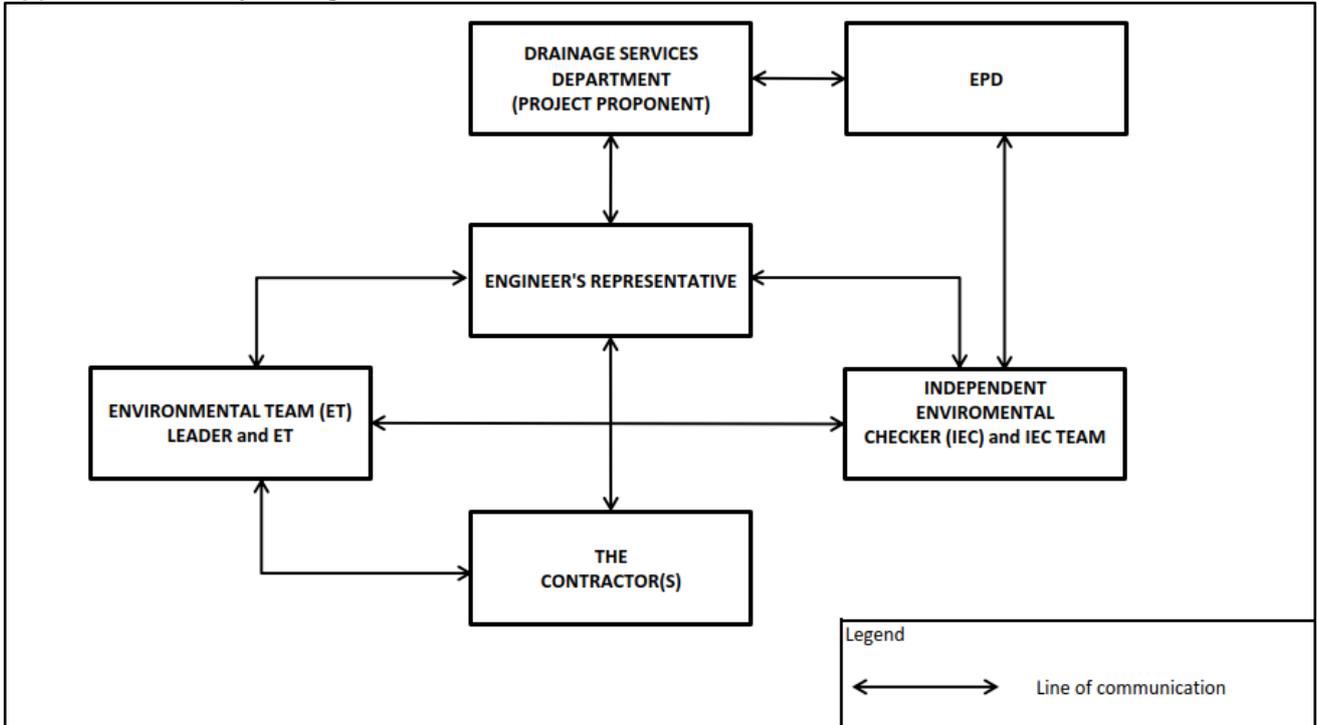


Figure 4 Location of Water Quality Monitoring Stations

APPENDIX A

Project Organization Structure

Appendix A Project Organization Structure



Note: Detailed key personnel contact names and telephone numbers refer to Table 1.1.

APPENDIX B

Construction Programme

APPENDIX C

Action and Limit Levels

Appendix C Action and Limit Levels

Action and Limit Levels for Marine Water Monitoring for First-year Operation of TSTP and Construction Phase

Monitoring Location	Depth Level	DO (mg/L)		Turbidity (NTU)		Salinity (ppt)		Total Suspended Solids (mg/L)		BOD ₅ (mg/L)		Total Phosphorus (mg/L)		Total Nitrogen (mg/L-N)		Ammonia Nitrogen (mg/L-N)		Total Inorganic Nitrogen (mg/L-N)		E.coli (cfu/100mL)	
		AL	LL	AL	LL	AL ^c	LL ^c	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
N1	S & M	5.36	5.34	7.5*	13.1 [^]	31.49	31.44	5*	8 [^]	3*	4 [^]	0.02*	0.02 [^]	0.50*	0.60 [^]	0.20*	0.21 [^]	0.33	0.36	536	707
	B	5.06	5.05																		
N2	S & M	5.95	5.71	4.7*	5.9 [^]	31.29	31.28	5*	6 [^]	3*	4 [^]	0.04*	0.04 [^]	0.60*	0.72 [^]	0.21*	0.26 [^]	0.35	0.48	495	529
	B	5.56	5.53																		
FCZ1B	S & M	5.10 [#]	5.00 [#]	4.5*	5.5 [^]	30.93	30.92	8*	12 [^]	6*	8 [^]	0.07*	0.08 [^]	0.60*	0.73 [^]	0.22*	0.25 [^]	0.36	0.39	600	610
	B	5.10 [#]	5.00 [#]																		
H4A	M	5.94	5.86	4.7*	4.8 [^]	30.42	30.42	8*	9 [^]	3*	3 [^]	0.06*	0.06 [^]	0.60*	0.60 [^]	0.23*	0.26 [^]	0.44	0.57	78	91
H1A	M	6.01	5.97	6.5*	6.6 [^]	30.39	30.39	14*	15 [^]	3*	3 [^]	0.03*	0.04 [^]	2.32*	2.60 [^]	0.97*	1.10 [^]	2.31	2.50	127	153
M1A	M	5.63	5.54	5.8*	6.1 [^]	30.43	30.42	9*	10 [^]	3*	3 [^]	0.04*	0.04 [^]	0.69*	0.70 [^]	1.49*	1.70 [^]	1.58	1.80	864	1385
SGA	M	6.00	5.90	6.0*	6.2 [^]	30.82	30.81	10*	11 [^]	3*	3 [^]	0.03*	0.04 [^]	0.60*	0.68 [^]	1.06*	1.20 [^]	1.08	1.26	129	138
FCZ7@	S & M	5.10 [#]	5.00 [#]	6.0*	6.4 [^]	31.13	31.1	5*	5 [^]	3*	3 [^]	0.02*	0.03 [^]	0.50*	0.56 [^]	0.21*	0.22 [^]	0.34	0.36	600	610
	B	5.10 [#]	5.00 [#]																		
FCZ8	S	5.10 [#]	5.00 [#]	5.2*	9.1 [^]	31.14	31.13	6*	7 [^]	5*	6 [^]	0.04*	0.04 [^]	0.60*	0.80 [^]	0.32*	0.62 [^]	0.41	0.70	600	610
	B	5.10 [#]	5.00 [#]																		

Remarks:

AL: Action Level; LL: Limit Level

According to the EM&A Manual, for FCZ: AL of DO is 5.1 mg/L or level at control station at same tide of the same day (whichever lower) and LL of DO is 5.0 mg/L or level at control station at same tide of the same day (whichever lower);

* Or 120% of control station's level at the same tide of the same day;

[^] Or 130% of control station's level at the same tide of the same day.

^c According to the EM&A Manual, AL of Salinity is Below 91% of baseline level or 9% less than value at any impact station compared with corresponding data from control station and LL of Salinity is Below 90% of baseline level or 10% less than value at any impact station compared with corresponding data from control station

Action and Limit Levels for Continuous Effluent Quality Monitoring for First-year Operation of TSTP

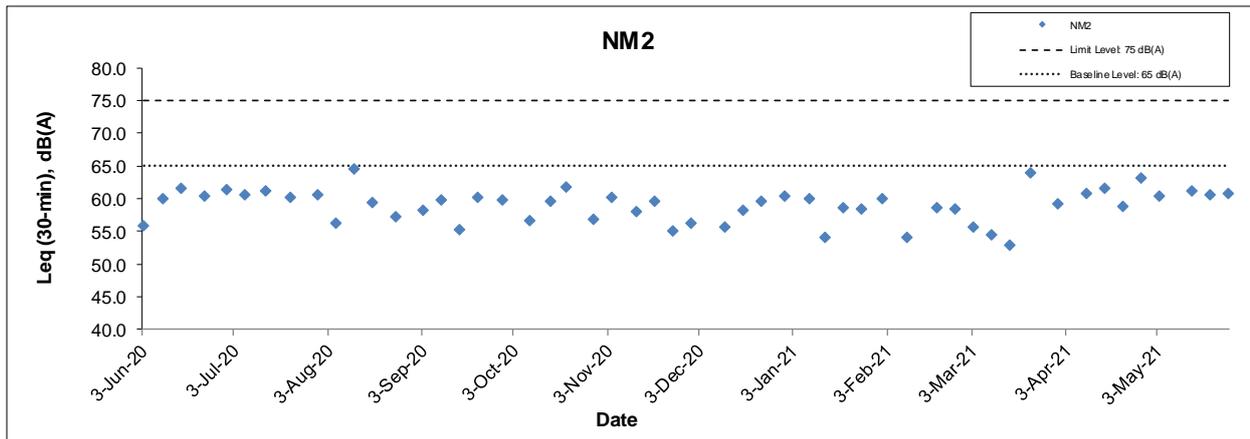
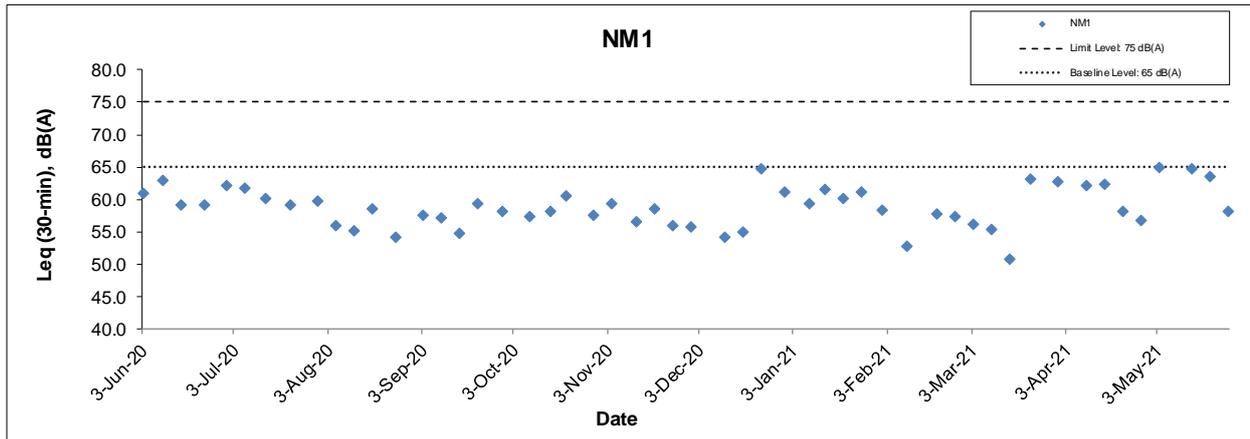
Parameter	Action Level	Limit Level
SS in mg/L	TSTP 20 mg/L	TSTP 40 mg/L
Biochemical Oxygen Demand in mg/L	TSTP 13.3 mg/L	TSTP 26.6 mg/L
Total Nitrogen in mg/L	TSTP 28.6 mg/L	TSTP 57.1 mg/L
Total Phosphorus in mg/L	TSTP 3.3 mg/L	TSTP 6.6 mg/L
E.coli in cfu/100 mL	TSTP 664 cfu/100ml	TSTP 996 cfu/100ml

APPENDIX D

Noise Monitoring Graphical Presentations

Appendix D Noise Monitoring Graphical Presentations

Graphical Presentations of Construction Noise Monitoring Results



Note:

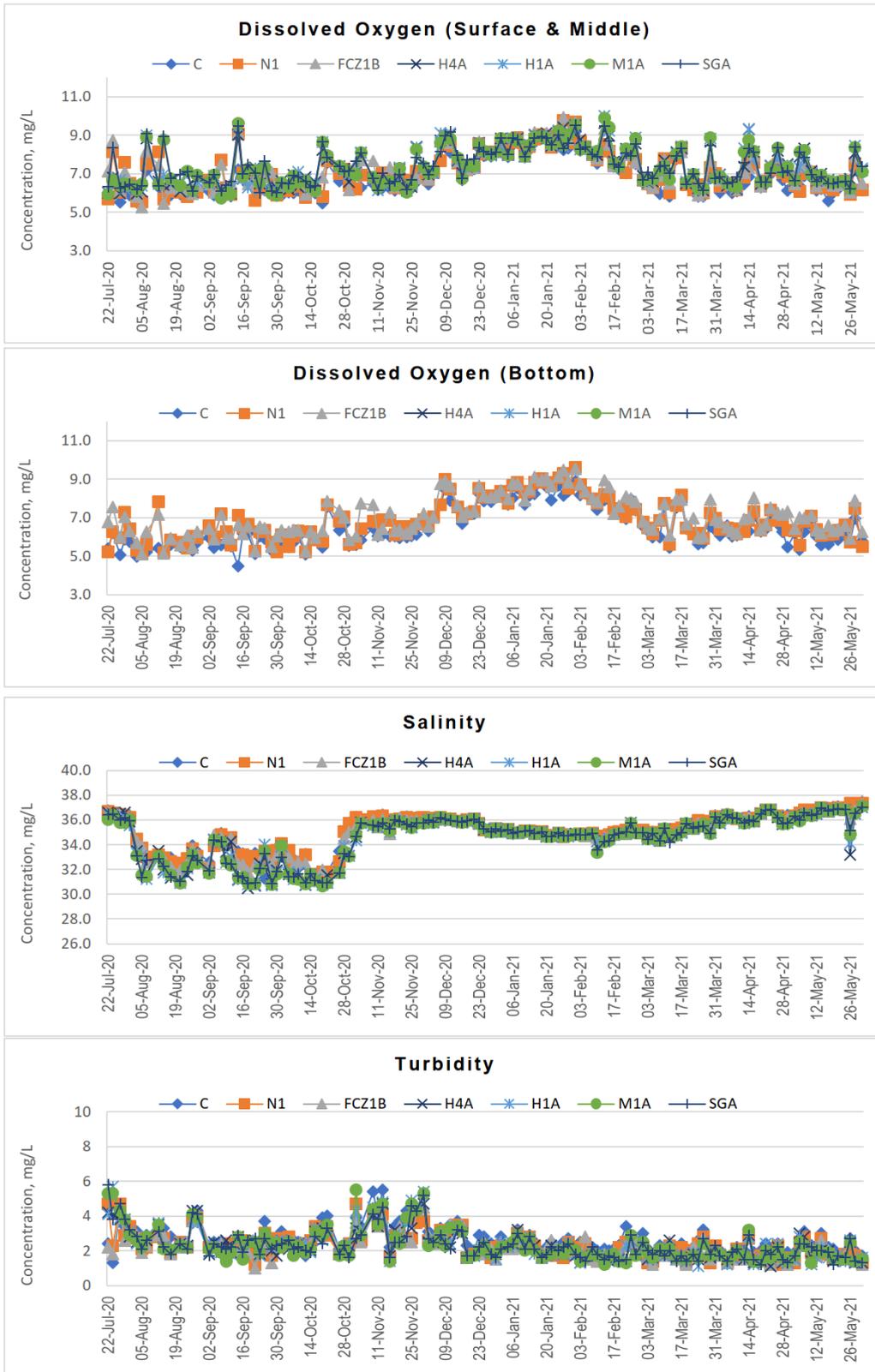
- (1) The major activities being carried out during the reporting period refer to section 1.4.2.
- (2) Weather conditions during monitoring period: Sunny, Cloudy and Fine.
- (3) Major noise sources during noise monitoring in the reporting period were mainly road traffic noise, human activities and construction equipment noise.

APPENDIX E

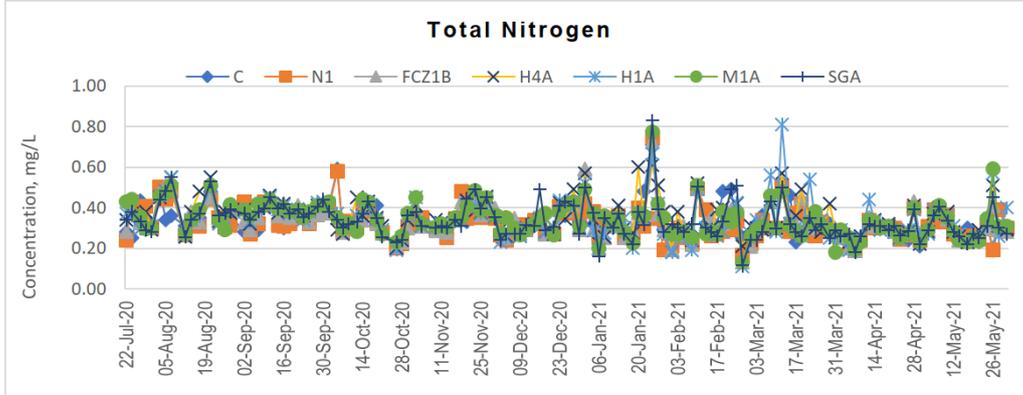
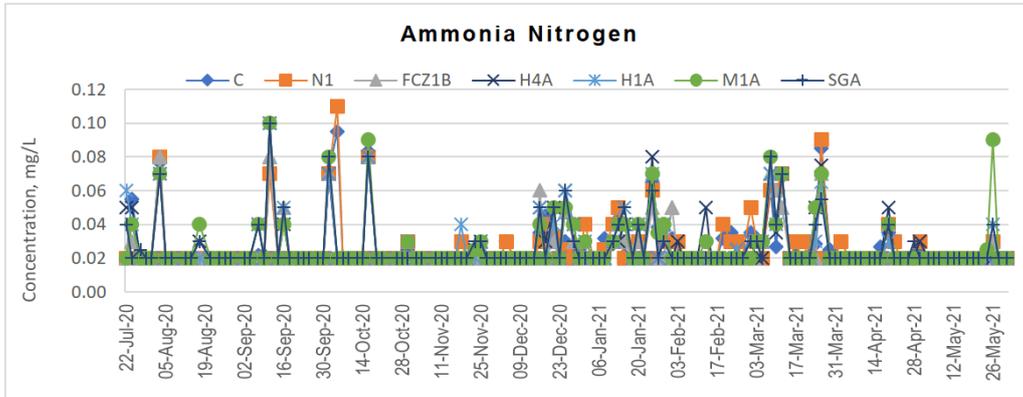
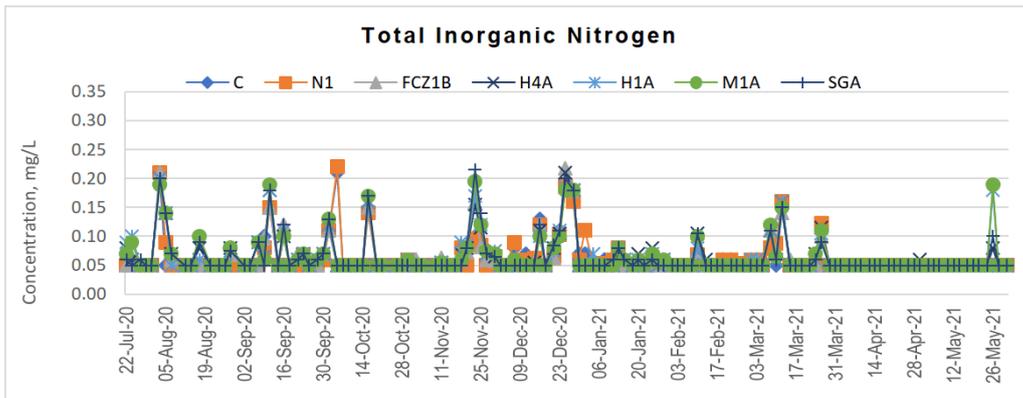
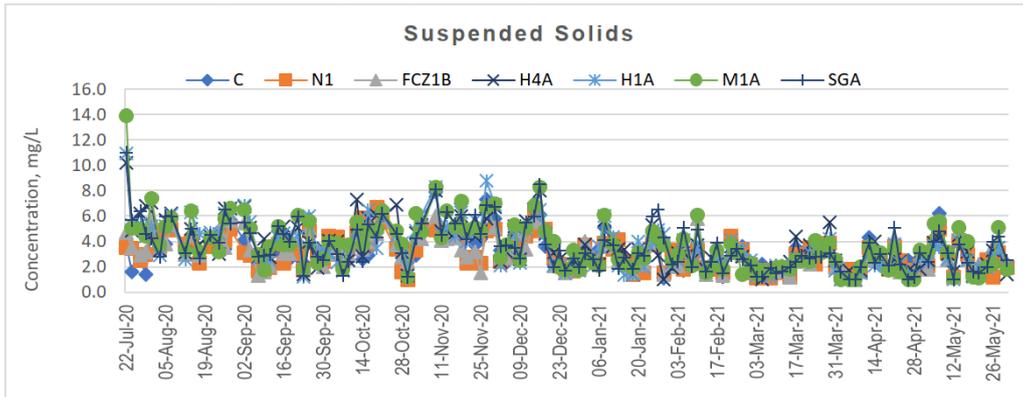
Water Quality Monitoring Graphical Presentations

Appendix E Water Quality Monitoring Graphical Presentations

Marine Water Quality Monitoring for 1-year TSTP Operation

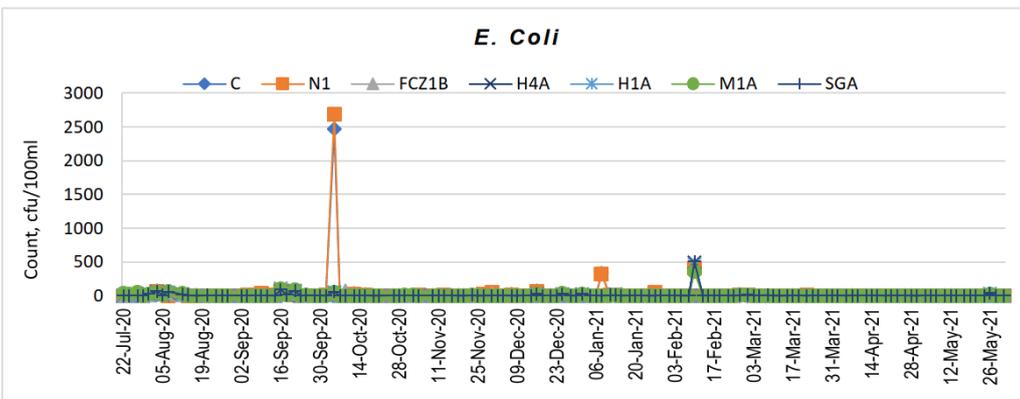
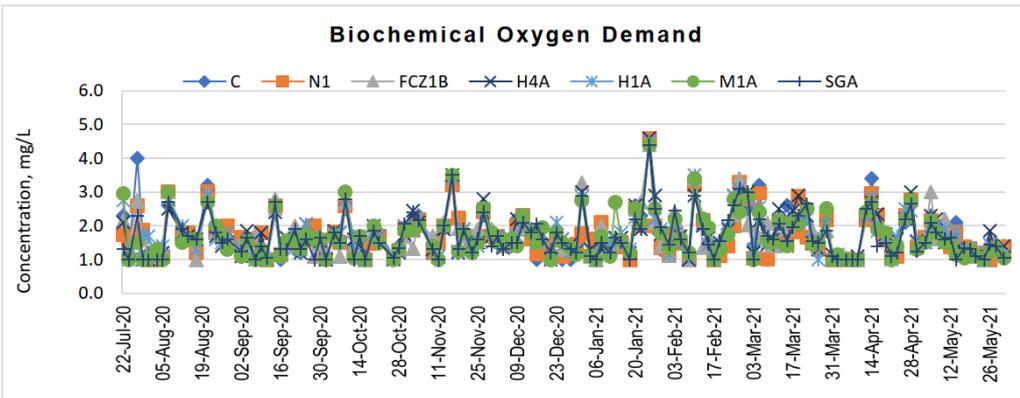
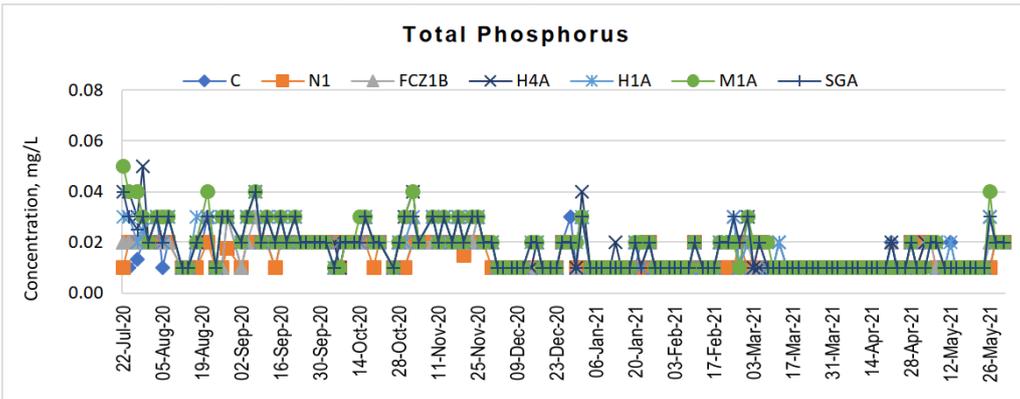


Marine Water Quality Monitoring for 1-year TSTP Operation

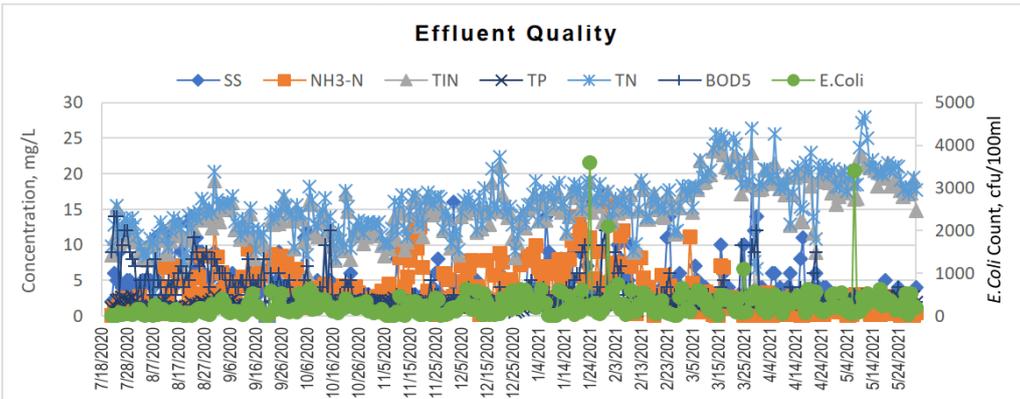


*For Total Inorganic Nitrogen, the <0.05 will be presented as value of 0.05 in the plot.
 *For Ammonia Nitrogen, the <0.02 will be presented as value of 0.02 in the plot.

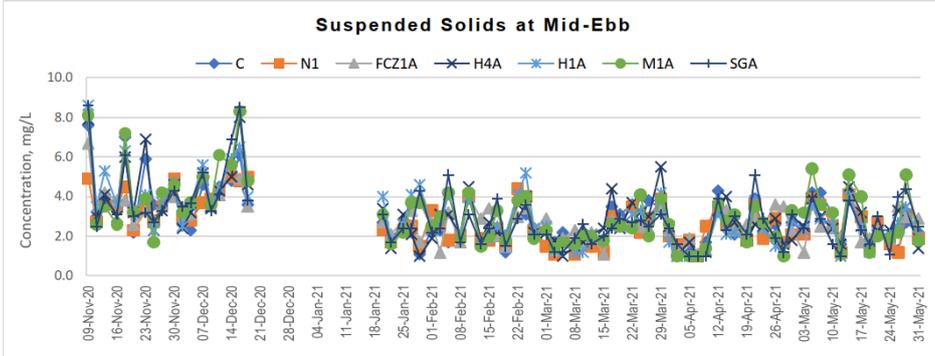
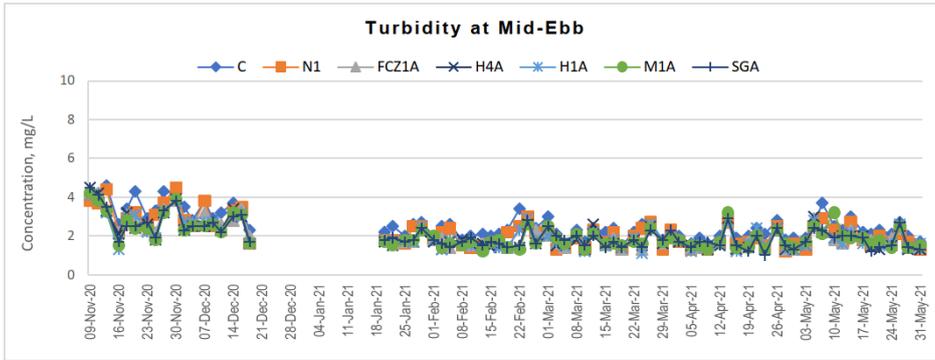
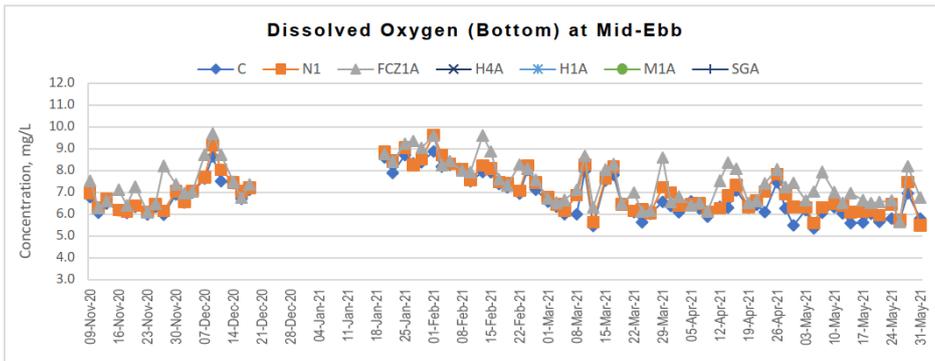
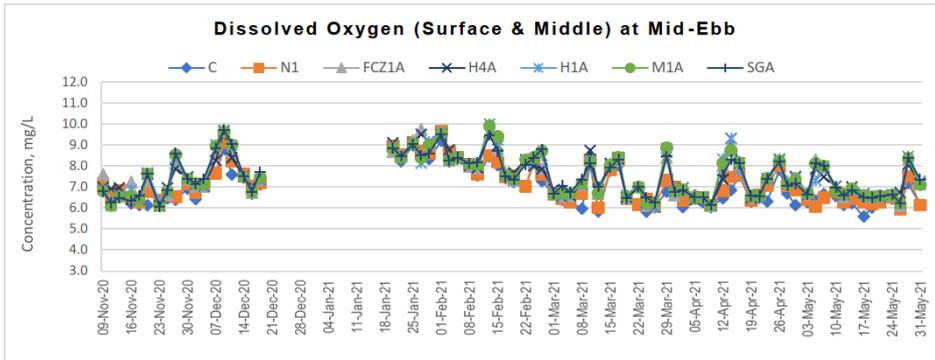
Marine Water Quality Monitoring for 1-year TSTP Operation



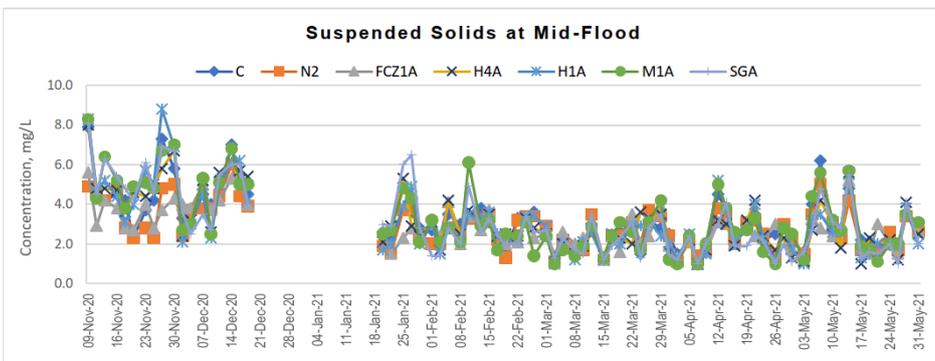
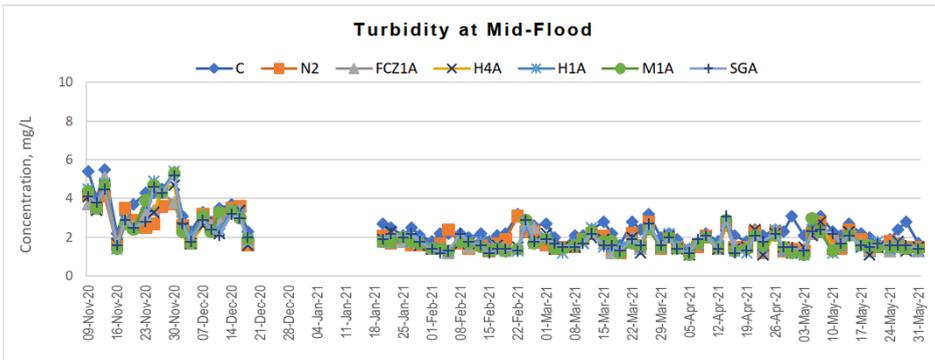
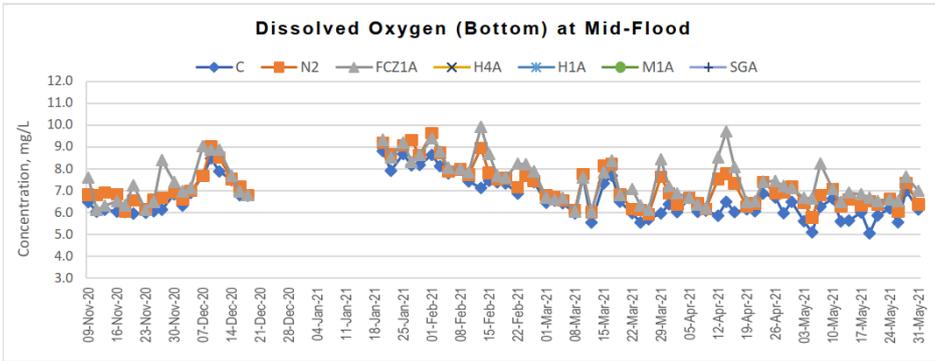
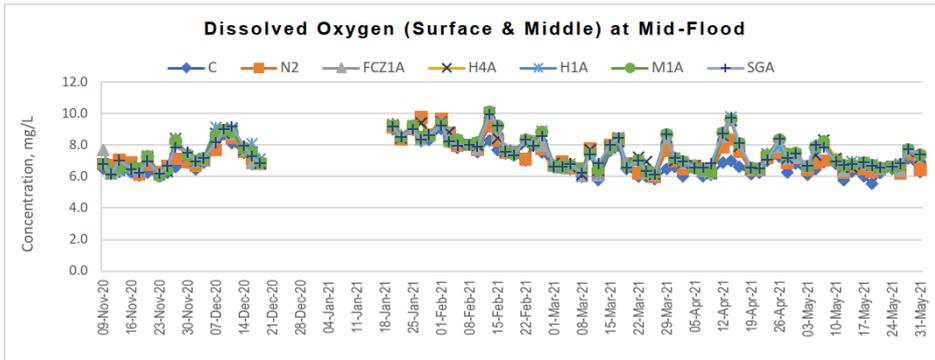
For E.Coli, the Not Detected will be presented as zero in the plot.



Marine Water Quality Monitoring for Marine Construction Works



Marine Water Quality Monitoring for Marine Construction Works



APPENDIX F

Event and Action Plan

Appendix F

Event and Action Plan

EVENT	ACTION			
	ET	IEC	ER	Contractor
Construction Noise				
Action Level	<ol style="list-style-type: none"> 1. Carry out investigation to identify the source and cause of the complaint/exceedance(s) 2. Notify IEC, ER, and Contractor and report the results of investigation to the Contractor, ER and the IEC 3. Discuss with the Contractor and IEC for remedial measures required 4. If the complaint is related to the Project, conduct additional monitoring for checking mitigation effectiveness and report the findings and results to the IEC, ER and the Contractor 	<ol style="list-style-type: none"> 1. Review the analyzed results submitted by the ET. 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly. 3. Supervise the implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of Exceedance in writing. 2. Require Contractor to propose remedial measures for the analyzed noise problem. 3. Ensure remedial measures are properly implemented. 	<ol style="list-style-type: none"> 1. Submit noise mitigation proposals, if required, to the IEC and ER 2. Implement noise mitigation proposals
Limit Level	<ol style="list-style-type: none"> 1. Carry out investigation to identify the source and cause of the exceedance 2. Notify IEC, ER, Project Proponent, EPD and Contractor 3. Repeat measurements to confirm findings 4. Provide investigation report to IEC, ER, EPD and Contractor of the exceedances 5. If the exceedance is related to the Project, assess effectiveness by additional monitoring. 6. Report the remedial action implemented and the additional monitoring results to IEC, EPD, ER and Contractor 7. If exceedance stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Review the analyzed results submitted by the ET 2. Discuss the potential remedial measures with ER, ET Leader and Contractor 3. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly 4. Supervise the implementation of remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of Exceedance in writing. 2. Require the Contractor to propose remedial measures for the analyzed noise problem. 3. Ensure remedial measures are properly implemented. 4. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor, in agreement with the Project Proponent, to stop that activity of work until the exceedance is abated. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC and RE within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the Project Proponent until the exceedance is abated.
Landscape and Visual				
Non-conformity on one occasion	<ol style="list-style-type: none"> 1. Inform the Contractor, IEC and ER; 2. Discuss remedial actions with IEC, ER and Contractor 3. Monitor remedial actions until rectification has been completed 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check Contractor's working method 3. Discuss with ET, ER and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of non-conformity in writing 2. Review and agree on the remedial measures proposed by the Contractor 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with ER as appropriate 4. Rectify damage and undertake any necessary replacement
Repeated Non-conformity	<ol style="list-style-type: none"> 1. Identify source(s) 2. Inform the Contractor, IEC and ER; 3. Discuss inspection frequency 4. Discuss remedial actions with IEC, ER and Contractor 5. Monitor remedial actions until rectification has been completed 6. If non-conformity stops, cease additional monitoring 	<ol style="list-style-type: none"> 1. Check inspection report 2. Check Contractor's working method 3. Discuss with ET, ER and Contractor on possible remedial measures 4. Advise ER on effectiveness of proposed remedial measures 	<ol style="list-style-type: none"> 1. Notify the Contractor 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented 3. Supervise implementation of remedial measures 	<ol style="list-style-type: none"> 1. Identify source and investigate the non-conformity 2. Implement remedial measures 3. Amend working methods agreed with ER as appropriate 4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.

EVENT	ACTION			
	ET	IEC	ER	Contractor
Water Quality				
Action Level being exceeded by one sampling day	<ol style="list-style-type: none"> 1.Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER. 	<ol style="list-style-type: none"> 1.Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing.
Action Level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1.Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Consider changes of working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented.
Limit Level being exceeded by one sampling day	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods.
Limit Level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> 1. Repeat in situ measurement on the next day of exceedance to confirm findings; 2. Check monitoring data, plant, equipment and Contractor(s)'s working methods; 3. Identify source(s) of impact and record in notification of exceedance; 4. Inform IEC, Contractor(s) and ER; 5. Discuss with IEC and Contractor(s) on additional mitigation measures and ensure that they are implemented 	<ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD; 3. Discuss with ET and Contractor(s) on additional mitigation measures and advise ER accordingly; 4. Assess the effectiveness of the implemented mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice; 3. Critically review the need to change working methods; 4. Discuss with ET and IEC on additional mitigation measures and propose them to ER within 3 working days; 5. Implement the agreed mitigation measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Discuss with the IEC on the proposed additional mitigation measures and agree on the mitigation measures to be implemented. 3. Ensure additional mitigation measures are properly implemented. 4. Request Contractor(s) to critically review the working methods.

Notes:

ET – Environmental Team, IEC – Independent Environmental Checker; ER = Engineering Representatives

APPENDIX G

Waste Flow Table

Appendix G Waste Flow Table

Monthly Summary Waste Flow Table for 2020 (year)

Name of Person completing the record: Jimmy Wong (EO)

Project : Expansion of Sha Tau Kok Sewage Treatment Works Phase 1 and Village Sewerage in Tong To Contract No.: DC/2018/03

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m ³)
Jan	0.158	0.000	0.000	0.000	0.158	0.000	0.000	0.000	0.000	0.000	0.011
Feb	0.067	0.000	0.000	0.000	0.067	0.000	0.000	0.000	0.000	0.000	0.002
Mar	0.109	0.000	0.000	0.000	0.109	0.000	0.000	0.000	0.000	0.000	0.014
Apr	0.353	0.000	0.000	0.000	0.353	0.000	0.000	0.000	0.000	0.000	0.015
May	0.047	0.000	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.023
Jun	0.034	0.000	0.000	0.000	0.034	0.000	0.000	0.000	0.000	0.000	0.007
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jul	0.087	0.000	0.000	0.000	0.092	0.000	0.000	0.000	0.000	0.000	0.011
Aug	0.200	0.000	0.000	0.000	0.200	0.000	0.000	0.000	0.000	0.000	0.011
Sep	0.277	0.000	0.000	0.000	0.277	0.000	0.000	0.000	0.000	0.000	0.080
Oct	0.211	0.000	0.000	0.000	0.211	0.000	0.000	0.000	0.000	0.000	0.087
Nov	0.747	0.000	0.000	0.000	0.747	0.000	0.000	0.000	0.000	0.000	0.000
Dec	1.026	0.000	0.000	0.000	1.026	0.000	0.000	0.000	0.000	0.000	0.442
Total	3.316	0.000	0.000	0.000	3.321	0.000	0.000	0.000	0.000	0.000	0.703

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.
 - (3) Broken concrete for recycling into aggregates.

Monthly Summary Waste Flow Table for 2021 (year)

Name of Person completing the record: Tim Tan (Assistant S & E Officer)

Project : Expansion of Sha Tau Kok Sewage Treatment Works Phase 1 and Village Sewerage in Tong To Contract No.: DC/2018/03

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of Non-Inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m ³)
Jan	0.992	0.000	0.000	0.000	0.992	0.000	0.000	0.000	0.000	0.000	0.767
Feb	0.495	0.000	0.000	0.000	0.495	0.000	0.000	0.000	0.000	0.000	0.486
Mar	0.556	0.000	0.000	0.000	0.556	0.000	0.000	0.000	0.000	0.000	0.603
Apr	1.126	0.000	0.000	0.000	1.126	0.000	0.000	0.000	0.000	0.000	0.360
May	1.543	0.000	0.000	0.000	1.543	0.000	0.000	0.000	0.000	0.000	0.261
Jun	-	-	-	-	-	-	-	-	-	-	-
Sub-total	4.712	0.000	0.000	0.000	4.712	0.000	0.000	0.000	0.000	0.000	2.477
Jul	-	-	-	-	-	-	-	-	-	-	-
Aug	-	-	-	-	-	-	-	-	-	-	-
Sep	-	-	-	-	-	-	-	-	-	-	-
Oct	-	-	-	-	-	-	-	-	-	-	-
Nov	-	-	-	-	-	-	-	-	-	-	-
Dec	-	-	-	-	-	-	-	-	-	-	-
Total	4.712	0.000	0.000	0.000	4.712	0.000	0.000	0.000	0.000	0.000	2.477
2019	1.787	0.005	0.000	0.000	1.787	0.000	0.000	0.000	0.000	0.000	0.137
2020	3.316	0.000	0.000	0.000	3.321	0.000	0.000	0.000	0.000	0.000	0.703
Cumulative	9.815	0.005	0.000	0.000	9.820	0.000	0.000	0.000	0.000	0.000	3.317

Notes: (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/ foam from packaging materials.

(3) Broken concrete for recycling into aggregates.

APPENDIX H

**Implementation Schedule of Environmental Mitigation
Measures**

Appendix H Environmental Mitigation Implementation Schedule

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
Air Quality				
S3.7.1	Land site/ During Construction	C	- Dust control measures stipulated in the Air Pollution Control (Construction Dust) Regulation shall be implemented during the construction of the Project to control potential fugitive dust emissions.	^
			- Regular water spraying on exposed area.	^
			- Vehicle wheel-washing and body washing facilities shall be provided at the site entrance.	^
			- Shielding or covering with impervious sheet of stockpiled materials or exposed area when it is not used to reduce dust nuisance	^
			- Site practices such as regular maintenance and checking of the diesel-driven PMEs should be adopted to avoid any black smoke emissions and to reduce gaseous emissions	^
			- Open trench construction of the gravity sewers, each work front should be around 20m to 30m in length to control potential dust emission.	N.O.
S3.6.1			- The existing sewage pumping station and rising mains should be cleaned and flushed out properly to clear away any remaining potential sources of odour emission, such as sewage sludge from the facilities. The decommissioning including removal of the pumping station and rising mains should take place after the cleaning and flushing out.	N.O.
S3.9.1			- Regular site inspections on a weekly basis shall be carried out in order to confirm that the mitigation and control measures are properly implemented and are working effectively to ensure proper control of construction dust and gaseous emissions.	
S3.7.2	During operation (Odour: for operation of TSTP)	O	- To minimize odour problem, the sludge tankers for disposal of sludge shall be fully enclosed	^
		O	- Sludge produced will be thickened and dewatered to 30% dry solids prior to disposal at the landfill.	N.O.
		D/O	- Deodourizing facility using activated carbon filters and/or bio-trickling filters were equipped for both TSTP.	^
		D/O	- The deodorization system would undergo maintenance annually or when the average odour removal efficiency of deodorization facility is smaller than the required odour removal efficiency.	N.A.
		D/O	- Ventilation system was provided inside the TSTP to ensure adequate air change within the plant.	^
S3.9.2	During operation (Odour: for operation of TSTP)	O	- A commissioning test is recommended to be performed for the operation phase to ascertain the effectiveness of the deodorization systems at the TSTP. Exhaust air flow rate, temperature of exhaust, odour concentrations at the outlet of the deodorization systems should be monitored during the commissioning test.	^
		O	- Weekly monitoring of odour emission at the exhausts at TSTP by taking odour samples is recommended to be conducted in the first two months of the first year of the operation. (i.e. August to September 2020)	^
		O	- Provided that the monitoring results show no non-compliance on a weekly basis during the first two months, it is recommended to reduce the frequency to monthly in the subsequent four months (i.e. October 2020 to January 2021) and further reduce to quarterly in the remaining six months (i.e. February 2021 to July 2021) of the first year if no non-compliance is found. If there is any non-compliance, the operator should inspect the deodorization unit. Frequency of odour monitoring should not be reduced unless no non-compliance is found. Quarterly odour monitoring is also recommended to continue in the second year of the operation. If compliance can be achieved consistently throughout the first two years of operation, the Project Proponent may propose and seek approval with EPD to reduce monitoring frequency to every six month or yearly basis for subsequent years of operation.	^
S3.9.2	During operation (Odour: for operation of TSTP)	O	- Odour patrol is proposed during the period of maintenance or cleaning of the deodorization system for TSTP. It is generally defined as Level 0 to Level 4 in which Level 0 means no odour and Level 4 means unacceptable odour. If Level 3 – 4 is reported and the source of odour is confirmed to be originated from the exhaust of TSTP, the operator should be notified immediately and should investigate and rectify the problem of the cleaning or maintenance works within 24 hours in order to restore the level to below Level 2.	N.A.

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
Noise				
S4.8	Noise Control / During construction	C	- Use of quiet PME / quiet construction method.	^
			- Movable noise barriers of 3m in height with skid footing should be used and located within a few metres of stationary plant and mobile plant such that the line of sight to the NSR is blocked by the barriers. The length of the barrier should be at least five times greater than its height. The noise barrier material should have a superficial surface density of at least 7 kg m ² and have no openings or gaps.	N.O.
			- Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction phase.	^
			- Silencers or mufflers on construction equipment should be utilised and properly maintained during the construction phase.	^
			- Mobile plant, if any, should be sited as far away from NSRs as possible.	^
			- Machines and plant (such as trucks) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum.	^
			- Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs.	^
			- Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities.	N.O.
			- The construction activities should be planned and carried out in sequence rather than simultaneously at each location. Therefore, only one unit of each type of equipment should be operated at any one time.	^
	- Open trench construction of the gravity sewers, each work front should be around 20m to 30m in length.	N.O.		
	During operation	O	- Include noise levels specification when ordering new equipment items	^
	During operation	O	- Develop and implement a regularly scheduled equipment maintenance programme so that equipment items are properly operated and serviced. The programme should be implemented by properly trained personnel.	N.A.
S4.11	During construction	C	- Designated monitoring stations as defined in EM&A Manual/During construction phase.	^
Water Quality				
S5.9.3	Marine Dredging/ During construction	C	- A number of standard measures and good site practices should be implemented to avoid / minimize the potential impacts from marine construction. These measures include: • All vessels should be well maintained and inspected before use to limit any potential discharges to the marine environment; • All vessels must have a clean ballast system; • No soil waste is allowed to be disposed overboard.	^
S5.9.3	Marine Dredging/ During construction	C	- No discharge of sewage/grey wastewater should be allowed. Wastewater from potentially contaminated area on working vessels should be minimized and collected. These kinds of wastewater should be brought back to port and discharged at appropriate collection and treatment system.	^
EP Clause 2.11	Marine Dredging/ During construction	C	- The submarine outfall in Starling Inlet shall be constructed by trenchless method such as Horizontal Directional Drilling or equivalent such that the seabed (except at the diffuser location) will not be disturbed.	^
			- Cofferdam shall be installed at the receiving pit of the diffuser of submarine outfall. Excavation of sediment and construction of the diffuser shall be conducted in dry condition within the fully-drained cofferdam.	N.A.
S5.9.4	Land site & drainage/	C	- General Construction Activities Standard site practices outlined in ProPECC PN 1/94 "Construction Site Drainage" should be followed as far as practicable in order to reduce surface runoff, minimize erosion, and also to retain and reduce any SS prior to discharge.	^

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
	During construction		- Silt removal facilities such as silt traps or sedimentation facilities should be provided to remove silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of silt removal facilities should be based on the guidelines provided in ProPECC PN 1/94.	^
			- All drainage facilities and erosion and sediment control structures should be inspected on a regular basis and maintained to confirm proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be removed regularly.	^
			- Earthworks to form the final surfaces should be followed up with surface protection and drainage works to prevent erosion caused by rainstorms.	^
			- Appropriate surface drainage should be designed and provided where necessary.	^
			- The precautions to be taken at any time of year when rainstorms are likely together with the actions to be taken when a rainstorm is imminent or forecasted and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94.	^
			- Oil interceptors should be provided in the drainage system where necessary and regularly emptied to prevent the release of oil and grease into the storm water drainage system after accidental spillages.	^
S5.9.4	Land site & drainage/ During construction	C	- Temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge, if any, should be adequately designed for the controlled release of storm flows. The temporary diverted drainage, if any, should be reinstated to the original condition when the construction work has finished or when the temporary diversion is no longer required.	^
S5.9.5	Land site & drainage/ During construction	C	- Appropriate infiltration control, such as cofferdam wall, should be adopted to limit groundwater inflow to the excavation works areas in the Project site. Groundwater pumped out from excavation area should be discharged into the storm system via silt removal facilities.	N.O.
S5.9.6	Land site & drainage/ During construction	C	- If needed, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment.	^
S5.9.7			- Spillage of Chemicals Site drainage should be well maintained and good construction practices should be observed to ensure that oil, fuels, solvents and other chemicals are managed, stored and handled properly and do not enter the nearby streams or marine water.	^
S5.9.9	During operation	O	- The following design measures are also provided in the TSTP and the expanded STKSTW to avoid the risk of emergency discharge: <ul style="list-style-type: none"> •Provision of dual power supply and backup generator to eliminate the risk of power failure; •Provision of standby equipment (online and on-shelf) for all treatment units; •Operation of STKSTW is under 24-hour monitoring by Shift Team of Sha Tau Kok (for new STKSTW) and/or Shek Wu Hui STW in order to allow inspection and any necessary repair works by DSD at the earliest possible time; •A remote control and monitoring system (SCADA) will also be installed to allow off-site DSD staff (Shift Team) to monitor the operation of STKSTW; and •Provision of on-site storage of raw sewage up to 6 hours for the TSTP and STKSTW 	^
S5.9.10	During operation	O	- Additional measures provided to avoid plant failure associated fine screen include: <ul style="list-style-type: none"> •2 duties + 1 standby fine screens would be provided; •Uninstalled spare parts would be provided; •Monitoring equipment of fine screens would be installed; •Routine inspection and scheduled maintenance works would be strengthened and carried out regularly; and •Equipment and necessary measures such as lifting opening would be provided to shorten the time required for replacement of screen. 	N.A.

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
S5.9.12	During operation	O	- To avoid cross-connection of the reclaimed water supply to the potable water supply, the pipes for the reclaimed water will be specially arranged to differentiate them from that of the potable water pipe, e.g. clearly labelled with warning signs and notices, colour-coded, and/or using different pipe size.	N.A.
			- Caution would also be taken to avoid the use of high pressure jet in cleansing and landscape irrigation to minimize aerosol formation from the reclaimed effluent	N.A.
S5.12.1	Marine Dredging/ During construction	C	- Marine water quality monitoring at selected WSRs is recommended for installation, maintenance and removal of sheetpile and sediment removal works under this Project. Site audit would also be conducted throughout the marine and land-based construction under this Project. Details environmental monitoring procedures and audit requirements are provided in the standalone EM&A manual.	^
S5.12.2	During operation	O	- Marine water quality monitoring at selected WSRs is recommended for the first year of (1) interim operation of the TSTP, (2) operation of phase 1 and (3) phase 2 expansion of the STKSTW. Follow-up water quality monitoring should be commenced within 24 hours after an emergency discharge event and continue until the recovery of water quality. Monitoring of effluent quality would also be required for WPCO permit requirement. Detailed environmental monitoring procedures are provided in the standalone EM&A manual.	^
Waste Management & Land Contamination				
S6.6.1	During construction	C	- An Environmental Management Plan (EMP) in accordance with ETWB TCW No. 19/2005 – “Environmental Management on Construction Sites” should be prepared by the main Contractor of each construction contract upon appointment. The EMP should describe the arrangements for avoidance, reduction, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities.	^
S6.6.3	During construction	C	- An appropriate person, such as site agent or environmental officer should be nominated, to be responsible for good site practices, arrangement for collection and effective disposal of all wastes generated at the site to an approved facility. Training of construction staff should be undertaken by the Contractor about the concept of site cleanliness and appropriate waste management procedures. Requirements for staff training should be included in the EMP.	^
S6.6.4	During construction	C	- Good planning and site management practices should be employed to eliminate over ordering or mixing of construction materials to reduce wastage. Regular cleaning and maintenance of the waste storage area should be provided.	^
S6.6.5	During construction	C	- A recording system for the amount of wastes generated, recycled and disposed (including the disposal sites) should be implemented in accordance with DEVB TCW No. 6/2010. In order to monitor the disposal of C&D materials and solid wastes at public fill reception facilities and landfills and to control fly-tipping, a trip-ticket system should be included.	^
S6.6.6	During construction	C	- Imported soft fill and rocks, if required, should be sourced from CEDD's fill bank, other projects or other approved sources instead of using new materials. Approval from the Engineer and all other relevant parties should be obtained by the Contractor before importation of the fill materials.	N.O.
S6.6.7	During construction	C	- All waste materials should be segregated into categories covering: <ul style="list-style-type: none"> •inert C&D materials suitable for public filling facilities; •recyclable materials / waste; •remaining non-inert C&D materials for landfill; •spent bentonite for public filling facilities; •chemical waste; and •general refuse for landfill 	^
S6.6.9	During construction	C	- Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert wastes.	^
S6.6.11	During construction	C	- The reuse of inert C&D materials such as soil, rock and broken concrete should be maximised. Waste should be separated into fine, soft and hard materials.	N.A.

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
S6.6.12	During construction	C	- Prior to export of material from the site, the potential for it to be reused should be assessed. Most C&D materials can easily be reused with minimum processing. Waste separation methods should be followed to ensure that C&D waste is separated at source. Suitable soft materials should be used for landscaping and grading of embankments. Fine material should be separated out and used as topsoil.	N.A.
S6.6.13	During construction	D & C	- Use of recycled aggregates whenever possible.	N.A.
S6.6.14, S6.6.30	During construction	C	- All C&D materials should be sorted on-site into inert and non-inert components by the Contractor. Non-inert C&D materials (C&D waste) such as wood, glass and plastic should be reused and recycled before disposal to a designated landfill as a last resort. Inert C&D materials (public fill) should be reused onsite or in other projects approved by relevant parties before disposed of at public fill reception facilities. Steel and other metals if any should be recovered from C&D materials and recycled.	^
S6.6.15	During construction	C	- Good quality reusable topsoil should be stockpiled for later landscaping works. Stockpiles should be less than 2m in height, formed to a safe angle of repose and hydroseeded or covered with tarpaulin to prevent erosion during the rainy season and to minimise dust generation.	^
S6.6.16	During construction	C	- Control measures for temporary stockpiles on-site should be taken in order to minimize the noise, generation of dust, pollution of water and visual impact.	^
S6.6.17	During construction	C	- The public fill to be disposed to public fill reception facilities must consist entirely of inert construction materials. Disposal of C&D waste to landfill must not have more than 50% by weight of inert material. The C&D waste delivered for landfill disposal should contain no free water and the liquid content should not exceed 70% by weight.	^
S6.6.18	During construction	C	- In order to avoid dust or odour impacts, any vehicles leaving a works area carrying C&D waste or public fill should have their load covered up before leaving the construction site.	^
S6.6.20	During construction	C	- With reference to the Sediment Quality Report in the EIA, only Category L sediment was identified. In accordance with ETWB TCW No. 34/2002, Type 1 – Open Sea Disposal should be adopted for the disposal of 3,040 m ³ excavated sediment during construction of the proposed outfall diffuser. The location of marine disposal site should be sought with MFC/CEDD. The Contractor shall obtain a Marine Dumping Permit in accordance with the Dumping at Sea Ordinance. The Contractor should provide separate submissions (e.g. Sediment Sampling and Testing Plan / Sediment Quality Report) to EPD / DASO authority when applying for the marine dumping permit under the Dumping at Sea Ordinance.	N.A.
S6.6.21	During construction	C	- Bentonite slurry used in the drilling works should be treated and recycled at the works area in STKSTW. Any bentonite that is not suitable for recycling should be suitably dewatered before disposed of at public fill reception facilities.	^
S6.6.22 & S6.6.37	During construction and operation	C & O	- Where the construction/ operation processes produce chemical waste, the Contractor must register with EPD as a chemical waste producer. Wastes classified as chemical wastes are listed in the Waste Disposal (Chemical Waste) (General) Regulation. These wastes are subject to stringent disposal routes. EPD requires information on the particulars of the waste generation processes including the types of waste produced, their location, quantities and generation rates. A nominated contact person must be registered with EPD.	^
S6.6.23 & S6.6.37	During construction	C & O	- Storage, handling, transport and disposal of chemical waste should be arranged in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published by EPD, and should be collected by a licensed chemical waste collector.	^
S6.6.24 & S6.6.37	During construction	C & O	- Suitable containers should be used for specific types of chemical wastes, containers should be properly labelled (English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations), resistance to corrosion, safely stored and securely closed. Stored volume should not be kept more than 450 liters unless the specification has been approved by the EPD. Storage area should be enclosed by three sides by a wall, partition of fence that is at least 2 m height or height of tallest container with adequate ventilation and space.	^
S6.6.25 & S6.6.37	During construction	C & O	- Hard standing, impermeable surfaces draining via oil interceptors should be provided in works area compounds. Interceptors should be regularly emptied to prevent release of oils and grease into the surface water drainage system after accidental	^

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
			spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain. Oil and fuel bunkers should be bunded and/or enclosed on three sides to prevent discharge due to accidental spillages or breaches of tanks. Bunding should be of sufficient capacity to accommodate 110% of the volume of the largest container or 20% of the total volume of waste, whichever is largest. Waste collected from any grease traps should be collected and disposed of by a licensed contractor.	
S6.6.26 & S6.6.37	During construction	C & O	- Lubricants, waste oils and other chemical wastes are likely to be generated during the maintenance of vehicles and mechanical equipment. Used lubricants should be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place. If possible, such waste should be sent to oil recycling companies, and the empty oil drums collected by appropriate companies for reuse or refill.	^
S6.6.27	During construction	C	- The registered chemical waste producer (i.e. the Contractor) has to arrange for the chemical waste to be collected by licensed collectors. The licensed collector should regularly take chemical waste to a licensed chemical waste treatment facility (such as the Chemical Waste Treatment Centre in Tsing Yi). A trip ticket system operates to control the movement of chemical wastes.	^
S6.6.28	During construction	C	- No lubricants, oils, solvents or paint products should be allowed to discharge into water courses, either by direct discharge, or as contaminants carried in surface water runoff from the construction site.	^
S6.6.29	During construction	C	- All wooden materials used on-site should be kept separate from other wastes to avoid damage and to facilitate reuse. Timber which cannot be reused should be sorted out from other waste and stored separately from all inert waste before being disposed of to landfill.	^
S6.6.32	During construction	C	- General refuse generated on-site should be stored in enclosed bins or skips and collected separately from other construction and chemical wastes and disposed of at designated landfill. A temporary refuse collection point should be set up by the Contractor at the works area to facilitate the collection of refuse by licensed waste collector. The removal of waste from the site should be arranged on a daily or at least on every second day by the Contractor to minimise any potential odour impacts, minimise the presence of pests, vermin and other scavengers and prevent unsightly accumulation of waste.	^
S6.6.33	During construction	C	- The recyclable component of the municipal waste generated by the workforce, such as aluminum cans, paper and cleansed plastic containers should be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste should be set up by the Contractor. The Contractor should also be responsible for arranging recycling companies to collect these materials.	^
S6.6.35	During operation	O	- Dewatered sludge should be delivered by sealed sludge tanker for treatment at the Sludge Treatment Facility in Tuen Mun.	N.A.
S6.6.36	During operation	O	- Screenings should be collected and stored in covered containers before disposed of at landfill. Likewise, worn membrane filters and general refuse should be properly stored and disposed of at landfill.	N.A.
Ecology				
S7.7.3	All area / During construction	C	- Erect fences along the boundary of the works area before the commencement of works to prevent vehicle movements and encroachment of personnel onto adjacent areas.	^
			- Regularly check the work site boundaries to ensure that they are not breached and that damage does not occur to surrounding areas.	^
			- Avoid any damage and disturbance, particularly those caused by filling and illegal dumping, to the surrounding habitats through proper management of waste disposal.	^
			- To avoid/ minimise the potential disturbance on the Night Roosting Site for Great Egret if confirmed to be continuing their usage before the construction activities, major noisy works such as concrete breaking should not be undertaken within an area of 100m from the Night Roosting Site after 16:00 under normal working hours. (i.e. 16:00 to 07:00 of the following day).	N.A.
			- Strong artificial lighting should not be used in the area at night to avoid disturbance to the roosting ardeids.	N.O.
Landscape & Visual				

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
Table 9.6 of EM&A Manual	To protect existing landscape resources during construction stage	C	<p>Preservation of Existing Vegetation:</p> <ul style="list-style-type: none"> - Existing trees designated to be retained in-situ should be properly protected. Tree protection measures to be undertaken shall be in accordance with DEVB TC(W) 7/2015 on "Tree Preservation" and Guidelines on Tree Preservation during Development" by DEVB. This may include the clear demarcation and fencing-off of tree protection zones, tight site supervision and monitoring to prevent tree damage by construction activities, and periodic arboricultural inspection and maintenance to uphold tree health. A total of around 108 nos. of trees should be retained in-situ within the tree survey area. - Under current proposal, no tree is recommended to be transplanted since the trees in conflict with the proposed works are not suitable to be transplanted. However, should transplantation be proposed in the detailed design stage after an update tree survey, the recommended final recipient sites should be adjacent to their current locations. Enough time should be reserved for tree transplantation works to increase the survival rate of the transplanting trees. To ensure the survival of transplanted trees, protection work should be considered. The tree transplantation proposal shall be submitted to relevant authorities for approval together with the formal tree removal application. Tree transplanting works shall be undertaken in accordance with Guidelines on Tree Transplanting by DEVB. 	^
	To reduce construction disturbance during construction stage	C	<p>Control of Site Construction Activities:</p> <ul style="list-style-type: none"> - Construction site controls shall be enforced, where possible, to ensure that the landscape and visual impacts arising from the construction phase activities are minimised. These construction site controls should include but not limited to the following: <ul style="list-style-type: none"> •Storage of materials should be carefully arranged to minimise potential landscape and visual impact. •The location and appearance of site accommodation should be carefully designed to minimize potential landscape and visual impact. •Site lighting should be carefully designed to prevent light spillage. •Extent of the works area and construction period should be minimised as far as practicable. •Screen hoarding with compatible design to blend into the surrounding natural environment should be considered (Screen hoarding may not be practicable for works of upgrading existing rising mains due to the spatial constraints of the works area along the Shun Hing Street). •Temporary works areas should be reinstated at the earliest possible opportunity. 	^
Table 9.7 of EM&A Manual	To reduce landscape and visual impact during construction	D & C	<p>Suitable design of the proposed TSTP:</p> <ul style="list-style-type: none"> - Colour of natural tones and non-reflective building materials shall be used for any outward facing building facades to avoid visual and glare disturbance. - Responsive lighting design <ul style="list-style-type: none"> •Directional and full cut off lighting is recommended within the boundaries of STKSTW to minimise light spillage to the surroundings; •Minimise geographical spread of lighting, only applying for safety at the key access points of the STKSTW; and - Limited lighting intensity to meet the minimum safety and operation requirement. 	^
Cultural Heritage				
S10.3.50	During construction	C	- Undertake trenchless excavation in the vicinity of the Tin Hau Temple and provide a buffer zone of 10m between the works area for the open cut section and the Tin Hau Temple.	N.O.
S10.3.51			- A condition survey and vibration impact assessment should be undertaken and if construction vibration monitoring and structural strengthening measures are required.	N.A.
S10.3.52			- Vibration and settlement monitoring should also be undertaken during the construction works to ensure that safe levels of vibration are not exceeded, if it is recommended in the condition survey report.	N.A.

EIA Ref	Objective & Address	Stage^ (D/C/O)	Recommended Environmental Protection Measures/ Mitigation Measures	Implementation Status in Construction Phase
S10.3.53			- If the maximum level is exceeded all works must stop and the structure must be examined to determine if it has been damaged. The contractor must also take measures, such as using smaller pneumatic drills to ensure that the levels are reduced to acceptable limits.	N.A.
S10.3.54			- If at any time during the construction period the foundation of the structure is affected by the works; the works shall be immediately suspended and the AMO notified. If the works cause any damage to the structures, the proponent should be responsible for the restoration and repair at their own cost. A method statement should be submitted to AMO for comment and the works should be under AMO's supervision.	N.O.
S10.3.55			- Protective covering should be provided as an additional mitigation measure to the Tin Hau Temple.	N.O.

Remarks: ^ Compliance of mitigation measure
x Non-compliance of mitigation measure
N.A Not Applicable at this stage as no such site activities were conducted in the reporting period
N.O Not Observed during site inspection in the reporting period.

APPENDIX I

**Cumulative Statistics on Complaints, Notification of
Summons, Successful Prosecutions and Public Engagement
Activities**

Appendix I Cumulative Statistics on Complaints, Notifications of Summons, Successful Prosecutions and Public Engagement Activities

Environmental Complaints Log

Complaint Log No.	Date of Complaint	Received From	Received By	Nature of Complaint	Investigation/ Mitigation Action	Status
-	-	-	-	-	-	-

Remark:

** No Complaints, Notifications of Summons or Successful Prosecutions was received in the reporting period.*

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions and Public Engagement Activities

Reporting Period	Complaints	Notifications of Summons and Prosecutions	Public Engagement Activities
This reporting period (Jun 20 to May 21)	0	0	0
Cumulative Project-to-Date	0	0	0

APPENDIX J

On-site Time Duties for the Team of ET and IEC

Appendix J On-site Time & duties for the Team of ET and IEC

On-site Time & Duties for the Team of ET during the reporting period		
Works to be carried on-site	Purposes	Actual Man-hour per week
Environmental site inspection	<ul style="list-style-type: none"> To audit and assess the effectiveness of the Contractor's site practice and work methodologies regarding on environmental and landscape & visual mitigation measures as stipulated in the EM&A Manual. To take pro-active actions to pre-empt environmental problems. To audit compliance with the intended aims of the measures implemented by the Contractor. The findings will notify to the Contractor at the time of inspection to enable the rapid resolution of identified non-conformities. To carry out the follow-up actions if non-conformities identified during the site inspection. 	3 hours per week
Keeping and logging records in the log-book	<ul style="list-style-type: none"> To keep a contemporaneous log-book of any such instance or circumstance or change of circumstances. 	1 hour per week
Impact noise monitoring	<ul style="list-style-type: none"> To carry out impact noise monitoring at each station at 0700-1900 hours on normal weekdays; per week when construction activities are underway. To check the performance of monitoring and to track the varying environmental impact. To carry out remedial actions described in the Event/Action Plans of the EM&A Manual in accordance with the time frame set out in the Event/ Action Plans in case where specified criteria in the EM&A Manual are exceeded. 	2 hours per week
Meeting with the ER, IEC, and contractor.	<ul style="list-style-type: none"> To discuss with ER, IEC and Contractor any observations that improvement works is required to enhance the overall environmental performance; liaise with Contractor on any environmental non-compliance identified and follow up actions taken. To liaise with the Project Proponent, IEC, RSS and other individuals or parties concerning other environmental issues deemed to be relevant to the construction/ operation process. 	2 hours per week
Additional Monitoring for Critical work activities	Purposes	Additional minimum on-site time
<u>Construction Phase</u>		
Monitoring of decommission of existing rising main and demolition of sewage pumping station inside the close area of Sha Tau Kok Chuen	<ul style="list-style-type: none"> To audit the Contractor's site practice and work methodologies regarding environmental mitigation measures contained in the EM&A Manual. To check any non-compliance with the construction methodology, mitigation measures and environmental monitoring and audit requirements recommended in the approved Method Statement submitted by the Contractor. To take pro-active actions to pre-empt environmental problems. 	Such work has not yet commenced.
Monitoring for Marine construction works including construction of cofferdam at the location of diffuser and construction of Submarine Outfall, etc.	<ul style="list-style-type: none"> To audit the Contractor's site practice and work methodologies regarding environmental mitigation measures contained in the EM&A Manual. To check any non-compliance with the construction methodology, mitigation measures and environmental monitoring and audit requirements recommended in the approved Method Statement submitted by the Contractor. To take pro-active actions to pre-empt environmental problems. 	2 hours per week
Marine Water quality monitoring during marine construction activities	<ul style="list-style-type: none"> To obtain water samples from the Water Quality Monitoring Stations as stipulated in the Table 5.3 of EM&A Manual. To check the monitoring parameter against the Action and Limit Levels stipulated in the Table 4.2 of Baseline Environmental Monitoring Report (Water). 	3 days per week x 8 hours = 24 hours per week
<u>Operation Phase</u>		

Additional Monitoring for Critical work activities	Purposes	Additional minimum on-site time
Marine Water quality monitoring during the first year of the TSTP	<ul style="list-style-type: none"> To obtain water samples from the Water Quality Monitoring Stations as stipulated in the Table 5.3 of EM&A Manual. To check the monitoring parameter against the Action and Limit Levels stipulated in the Table 4.3 of Baseline Environmental Monitoring Report (Water). 	3 days per week x 8 hours = 24 hours per week
Continuous monitoring of treated sewage effluent from the TSTP	<ul style="list-style-type: none"> To obtain 24-hour flow-weighted composite effluent sample for subsequent chemical analysis and testing To check the monitoring parameter against the Action and Limit Levels stipulated in the Table 5.4 of EM&A Manual. To notify the plant operator for the non-compliance and to identify the cause for the non-compliance if any non-compliance. 	For auto-sampling, 4 hours x 7 days = 28 hours per week
Testing & Commissioning for the TSTP	<ul style="list-style-type: none"> To ascertain the effectiveness of the deodorization systems as required in the EM&A at the TSTP and STKSTW during the operation phase. 	4 hours per time
Monitoring of odour emission at the exhausts at TSTP	<ul style="list-style-type: none"> To check any non-compliance with the monitoring parameter as stipulated in the EM&A Manual. 	4 hours per time
Odour patrol during the period of maintenance of the deodorization system for TSTP	<ul style="list-style-type: none"> To patrol and sniff along an odour patrol route at the existing STKSTW site boundary. To carry out the follow-up actions if any exceedance of the Action or Limit Level occurs actions in accordance with the Event/Action Plan presented in Table 3.5 of EM&A Manual should be carried out. 	No maintenance of deodorization system for TSTP in the reporting month.

On-site Time & Duties for the Team of IEC during the reporting period		
Works to be carried on-site	Purposes	Actual Man-hour per week
General site inspection or Monthly site inspection	<ul style="list-style-type: none"> To ensure the EIA recommendations and EP requirements are complied with To review the effectiveness of environmental mitigation measures and environmental performance of the Project To identify any environmental deficiency needs to be improved. To identify in any environmental non-compliance 	2 x 2 hours general site inspection or 1 x 4 hours monthly site inspection
Inspection of on-site ET Logbook	<ul style="list-style-type: none"> To inspect and audit the on-site logbook kept by the ET 	1 hour per week
Audit of Monitoring Works by the ET	<ul style="list-style-type: none"> To check, audit and verify the environmental monitoring equipment, procedures, data and results of the environmental monitoring works carried out by the ET 	1.5 hours per week
Meeting with the ER, ET and contractor.	<ul style="list-style-type: none"> To discuss with ER, ET and Contractor any observations that improvement works is required to enhance the overall environmental performance To discuss with ET, ET and Contractor any environmental non-compliance identified and follow up actions required 	1.5 hours per week