Monthly EM&A Report (December 2023)

0026/22/ED/0474 01 |

Contract No. CM/2021/11 Expansion of Sha Tau Kok Sewage Treatment Works

ANEWR

Drainage Services Department
42/F., Revenue Tower
5 Gloucester Road
Wan Chai
Hong Kong

Your reference:

Our reference: HKDSD206/50/109408

Date: 15 January 2024

Attention: Mr Lam Tack Ho, Alex

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
Environmental Monitoring and Audit Monthly Report (December 2023)

We refer to the email of 15 January 2024 from Fugro Technical Services Limited, attaching the Monthly Environmental Monitoring and Audit Report (December 2023).

We have no comment and hereby verify the captioned Report in accordance with Clause 3.4 of the Environmental Permit no. EP-517/2017/A.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Alex Chan at 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/CYCA/lsmt

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

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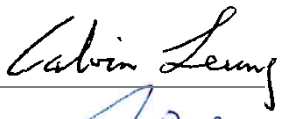
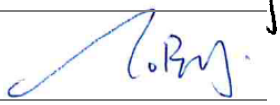
Client Contact	Mr. Alex Lam

Environmental Team

Initials	Name	Role	Signature
MP	Calvin M.P. Leung	Environmental Team Leader	
KH	Toby K.H. Wan	Environmental Consultant	
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EXECUTIVE SUMMARY

Introduction

This is the 55th EM&A Report prepared by Fugro Technical Services Limited (FTS) 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 1 December 2023 to 31 December 2023.

The main works undertaken during the reporting period as follows:

- Sha Tau Kok Sewage Treatment Plant
  - Scaffolding erection of working platform
  - Formwork erection and rebar fixing for cable draw pit, staircase and retaining wall
  - Falsework dismantlement
  - Concreting
  - ABWF works – Wall painting and screeding
  - Metal works – installation of door and window
  - E&M installation
  - Defect rectification for concrete structure
  - Painting of protective coating for water tank
  - Injection work on water tank
- Access Road
  - Nil works carry out in the reporting month
- Shun Hing Street
  - Reinstatement work of footpath and STKSTW1005
  - Defect rectification for manhole
- Tong To Village
  - Preparation work for handover

Implementation of the key mitigation measures during the reporting period as follows:

Implementation of key mitigation measures	Implemented locations
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	Sha Tau Kok Sewage Treatment Plant
All C&D materials generated should be transported and stored at temporary storage area	Sha Tau Kok Sewage Treatment Plant
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	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street
All dump trucks should be equipped with mechanical covers to prevent the dust emission during transportation when necessary	Sha Tau Kok Sewage Treatment Plant
Dust control measures, such as water spraying should be provided when necessary	Sha Tau Kok Sewage Treatment Plant, Shun Hing Street
Maintaining of wet surface on access road and keep slow speed in the site	Sha Tau Kok Sewage Treatment Plant
Wastewater to be treated by wastewater treatment facilities before discharge	Sha Tau Kok Sewage Treatment Plant, Shun Hing Street
Fuelling of equipment should be conducted carefully on-site by mobile tanker to avoid storage of fuel and oil spillage	Sha Tau Kok Sewage Treatment Plant

Provision of drip trays for equipment/ containers likely cause spillage of chemical / fuel, and provide routine maintenance	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Application of silent plant. NRMM and noise labels should be displayed on the PME	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street, Submarine outfall
Provision of chemical/waste management on site	Sha Tau Kok Sewage Treatment Plant
No discharge of wastewater/ drill fluid should be allowed	Sha Tau Kok Sewage Treatment Plant
Provide sufficient mitigation measures/ precautionary measures as recommended in the method statement of submarine outfall construction and approved EM&A Manual requirements	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street, Submarine outfall

Breaches of Action and Limit Levels

Construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

Complaint Log

No complaints were received in the reporting period.

Reporting Change

Marine water quality monitoring was suspended, no water quality data will be presented.

Future Key Issues

The main works will be anticipated in the next reporting period are as follows:

- Sha Tau Kok Sewage Treatment Plant
  - Defect rectification
  - Preparation of TBM work from STKSTW1006 to emergency discharge chamber
  - Concreting work
  - E&M installation
  - ABWF work – internal wall and floor finish
  - Metal work – installation of window, door and louver
- Access road
  - Pipe installation
  - Manhole construction
- Shun Hing Street
  - No work in Shun Hing Street
- Tong To Village
  - No work in Tong To
- Choi Yuen Kok
  - Preparation for sewerage work

EP Submission

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

- Condition 3.4:
  The 54th Monthly EM&A Report (November 2023) was submitted to EPD on 19 December 2023.

Summary Table for Status of Compliance / Required Submission

EP Conditions	Submission(s)	Submission Date
2.8	Project Organization Chart with CVs for the proposed Environmental Team Leader and relevant specialists	01/03/2022
2.9	Demolition Noise Mitigation Measures Plan for the Existing Sewage Treatment Plant (Rev.5)	31/05/2022
2.11	Method Statement for Construction of Submarine Outfall and Diffuser Cofferdam (Rev.5)	13/09/2021
2.12	Pre-construction Survey of the Night Roosting Site for Great Egrets and other Ardeid Species for the Expansion of Sha Tau Kok Sewage Treatment Works	25/11/2019
	Survey Report of the Night Roosting Site for Great Egrets and other Ardeid Species for the Expansion of Sha Tau Kok Sewage Treatment Works (Rev.02)	19/05/2023
2.15	Odour Commissioning Test Report for TSTP (Version: 2)	27/08/2022
2.17	Emergency Response Plan for Temporary Sewage Treatment Plant	06/08/2020
3.1	Proposal for Reducing Odour Monitoring Frequency (Rev.3)	13/02/2023
3.3	Baseline Environmental Monitoring Report (Water)	27/12/2019
3.4	54th Monthly EM&A Report (November 2023)	19/12/2023
	Quarterly EM&A Summary Report for June 2023 to August 2023	28/09/2023
	4th Annual EM&A Review Report for June 2022 to May 2023 (2022-2023)	12/09/2023

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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 m^3/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 m^3/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 From 27 May 2019 to 26 February 2020, Fugro Technical Services Limited (FTS) is appointed to work as the additional services for Environmental Team (ET) services at the early stage of the construction phase to implement the EM&A programme for the project.

1.1.5 From 27 February 2020 to 28 February 2022, AECOM Asia Co. Ltd (AECOM) is appointed as the ET to undertake the ET services for the project and implement the EM&A works during the construction phase.

1.1.6 Since 1 March 2022, FTS has been appointed as the ET to undertake the ET services for the Project and implement the EM&A works under Contract No. CM/2021/11 "Expansion of Sha Tau Kok Sewage Treatment Works".

1.1.7 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.

1.1.8 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.

1.1.9 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.

1.1.10 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. An updated pre-construction survey was conducted in December 2021 to reconfirm the usage of the Night Roosting Site by Great Egrets or other ardeids species before the commencement of any construction/ demolition works within 100m of the Night Roosting Site.

1.1.11 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 4 June 2020.

1.1.12 The method statement for construction of submarine outfall and diffuser cofferdam was submitted to EPD on 1 April 2020, subsequence comments from EPD were received and the revised method statement was submitted to EPD on 13 September 2021. The revised method statement has been approved by EPD on 11 January 2022.

1.1.13 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 55th EM&A Report prepared by FTS 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 (Condition 3.4 of EP No.: EP-517/2017/A) and in accordance with the EM&A Manual during the reporting period from 1 December 2023 to 31 December 2023.

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	Mr. Alex Lam	2594 7262
ER (Binnies Hong Kong Limited)	Resident Engineer	Mr. Kendrick Wong	2946 8707
IEC (ANewR Consulting Limited)	Independent Environmental Checker	Mr. James Choi	2618 2836
Contractor (Build King – Kum Shing J. V.)	Environmental Officer	Ms. Yoyo Leung	2946 8766
ET (Fugro Technical Services Limited)	Environmental Team Leader	Mr. Calvin Leung	3565 4441

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 The main works undertaken during the reporting period as follows:

Sha Tau Kok Sewage Treatment Plant
- Scaffolding erection of working platform
- Formwork erection and rebar fixing for cable draw pit, staircase and retaining wall
- Falsework dismantlement
- Concreting
- ABWF works – Wall painting and screeding
- Metal works – installation of door and window
- E&M installation
- Defect rectification for concrete structure
- Painting of protective coating for water tank
- Injection work on water tank

Access Road
- Nil works carry out in the reporting month

Shun Hing Street
- Reinstatement work of footpath and STKSTW1005
- Defect rectification for manhole

Tong To Village
- Preparation work for handover

1.4.3 Implementation of the key mitigation measures during the reporting period as follows:

Implementation of key mitigation measures	Implemented locations
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	Sha Tau Kok Sewage Treatment Plant
All C&D materials generated should be transported and stored at temporary storage area	Sha Tau Kok Sewage Treatment Plant
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	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street
All dump trucks should be equipped with mechanical covers to prevent the dust emission during transportation when necessary	Sha Tau Kok Sewage Treatment Plant
Dust control measures, such as water spraying should be provided when necessary	Sha Tau Kok Sewage Treatment Plant, Shun Hing Street
Maintaining of wet surface on access road and keep slow speed in the site	Sha Tau Kok Sewage Treatment Plant
Wastewater to be treated by wastewater treatment facilities before discharge	Sha Tau Kok Sewage Treatment Plant, Shun Hing Street
Fuelling of equipment should be conducted carefully on-site by mobile tanker to avoid storage of fuel and oil spillage	Sha Tau Kok Sewage Treatment Plant
Provision of drip trays for equipment/ containers likely cause spillage of chemical / fuel, and provide routine maintenance	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit
Application of silent plant. NRMM and noise labels should be displayed on the PME	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street, Submarine outfall
Provision of chemical/waste management on site	Sha Tau Kok Sewage Treatment Plant
No discharge of wastewater/ drill fluid should be allowed	Sha Tau Kok Sewage Treatment Plant
Provide sufficient mitigation measures/ precautionary measures as recommended in the method statement of submarine outfall construction and approved EM&A Manual requirements	Sha Tau Kok Sewage Treatment Plant, Access Road Jacking Pit, Shun Hing Street, Submarine outfall

1.4.4 The Construction Programme is shown in **Appendix B**.

1.4.5 The general layout plan of the Project site is shown in **Figure 1**.

1.5 Status of Environmental Licences, 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 Licenses, Notification and Permits Summary

Permit/ Notification/ License	Reference No	Valid From	Valid Till
Environmental Permit	EP-517/2017/A	18-Oct-19	Not Applicable
Wastewater Discharge License	WT00033567-2019	2-May-19	31-May-24
	WT00037838-2021	21-Apr-21	30-Apr-26
	WT00041241-2022	31-May-22	31-May-27
Chemical Waste Producer Registration	5213-652-B2548-01	14-Dec-18	Not Applicable
Billing Account	WFG19965	2-Jan-19	Not Applicable
Construction Noise Permit	GW-RN0718-23	1-Aug-23	31-Dec-23
	GW-RN1392-23	1-Jan-24	31-Mar-24

2. ODOUR

2.1 Monitoring Requirement

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 commission test report was submitted to EPD on 16 June and re-submitted on 30 September 2020. Further comments from EPD were received on 9 December 2020 and 25 June 2021 and the revised reports were submitted on 12 May 2021 and 27 August 2021 respectively.

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. As there is no non-compliance was recorded during the quarterly odour monitoring in the first two years (i.e. October 2020 to July 2022), monitoring frequency is further reduce to six months basis in the subsequence years. The 1st year operation odour monitoring was completed in July 2021. The 2nd year operation odour monitoring was completed in July 2022.

2.1.3 Every six-month basis monitoring of odour emission at the exhausts of deodorization facilities (TSTP No.1 and TSTP No.2) is recommended to continue in the subsequent years of the operation (i.e.in between January 2023 to March 2024). 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	Parameter	Equipment
At the Exhaust of TSTP No.1 and TSTP No.2	• Exhaust air flow rate • Temperature of exhaust • H_2S Concentration (ppm)	H2S Analyzer Anemometer

2.2 Monitoring Equipment

2.2.1 The model of the air quality monitoring equipment used is summarized in **Table 2.2**.

Table 2.2 Odour Monitoring Equipment

Item	Equipment	Equipment Model
1	H2S Analyzer	Jerome X631 0003
2	Air Velocity Meter	Testo 480

2.3 Monitoring Parameters and Frequency

The monitoring parameters, frequency and duration of odour monitoring are summarizes in **Table 2.3**.

Table 2.3 Monitoring Parameters, Frequency

Measurement Parameters	Frequency
15-minute H2S 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.	1st year of TSTP operation • 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) 2nd year of TSTP operation • Quarterly (i.e. in between Aug 2021 to Jul 2022) Subsequent years of TSTP operation • Every six-month basis (in between January 2023 to March 2024)

2.4 Monitoring Locations

2.4.1 As the operation mode of the deodorization system at TSTP shall be one in operation and one in standby. Odour monitoring will be undertaken at the exhaust of operating facility. The odour monitoring locations is summarized in **Table 2.4** and shown in **Figure 2**.

Table 2.4 Air Quality Monitoring Location

Monitoring Station	Location	Operation Mode
TSTP No.1	At the exhaust of TSTP No.1	Standby
TSTP No.2	At the exhaust of TSTP No.2	Operation

2.5 Results and Observations

2.5.1 No odour monitoring was conducted in the reporting period.

3. NOISE

3.1 Monitoring Requirement

3.1.1 In accordance with the EM&A Manuals, L_{eq} (30min) monitoring is conducted for at least once a week during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

3.2 Monitoring Equipment

3.2.1 The sound level meter used in noise monitoring shall comply with the International Electrotechnical Commission Publication (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications as referred to in the Technical Memorandum issued under the Noise Control Ordinance (NCO).

3.2.2 Sound level calibrator shall be used for the on-site calibration of the meter. This calibrator complies with the IEC Publication 942 (1988) Class 1 and ANSI S1.40 - 1984. Noise measurements were only accepted to be valid if the calibration levels from before and after the measurement agree to within 1.0 dB(A).

3.2.3 Measurements shall be recorded to the nearest 0.1dB (A). Sound level meters are programmed to measure A-weighted equivalent continuous sound pressure level at 30-minute intervals between 0700 and 1900 on normal weekdays at least once a week when construction activities are underway.

3.2.4 The model of the noise monitoring equipment used is summarized in **Table 3.1**.

Table 3.1 Construction Noise Monitoring Equipment

Item	Brand	Model	Equipment
1	Casella	CEL-63X Series	Integrating Sound Level Meter
2	Casella	CEL-120/1	Calibrator
3	Smart Sensor	AR816	Wind Speed Anemometer

3.3 Monitoring Parameters and Frequency

3.3.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 3.2**.

Table 3.2 Monitoring Parameters and Frequencies of Noise Monitoring

Parameter	Frequency
L_{eq} (30min) L_{10} and L_{90} will be recorded for reference	At each station at 0700-1900 hours on normal weekdays at a frequency of at least once per week

3.4 Monitoring Methodology

3.4.1 Noise measurement should be conducted as the following procedures:

- Free field measurements was made at monitoring location M-N3. A correction of +3 dB(A) shall be made to the free field measurements.
- The battery condition should be checked to ensure good functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time should set as follow:

  (i) Frequency weighting: A
  (ii) Time weighting: Fast
  (iii) Measurement time: continuous 5 minutes interval

- Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB(A), the measurement will be considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
- The wind speed at the monitoring station shall be checked with the portable wind meter. Noise monitoring should be cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s.
- Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
- After the noise measurement, the L_{eq}, L_{10} and L_{90} should be recorded on a record sheet. In addition, site conditions and noise sources during the monitoring period should also be recorded.

3.5 Maintenance and Calibration

3.5.1 Maintenance and calibration procedures should also be carried out, including:

- The microphone head of the sound level meter and calibrator should be cleaned with a soft cloth at quarterly intervals.
- The sound level meter and calibrator should be calibrated annually by a HOKLAS laboratory or the manufacturer.
- The calibration certificates for noise monitoring equipment are provided in **Appendix C**.

3.6 Monitoring Locations

3.6.1 In accordance with the EM&A Manual, two noise monitoring locations, namely NM1 and NM2 are covered under Contract No. CM/2021/11 "Expansion of Sha Tau Kok Sewage Treatment Works".

3.6.2 The noise monitoring locations are summarized in **Table 3.3** and the locations of the noise monitoring stations shown in **Figure 3**.

Table 3.3 Construction Noise Monitoring Location

Station ID	Noise Sensitive Receivers	Description	Measurement
NM1	NSR6	Block 45, Sha Tau Kok Chuen	Free-field
NM2	NSR8	Building along Shun Lung Street	Free-field

Note: Correction of +3 dB (A) shall be made to the free field measurements.

3.7 Results and Observations

3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix D**.

3.7.2 No Action / Limit Level exceedance of location NM1 and NM2 was recorded for construction noise in the reporting month.

3.7.3 During the reporting month, at NM1 and NM2, road traffic noise along Shun Lung Street and human activities were observed. The above factors may affect the monitoring results.

3.7.4 No raining and wind with speed over 5 m/s was observed during noise monitoring according to the onsite observation. The weather conditions during the monitoring month are provided in **Appendix I**.

3.7.5 The noise monitoring data are summarized in **Table 3.4**. Detailed monitoring data are presented in **Appendix E**.

Table 3.4 Summary of Construction Noise Monitoring Results

Time Period	Noise Monitoring Stations	L_{eq} (30min) dB(A) (Range)	Baseline Level dB(A)	Limit Level dB(A)
0700-1900 hrs on normal weekdays	NM1	54.2 – 64.2	65	75
	NM2	55.0 – 67.9	65	75

Note: NM1 and NM2: Free-field measurement (+3 dB(A) correction has been applied).

3.7.6 The Event and Action Plan for noise is given in **Appendix F**.

4. WATER QUALITY

4.1 Monitoring Requirements (Construction Phase)

4.1.1 In accordance with the EM&A Manual, water quality monitoring is required during the installation, maintenance and removal of sheetpiles and sediment removal works for construction of diffuser.

4.1.2 Water quality monitoring programme for marine construction works of HDD 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.

4.1.3 Water quality monitoring programme for marine construction works of submarine outfall was commenced on 20 January 2021. As informed by DSD, no marine construction work was conducted and the marine water quality monitoring for marine construction works was suspended since 31 December 2022. The marine water quality monitoring will be resumed during the operation phase of STKSTW.

4.2 Monitoring Requirements (1-year Operation phase for TSTP)

4.2.1 In accordance with the EM&A Manual, marine water quality and continuous effluent quality monitoring for first year operation of TSTP were performed and completed in July 2021.

4.2.2 Water quality monitoring programme for operation phase of TSTP was commenced on 22 July 2020 and was completed on 21 July 2021. No emergency discharge was happened in the reporting period.

4.3 Monitoring Equipment

4.3.1 Equipment used for in-situ measurement and water sampling during impact water quality monitoring is summarised in **Table 4.1**.

Table 4.1 Water Quality Monitoring and Sampling Equipment

Item	Parameter	Equipment	Model
1	Temperature, Dissolved Oxygen, Salinity, pH, Turbidity	YSI Water Quality Multiparameter Sonde	Xylem EXO 3
2	Water Sampling	Water Sampler	Acrylic Beta Water Bottle Kit
3	Positioning	GPS	Garmin eTrex
4	Water Depth	Echo Sounder	Garmin ECHO 101

4.4 Equipment Calibration

4.4.1 All in-situ monitoring instruments shall be checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at three monthly intervals throughout all stages of the water quality monitoring programme. Responses of sensors and electrodes shall be checked with certified standard solutions before each use. Wet bulb calibration for a DO meter shall be carried out before measurement at each monitoring location.

4.4.2 Sufficient stocks of spare parts shall be maintained for replacements when necessary. Backup monitoring equipment shall also be made available so that monitoring is uninterrupted even when some equipment is under maintenance or calibration etc.

4.5 Monitoring Parameters and Frequency

4.5.1 Detail of water quality monitoring and sampling equipment is summarised in **Table 4.2**.

Table 4.2 Water Quality Monitoring and Sampling Equipment

Monitoring Parameters, unit	Frequency
In-situ Measurement: • Temperature, ˚C • pH • Salinity, ppt • Dissolved Oxygen, mg/L • Turbidity, NTU **Laboratory Analysis:** • Suspended Solid, mg/L • Biochemical Oxygen Demand, mg/L • Total Phosphorus, mg/L Total Nitrogen, mg/L • Ammonia Nitrogen, mg/L • Total Inorganic Nitrogen, mg/L • E.coli, cfu/100mL	**For Marine Water Quality:** **1-year Operation phase for TSTP** (Water quality monitoring commenced on 22 July 2020 and completed on 21 July 2021) *Once per day for 3 days per week for 1-year **For Continuous Effluent Quality:** Daily for 1-year
In-situ Measurement: • Temperature, ˚C • pH • Salinity, ppt • Dissolved Oxygen, mg/L • Turbidity, NTU **Laboratory Analysis:** • Suspended Solid, mg/L	**For Marine Water Quality:** • Construction Phase *Both Mid-Ebb and Mid-Flood tides on the same day

*Remarks:
The interval between two sets of monitoring should not be less than 36 hours.

4.6 Monitoring Operation

4.6.1 A Global Positioning System (GPS) shall be used during monitoring to allow accurate recording of the position of the monitoring vessel before taking measurements. The Differential GPS, or equivalent instrument, should be suitably calibrated at appropriate checkpoint (e.g. Quarry Bay Survey Nail) to verify that the monitoring station is at the correct position before the water quality monitoring commence.

4.6.2 Once the location and water depth are confirmed, water samples shall be collected at 3 depths (1m below the surface, mid-depth, and 1m above the seabed) of the water column at each location, except where water depth is less than 6m, the mid-depth will be omitted and if the water depth is less than 3m only the mid-depth station will be monitored. Duplicate marine samples will be collected in each sampling event. The water samples are decanted from the water sampler into the water sample bottles. The bottles are labelled, tightly sealed, placed into a cool-box and packed with ice ready for delivery to the laboratory.

4.6.3 Two consecutive measurements of water quality data, including pH, salinity, dissolved oxygen and turbidity will be recorded according to the monitoring locations. Separate deployment of the monitoring instruments and water samplers will be conducted for the consecutive measurements or samplings. The monitoring location / position, time, water depth, sampling depth, tidal stages, weather conditions, sea condition and any special phenomena or work underway nearby shall also be recorded. If the difference in value between the first and second measurement of DO or turbidity parameters is more than 25% of the value of the first reading, the reading shall be discarded and further readings should be taken.

4.7 Laboratory Measurement / Analysis

Background

4.7.1 Fugro Technical Services Limited has been appointed to conduct the laboratory measurement or analysis of water sample in this project.

Quality Assurance / Quality Control

The laboratory incorporates a variety of QA/QC monitoring programme into their testing system. Where applicable or available, the quality of the analysis will be monitored by conducting the following QC analysis:

For each batch of 20 samples;

- A minimal of 1 Laboratory method blank will be analysed;
- A minimal of 1 sample duplicate will be analysed;
- A minimal of 1 sample matrix spike will be analysed.

4.8 Monitoring Location

4.8.1 In accordance with the EM&A Manual, marine water quality monitoring stations are summarized in **Table 4.3** and shown in **Figure 4**.

Table 4.3 Water Quality Monitoring Stations

Station	Description	Easting	Northing	1-Year TSTP Operation	Construction Phase
FCZ1A	Sha Tau Kok Fish Culture Zone – East	840892	844241	-	✓
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	-	-	✓	-

4.9 Monitoring Results and Observation

4.9.1 No Marine water quality monitoring was conducted in the reporting period.

5. LANDSCAPE AND VISUAL

5.1 Site Inspection

5.1.1 Inspections of the implementation of landscape and visual mitigation measures were conducted on 8 and 22 December 2023. A summary of the mitigation measures implementation schedule is provided in **Appendix H**.

5.1.2 The Event and Action Plan for landscape and visual is given in **Appendix F**.

6. SITE INSPECTION AND AUDIT

6.1 Site Inspection

6.1.1 Site audits were carried out by ET on weekly basis to monitor the implementation of proper environmental management practices and mitigation measures in the Project site.

6.1.2 In the reporting month, 5 site inspections were carried out on 8, 15, 22 and 27 December 2023. The site inspection held on 27 December 2023 was joint inspection with the IEC, ER, the Contractor and the ET during the reporting period.

6.1.3 No outstanding issues were reported during the reporting month. Details of observations recorded during the site inspections are summarized in **Appendix K**.

6.1.4 The recommended environmental mitigation measures, as proposed in the EIA reports and EM&A Manuals shall be effectively implemented to minimize the potential environmental impacts from the Project. The EM&A programme would effectively monitor the environmental impacts generated from the construction activities and ensure the proper implementation of mitigation measures.

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

Air Quality Impact

- No specific observation was identified in the reporting month.

Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- No specific observation was identified in the reporting month.

Chemical and Waste Management

- Construction waste should be cleared regularly.
- General refuse should be cleared (STKSTW)
- Tarpaulin sheet should be provided for the breaker to prevent oil leakage.

Landscape and Visual Impact

- No specific observation was identified in the reporting month.

Permit/ Licenses

- No specific observation was identified in the reporting month.

7. WASTE MANAGEMENT STATUS

7.1 Advice on the Solid and Liquid Waste Management Status

7.1.1 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.

7.1.2 The C&D waste under this contract should be disposal of at North East New Territories (NENT) Landfill, Tseung Kwan O Area 137 Fill Bank (TKO 137FB) and Tuen Mun Area 38 Fill Bank (TM38FB).

7.1.3 Monthly summary of waste flow table is detailed in **Appendix G**.

8. ENVIRONMENTAL COMPLAINT AND NON-COMPLIANCE

8.1 Complaints, Notification of Summons and Prosecution

8.1.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.

8.1.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix J**.

8.1.3 No public engagement activities were conducted in the reporting period.

9. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

9.1 Implementation Status

9.1.1 The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix H**.

10. ON-SITE TIME FOR ET AND IEC TEAM

10.1.1 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 are summarized in **Appendix M**.

11. FUTURE KEY ISSUES

11.1 Construction Programme for the Next Month

- Sha Tau Kok Sewage Treatment Plant
  - Defect rectification
  - Preparation of TBM work from STKSTW1006 to emergency discharge chamber
  - Concreting work
  - E&M installation
  - ABWF work – internal wall and floor finish
  - Metal work – installation of window, door and louver
- Access road
  - Pipe installation
  - Manhole construction
- Shun Hing Street
  - No work in Shun Hing Street
- Tong To Village
  - No work in Tong To
- Choi Yuen Kok
  - Preparation for sewerage work

11.2 Key Issues for the Coming Month

11.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, waste management and landscape and visual impact issues.

11.3 Monitoring Schedules for the Next Month

11.3.1 The tentative schedule for environmental monitoring in the coming month is provided in **Appendix D**.

12. CONCLUSION AND RECOMMENDATION

12.1 Conclusions

12.1.1 Construction noise monitoring were carried out in the reporting month, no Action / Limit Level exceedance was recorded during the period.

12.1.2 No Action / Limit Level exceedance were recorded for water quality monitoring in the reporting period.

12.1.3 4 Environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for construction air quality impact, chemical and waste management and Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.

12.1.4 2 Landscape and Visual Site audits were carried out by a Registered Landscape Architect in the reporting month.

12.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

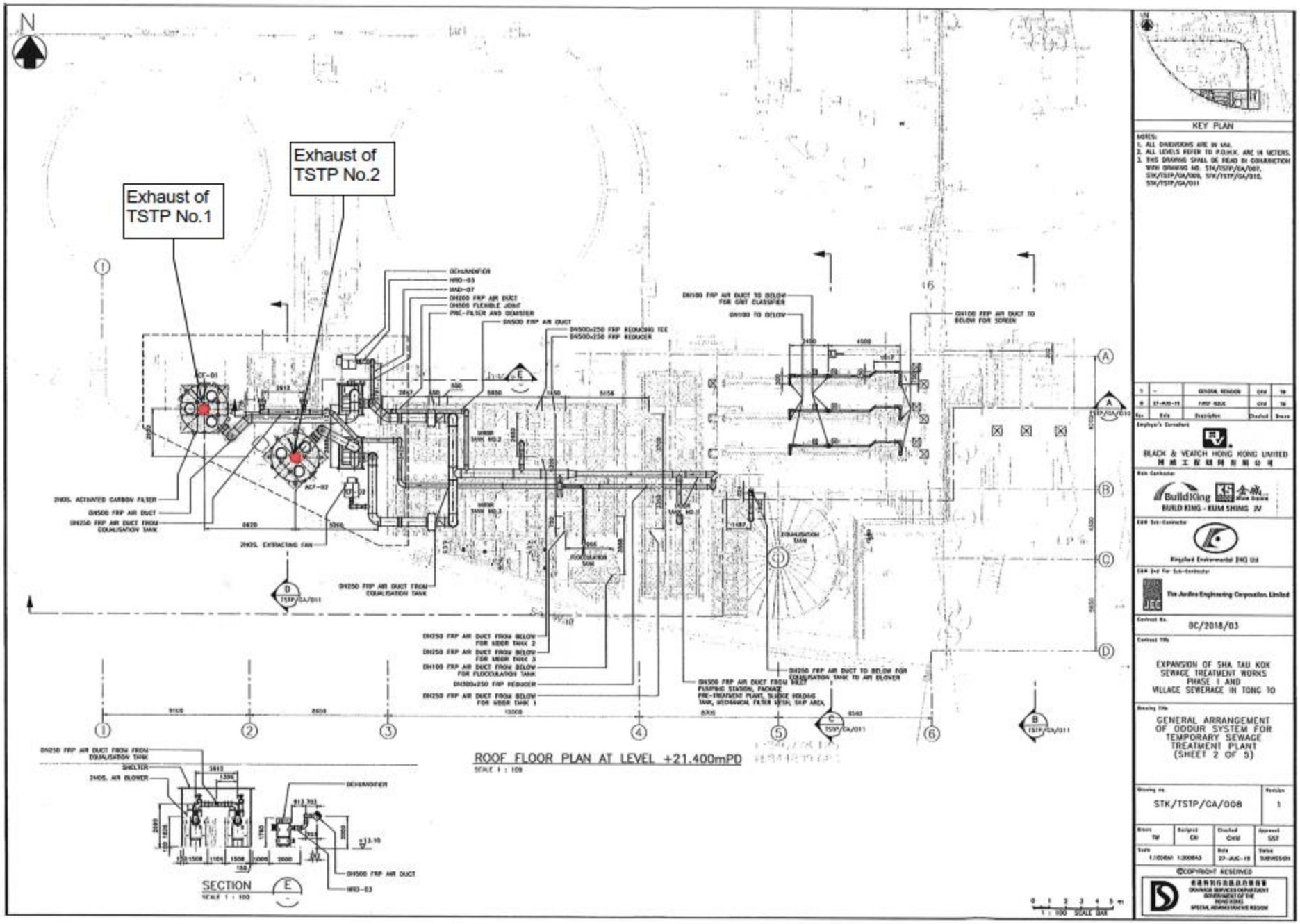
Figure 1

General Layout Plan


841 000 E
842 000 E
N
SHENZHEN
SHA HO ROAD
SHA TAU KOK
沙頭角
SHUN WING STREET
SHA TAU KOK ROAD-SHEK CHUNG AU
SHA TAU KOK
沙頭角
SHATOUJIAO
STARLING INLET
沙頭角海
Sheung Tam Shui Hang
Shan Tsui
Green Castle
Tsiu Hang
Ha Tam Shui Hang
San Tsuen
Muk Min Tau
Nga Yiu Tau
Kong Ha
Tsoi Yuen Kok
Sha Tau Kok Chuen
Sewage Treatment Works
Pier
SHENZHEN SHI
PAK FU SHAN
SHENZHEN
STARLING INLET
LO WU
KUK PO
SHEUNG SHUI
SHA TUA KOK ROAD
PAT SIN LENG COUNTRY PARK
WU KAU TANG
CLOUDY HILL
TING KOK
PLOVER COVE RESERVOIR
SHUEN WAN
FUNG YUEN
TAI PO
KEY PLAN
SCALE 1:80000
LEGEND:
PROJECT BOUNDARY

Figure 2

Location of Odour Monitoring



ıitoring for 1-Year Operation of TSTP

Figure 3

Location of Noise Monitoring Stations

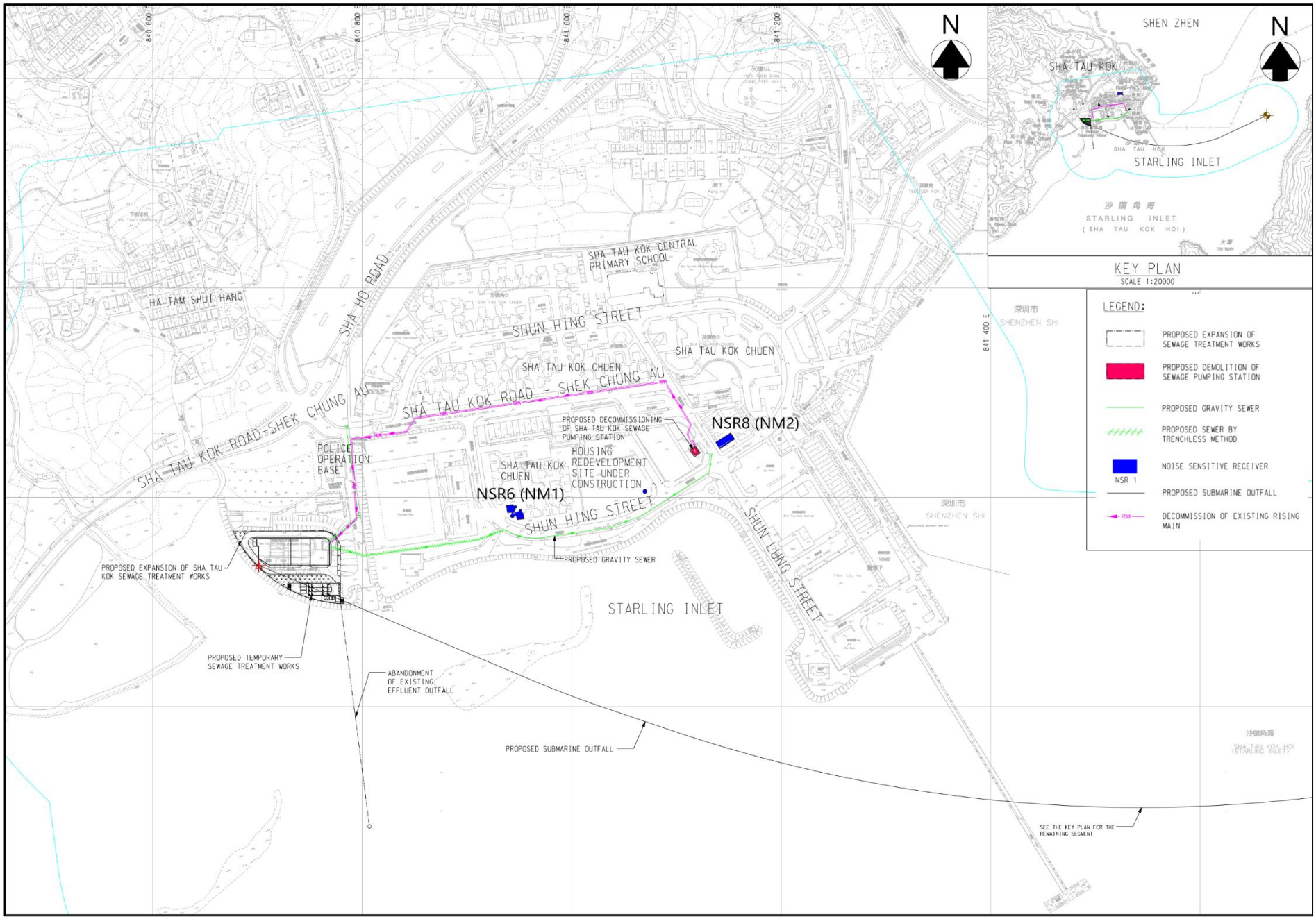
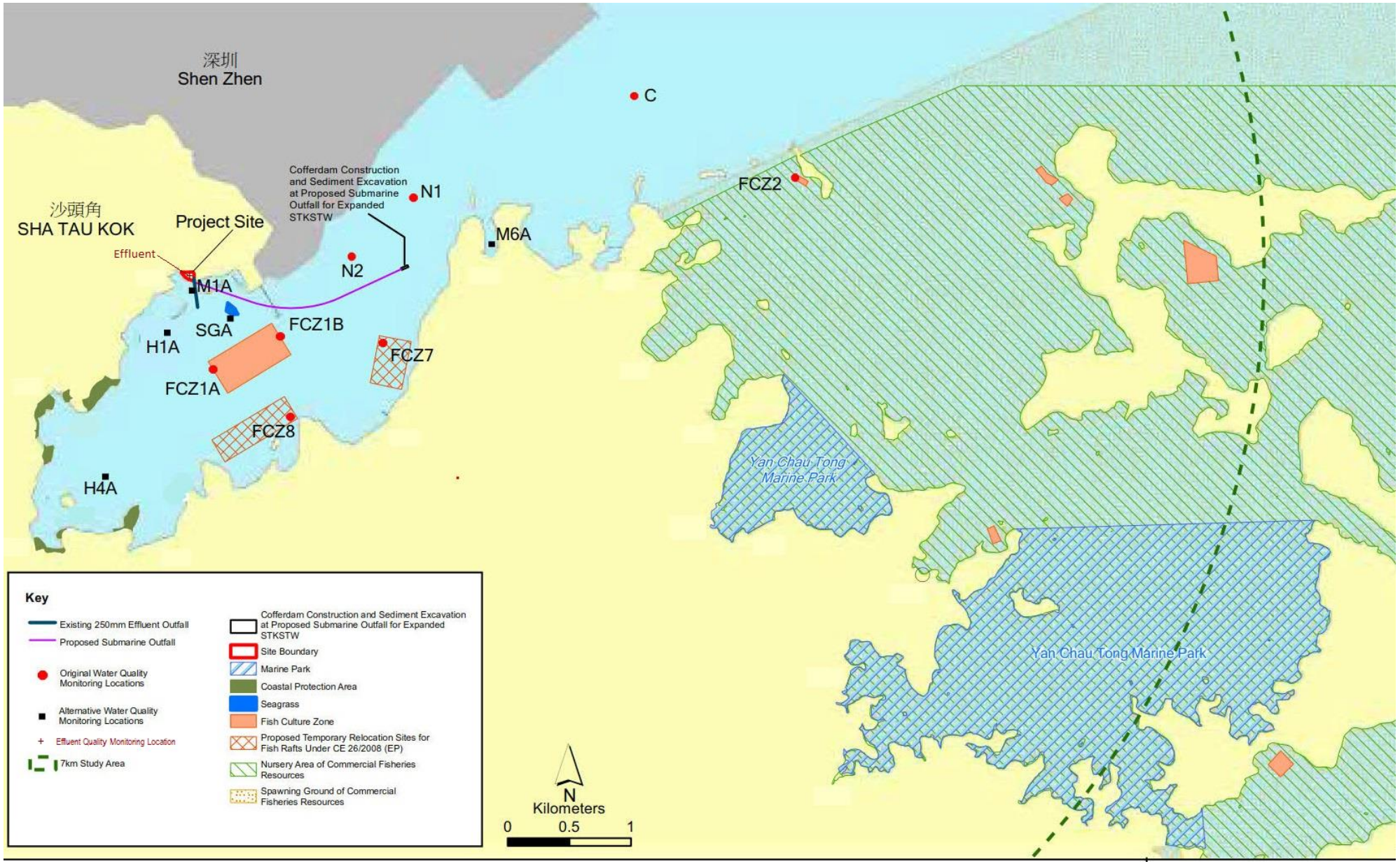

N
840 600 E
840 800 E
841 000 E
841 200 E
841 400 E
SHA HO ROAD
HA TAM SHUI HANG
SHA TAU KOK CENTRAL PRIMARY SCHOOL
SHUN HING STREET
SHA TAU KOK CHUEN
SHA TAU KOK ROAD - SHEK CHUNG AU
SHA TAU KOK ROAD - SHEK CHUNG AU
PROPOSED DECOMMISSIONING OF SHA TAU KOK SEWAGE PUMPING STATION
NSR8 (NM2)
POLICE OPERATION BASE
SHA TAU KOK CHUEN
HOUSING REDEVELOPMENT SITE UNDER CONSTRUCTION
NSR6 (NM1)
SHUN HING STREET
PROPOSED GRAVITY SEWER
SHUN LUNG STREET
深圳市
SHENZHEN SHI
PROPOSED EXPANSION OF SHA TAU KOK SEWAGE TREATMENT WORKS
STARLING INLET
PROPOSED TEMPORARY SEWAGE TREATMENT WORKS
ABANDONMENT OF EXISTING EFFLUENT OUTFALL
PROPOSED SUBMARINE OUTFALL
SEE THE KEY PLAN FOR THE REMAINING SEGMENT
沙頭角海
SHA TAU KOK HOI (STARLING INLET)
SHEN ZHEN
SHA TAU KOK
STARLING INLET
沙頭角海
STARLING INLET
(SHA TAU KOK HOI)
KEY PLAN
SCALE 1:20000
LEGEND:
PROPOSED EXPANSION OF SEWAGE TREATMENT WORKS
PROPOSED DEMOLITION OF SEWAGE PUMPING STATION
PROPOSED GRAVITY SEWER
PROPOSED SEWER BY TRENCHLESS METHOD
NSR 1
NOISE SENSITIVE RECEIVER
PROPOSED SUBMARINE OUTFALL
RM
DECOMMISSION OF EXISTING RISING MAIN

Figure 4

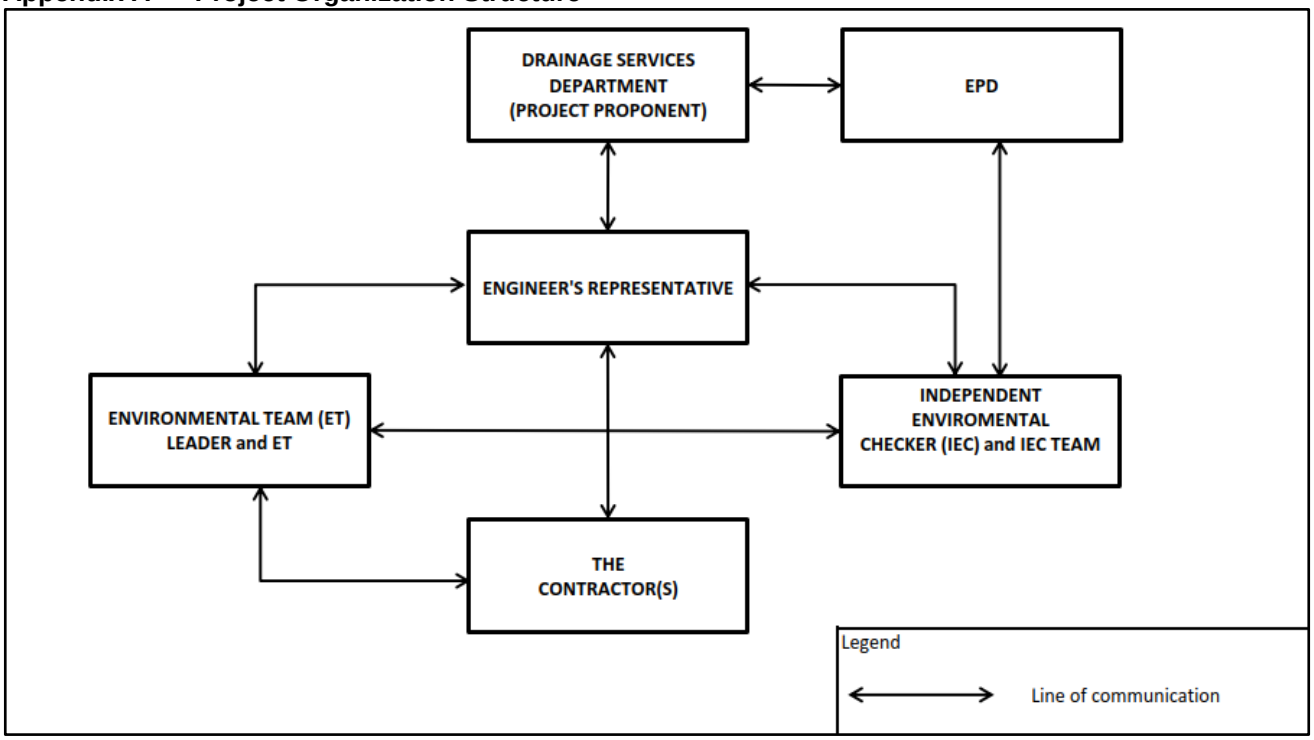
Location of Marine Water Quality Monitoring Stations


深圳
Shen Zhen
沙頭角
SHA TAU KOK
Project Site
Effluent
Cofferdam Construction and Sediment Excavation at Proposed Submarine Outfall for Expanded STKSTW
C
N1
N2
M6A
M1A
SGA
H1A
H4A
FCZ1A
FCZ1B
FCZ7
FCZ8
FCZ2
Yan Chau Tong Marine Park
Yan Chau Tong Marine Park
Key
Existing 250mm Effluent Outfall
Proposed Submarine Outfall
Original Water Quality Monitoring Locations
Alternative Water Quality Monitoring Locations
Effluent Quality Monitoring Location
7km Study Area
Cofferdam Construction and Sediment Excavation at Proposed Submarine Outfall for Expanded STKSTW
Site Boundary
Marine Park
Coastal Protection Area
Seagrass
Fish Culture Zone
Proposed Temporary Relocation Sites for Fish Rafts Under CE 26/2008 (EP)
Nursery Area of Commercial Fisheries Resources
Spawning Ground of Commercial Fisheries Resources
N
Kilometers
0
0.5
1

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

Expansion of Sha Tau Kok Sewage Treatment Works - Construction Programme

STAGE	Activities	2023												2024												2025											
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Construction of Temporary Sewage Treatment Plant																																					
1	Ground Investigation																																				
2	Piling																																				
3	Construction of RC Structures																																				
4	E&M Installations																																				
5	Testing & Commissioning																																				
Demolition of the exisitng STKSTW																																					
Construction of Submarine Outfall																																					
1	Casing Installation (Land)																																				
2	Pilot Hole Drilling (Land)																																				
3	Reaming (Land)																																				
4	Casing Installation (Sea)																																				
5	Pilot Hole Drilling (Sea)																																				
6	Reaming (Sea)																																				
7	Smoothening																																				
8	Pipe Installation																																				
9	Construction of Cofferdam at the location of diffuser																																				
10	Dredging of Marine Deposit for Diffuser																																				
11	Backfilling Works (up to Invert of Diffuser)																																				
12	Installation of Diffuser																																				
13	Backfilling and Removal of Sheetpiles																																				
Constrution of the expanded STKSTW																																					
1	Piling																																				
2	Excavation																																				
3	Construction of RC Structures																																				
4	Installation of Precast Segment																																				
5	Constrtuction of retaining wall																																				
6	ABWF Works																																				
7	E&M Installations																																				
8	Testing & Commissioning																																				
Sewer Laying																																					
1	Tong To Village																																				
2	Shun Hing Street																																				
3	Access Road																																				
Operation of TSTP																																					
Operation of STKSTW																																					
Demcommisioning of Existing STKSPS																																					

Appendix C

Calibration Certificate of Monitoring Equipment

For Noise Monitoring Equipment

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 212769CA223056

CALIBRATION CERTIFICATE OF SOUND LEVEL METER

Client Supplied Information

Client : Fugro Technical Services Ltd.
Project : Calibration Services

Details of Unit Under Test, UUT -

Description : Sound Level Meter
Manufacturer : Casella

	Meter	Microphone	Preamplifier
Model No. :	CEL-63X	CE-251	CEL-495
Serial No. :	2206937	04228	004030

Equipment ID : N/A
Next Calibration Date : 03-Jan-2024
Specification Limit : EN 61672-1: 2003 Class 1
Next Calibration Date : 03-Jan-2024

Laboratory Information

Details of Reference Equipment -

Description : B & K Acoustic Multifunction Calibrator 4226 (Traditional free field setting)
Equipment ID. : R-108-1

Date of Receipt UUT : 30-Dec-2022
Date of Calibration : 04-Jan-2023
Calibration Location : Calibration Laboratory of FTS
Method Used : By direct comparison
Ambient Temperature : 20±2 °C
Relative Humidity : <80% R.H.

Calibration Results :

Parameters		Mean Value (dB)	Specification Limit(dB)
A-weigthing frequency response	4000Hz	0.8	2.6 to -0.6
	2000Hz	1.1	2.8 to -0.4
	1000Hz	0.0	1.1 to -1.1
	500Hz	-3.4	-1.8 to -4.6
	250Hz	-8.7	-7.2 to -10.0
	125Hz	-16.1	-14.6 to -17.6
	63Hz	-26.1	-24.7 to -27.7
Differential level linearity	94dB-104dB	0.1	± 0.6
	104dB-114dB	0.0	± 0.6

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast
4. The UUT does comply with EN 61672-1: 2003 Class 1 sound level meter for the above measurement.
5 The values given in this Calibration Certificate only relate to unit under test and the values measured at the time of the test. Any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : _____ Date : 11-1-2023 Certified by : _____ Date : 11-1-2023

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

T +852 2450 8233 | F +852 2450 6138 | E matlab@fugro.com | W fugro.com

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report no.: 212769CA233215(1)

CALIBRATION CERTIFICATE OF SOUND CALIBRATOR

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Client Supplied Information

Details of Unit Under Test, UUT -

Description	:	Sound Calibrator
Manufacturer	:	Casella (Model CEL-120/1)
Serial No.	:	3321858
Equipment ID	:	N/A

Next Calibration Date : 22-Jun-2024

Specification Limit : EN 60942: 2003 Class 1

Laboratory Information

Details of Calibration Equipment -

Description	:	Reference Sound level meter
Equipment ID.	:	R-119-2

Date of Receipt : 14-Jun-2023

Date of Calibration : 23-Jun-2023

Calibration Location : Calibration Laboratory of FTS

Ambient Temperature : 20 ± 2 °C

Method Used : By direct comparison

Relative Humidity : < 80 %RH

Calibration Results :

Parameters (Setting of UUT)	Mean Value (error of measurement)	Specification Limit(dB)
94dB	-0.1 dB	±0.4dB
114dB	0.0 dB	

Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.
2. The mean value is the average of four measurements.
3. The unit under test complies with the specification limit.
4. The values given in this Calibration Certificate only relate to the unit-under-test and the values measured at the time of the test. Any uncertainties quoted will not include allowances for the environmental changes, variation and shock during transportation, or the capability of any other laboratory to repeat the measurement.

Checked by : _____ Date : 26-6-2023 Certified by : K T Leung Date : 26-6-2023

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 212769CA233072

CALIBRATION CERTIFICATE OF ANEMOMETER

Client Supplied Information

Client : Fugro Technical Services Ltd.

Project : Calibration Services

Details of Unit Under Test, UUT

Description : Anemometer

Manufacturer : Smart Sensor

Model No. : AR816

Serial No. : NA

Equipment ID. : AM-001

Next Calibration Date : 23-Apr-2024

Laboratory Information

Details of Reference Equipment –

Description : Reference Anemometer

Equipment ID. : R-101-4

Date of Calibration : 24-Apr-2023 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

Method Used : In-house method R-C-279

Calibration Results :

Reference Reading (m/s)	UUT Reading (m/s)	Error (m/s)
2.00	2.0	0.0
4.00	4.0	0.0
6.00	6.0	0.0
8.00	8.2	0.2
10.02	10.3	0.3

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The reported readings in this calibration are an average from 10 trials.

Checked by : _____ Date : 27-4-2023 Certified by : K.T. Leung Date : 27-4-2023

CA-R-297 (22/07/2009)

Leung Kwok Tai (Assistant Manager)

** End of Report **

For Odour Monitoring Equipment

ISO 9001:2015 CERTIFIED
BROOKFIELD
AMETEK
INSTRUMENTATION & SPECIALTY CONTROLS DIVISION

CERTIFICATE NUMBER 331102

CUSTOMER NAME GUYLINE (ASIA) LTD.
ADDRESS 28 HOI CHAK STREET
RM 1611 EASTERN HARBOUR CTR.
QUARRY BAY
HONG KONG

INSTRUMENTATION & SPECIALTY CONTROLS DIVISION
11 Commerce Blvd. | Middleboro, MA 02346
P: 508.946.6200 | F: 508.946.6262

CERTIFICATE OF INSTRUMENT CALIBRATION

MODEL	SERIAL NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
X631 0003	2966	5/15/2023	5/13/2024

To the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY within the limitations of the Institute's calibration services, or have been derived from accepted values of natural physical constants, or have been derived by the ratio type of self-calibration techniques. Disclaimer: Any unauthorized adjustments, removal or breaking of QC seals, or other customer modifications on your Jerome Analyzer WILL VOID this factory calibration. Because any of the above acts could affect the calibration and readings of the instrument, their certification will no longer be valid and, further, AMETEK Brookfield WILL NOT be responsible for any liabilities created as a result of using the instrument after such adjustments, seal removal, or modifications. This document shall not be reproduced, except in full, without the written approval of AMETEK Brookfield.

REFERENCE EQUIPMENT USED TO CALIBRATE THE EQUIPMENT

TYPE/MODEL	SERIAL/LOT NUMBER	CALIBRATION DATE	CALIBRATION DUE DATE
Cal Set	CC514916	6/28/2022	6/28/2025
TYPE/MODEL	**SERIAL/LOT NUMBER**	**CALIBRATION DATE**	**CALIBRATION DUE DATE**
Alicat	124604	2/22/2023	2/23/2024
TYPE/MODEL	**SERIAL/LOT NUMBER**	**CALIBRATION DATE**	**CALIBRATION DUE DATE**
Alicat	124602	2/22/2023	2/23/2024
TYPE/MODEL	**SERIAL/LOT NUMBER**	**CALIBRATION DATE**	**CALIBRATION DUE DATE**
Fluke	95640974	1/9/2023	1/9/2024

NIST TRACE # SRM 2730; 65-D-035; CAL013399 **PROCEDURE #:** 730-0040

All reference equipment used to calibrate the instrument listed upon this certificate have calibrations that are traceable to the National Institute of Standards and Technology (NIST).

APPROVAL SIGNATURE

Todd Place

TODD PLACE, QUALITY ENGINEER

CALIBRATION PERFORMED BY HC

FUGRO TECHNICAL SERVICES LIMITED
Fugro Development Centre
5 Lok Yi Street, Tai Lam
Tuen Mun, NT
Hong Kong

Report No. : 182933CA222972

CALIBRATION CERTIFICATE OF TEMPERATURE/AIR FLOW METER

Client Supplied Information

Client : Fugro Technical Services Limited

Project : Calibration Services

Details of Unit Under Test, UUT -

Description : Comfort Level Probe

Manufacturer : Testo

	Meter	Probe (Air Velocity)
Model No. :	480	409
Serial No. :	61003846	03216409

Equipment ID : NA

Next Calibration Due Date : 27-Jan-2024

Laboratory Information

Details of Reference Equipment –

Description : 1. Anemometer

Equipment ID : 1. R-101-4

Date of Receipt : 15-Dec-2022 Ambient Temperature : 20 ± 2 °C

Date of Calibration : 28-Jan-2023 Relative Humidity : <80% R.H

Calibration Location : Calibration Laboratory of FTS

Method Used : In-house method R-C-279

Calibration Results :

Reference Reading		UUT Reading	Error
Air velocity (m/s)	1.07 m/s	1.01 m/s	-0.06 m/s
	3.07 m/s	3.04 m/s	-0.03 m/s
	5.05 m/s	5.15 m/s	0.10 m/s

Remark :

1. The equipment being used in this calibration is traceable to recognized National Standards.
2. The reported readings for air velocity is average from 10 trials.
3. The expanded uncertainty of air velocity is 0.5 m/s with a coverage factor of 2 at a confidence level of 95%.
4. The values given in this Calibration Certificate only relate to the values at the time of the test and any uncertainties will not include allowance for the equipment long term drift, variations with environment changes, vibration and shock during tranportation, overloading, mis-handling or the capability of any other laboratory to repeat the measurement.

Checked by : _____ Date : 30-1-2023 Certified by : _____ Date : 30-1-2023

Leung Kwok Tai (Assistant Manager)

CA-R-297 (22/07/2009)

** End of Report **

Appendix D

Environmental Monitoring Schedule

Project:

Contract No. CM 11/2021 Expansion of Sha Tau Kok Sewage Treatment Works – Environmental Team Services (2022-2024)

Impact Monitoring Schedule (December 2023)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
					1	2
3	4	5	6	7	8 **NM**	9
10	11	12	13	14	15 **NM**	16
17	18	19	20	21	22 **NM**	23
24	25	26	27 **NM**	28	29	30
31						

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition.
2. Odour Monitoring (**OM**): 15-minute H2S Measurement (every 5 minutes measure one reading).
3. Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
4. Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
5. WQM shall be suspended for the construction phase of the expanded STKSTW. It will be resumed to carry out during the operation phase of STKSTW.

Project:

Contract No. CM 11/2021 Expansion of Sha Tau Kok Sewage Treatment Works – Environmental Team Services (2022-2024)

Impact Monitoring Schedule (January 2024)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
	1	2	3	4	5 **NM**	6
7	8	9	10	11	12 **NM**	13
14	15	16	17	18	19 **NM**	20
21	22	23	24 **OM (Pending)**	25	26 **NM**	27
28	29	30	31 **NM**			

Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition.
2. Odour Monitoring (**OM**): 15-minute H2S Measurement (every 5 minutes measure one reading).
3. Noise Monitoring (**NM**): L_{eq} (30 min) during between 0700 - 1900.
4. Water Quality Monitoring (**WQM**): Once per day for 3 days per week.
5. WQM shall be suspended for the construction phase of the expanded STKSTW. It will be resumed to carry out during the operation phase of STKSTW.

Appendix E

Monitoring Results and Graphical Presentations

Noise Monitoring Result for Contract No. CM 11/2021
Expansion of Sha Tau Kok Sewage Treatment Works

NM 1 (Block 45, Sha Tau Lol Chuen)

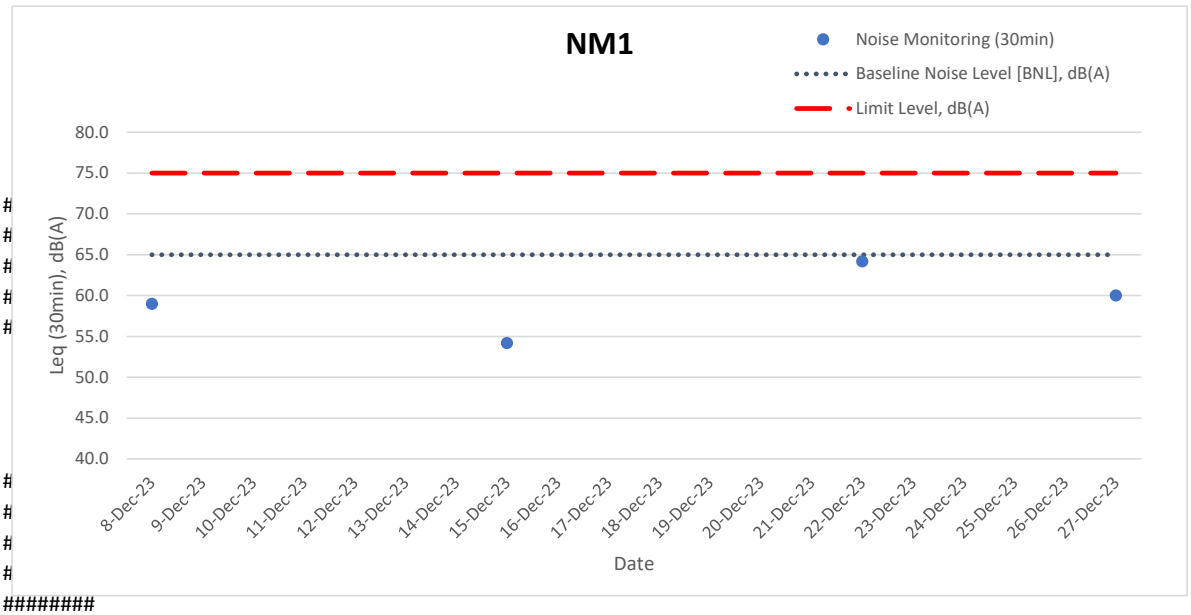
Date	Weather Condition	Wind speed (m/s)	Start time	Noise Monitoring (30min)			Baseline Noise Level [BNL], dB(A)	Construction Noise Level [CNL]#, dB(A)		Limit Level, dB(A)	Exceedance (Y/N)
				Leq dB(A)	L90 dB(A)	L10 dB(A)					
8-Dec-23	Fine	0.3	11:20	59.0	50.5	60.5	65	59.0	≤ Limt Level	75	N
15-Dec-23	Fine	0	14:11	54.2	49.0	55.5	65	54.2	≤ Limt Level	75	N
22-Dec-23	Fine	0.2	10:45	64.2	48.0	68.5	65	64.2	≤ Limt Level	75	N
27-Dec-23	Fine	0.4	9:49	60.0	49.0	63.5	65	60.0	≤ Limt Level	75	N

NM 2 (Building along Shun Lung Street)

Date	Weather Condition	Wind speed (m/s)	Start time	Noise Monitoring (30min)			Baseline Noise Level [BNL], dB(A)	Construction Noise Level [CNL]#, dB(A)		Limit Level, dB(A)	Exceedance (Y/N)
				Leq dB(A)	L90 dB(A)	L10 dB(A)					
8-Dec-23	Fine	0	11:56	55.0	44.0	55.7	65	55.0	≤ Limt Level	75	N
15-Dec-23	Fine	0	14:45	61.6	52.5	62.0	65	61.6	≤ Limt Level	75	N
22-Dec-23	Fine	0.2	11:18	67.9	52.0	68.5	65	67.9	≤ Limt Level	75	N
27-Dec-23	Fine	0.2	10:25	67.2	54.0	69.0	65	67.2	≤ Limt Level	75	N

*A correction of +3 dB(A) was made to the free field measurments.

#If measured noise level (Leq) > limit level, Corrected noise level (CNL) is calculated as: $10\log(10^{MNL/10}-10^{BNL/10})$


NM1
Noise Monitoring (30min)
Baseline Noise Level [BNL], dB(A)
Limit Level, dB(A)
Leq (30min), dB(A)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
8-Dec-23
9-Dec-23
10-Dec-23
11-Dec-23
12-Dec-23
13-Dec-23
14-Dec-23
15-Dec-23
16-Dec-23
17-Dec-23
18-Dec-23
19-Dec-23
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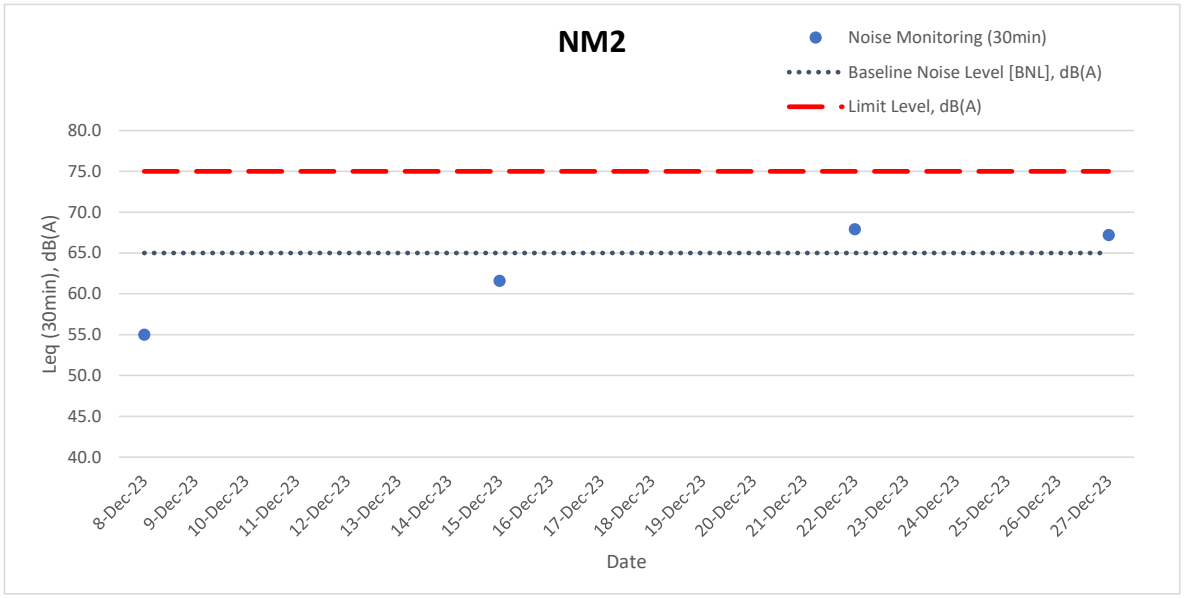
22-Dec-23
23-Dec-23
24-Dec-23
25-Dec-23
26-Dec-23
27-Dec-23
Date


NM2
Noise Monitoring (30min)
Baseline Noise Level [BNL], dB(A)
Limit Level, dB(A)
Leq (30min), dB(A)
80.0
75.0
70.0
65.0
60.0
55.0
50.0
45.0
40.0
8-Dec-23
9-Dec-23
10-Dec-23
11-Dec-23
12-Dec-23
13-Dec-23
14-Dec-23
15-Dec-23
16-Dec-23
17-Dec-23
18-Dec-23
19-Dec-23
20-Dec-23
21-Dec-23
22-Dec-23
23-Dec-23
24-Dec-23
25-Dec-23
26-Dec-23
27-Dec-23
Date

Appendix F

Event and Action Plan

EVENT	ACTION			
	ET	IEC	ER	Contractor
Construction Noise				
Action Level	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	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.	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.	1. Submit noise mitigation proposals, if required, to the IEC and ER 2. Implement noise mitigation proposals
Limit Level	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	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	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.	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	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	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	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	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	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	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	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	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	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.	1. Check monitoring data submitted by ET and Contractor(s)'s working methods; 2. Inform EPD and AFCD.	1. Confirm receipt of notification of exceedance in writing; 2. Check plant and equipment and rectify unacceptable practice	1. Confirm receipt of notification of exceedance in writing.
Action Level being exceeded by two or more consecutive sampling days	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	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.	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.	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	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	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.	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.	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	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	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.	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.	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

Monthly Summary Waste Flow Table for _2023__ (year)

Name of Person completing the record: Yoyo Leung (Environmental 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	0.311	0.000	0.000	0.000	0.311	0.000	0.000	0.000	0.000	0.000	0.035
Feb	0.214	0.000	0.000	0.000	0.214	0.000	0.000	0.000	0.000	0.000	0.058
Mar	0.145	0.000	0.000	0.000	0.145	0.000	0.000	0.000	0.000	0.000	0.110
Apr	0.389	0.000	0.000	0.000	0.389	0.000	0.000	0.000	0.000	0.000	0.116
May	0.095	0.000	0.000	0.000	0.095	0.000	0.000	0.000	0.000	0.000	0.091
Jun	0.203	0.000	0.000	0.000	0.203	0.000	0.000	0.000	0.000	0.000	0.028
Sub-total	1.357	0.000	0.000	0.000	1.357	0.000	0.000	0.000	0.000	0.000	0.438
Jul	0.123	0.000	0.000	0.000	0.123	0.000	0.000	0.000	0.000	0.000	0.017
Aug	0.107	0.000	0.000	0.000	0.107	0.000	0.000	0.000	0.000	0.000	0.035
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.028
Oct	0.000	0.000	0.000	0.000	0.211	0.000	0.000	0.000	0.000	0.000	0.033
Nov	0.000	0.000	0.000	0.000	0.438	0.000	0.000	0.000	0.000	0.000	0.036
Dec	0.088	0.000	0.000	0.000	0.088	0.000	0.000	0.000	0.000	0.000	0.048
Total	1.675	0.000	0.000	0.000	2.324	0.000	0.000	0.000	0.000	0.000	0.635
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
2021	18.846	0.000	0.000	0.000	18.846	0.000	0.000	0.000	0.000	0.000	0.206
2022	15.129	0.000	0.000	0.000	15.129	0.000	0.000	0.000	0.000	0.000	0.461
2023	1.675	0.000	0.000	0.000	2.324	0.000	0.000	0.000	0.000	0.000	0.635
Cumulative	40.753	0.005	0.000	0.000	41.407	0.000	0.000	0.000	0.000	0.000	2.142

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 Status of Environment Mitigation Measures

Environmental Mitigation Implementation Schedule

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
	Air Quality		
S3.7.1	- 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.	Construction Sites / Construction Phase	✓
	- 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	- To minimize odour problem, the sludge tankers for disposal of sludge shall be fully enclosed	TSTP / Operation Phase	✓
	- Sludge produced will be thickened and dewatered to 30% dry solids prior to disposal at the landfill.		N.A.
	- Deodourizing facility using activated carbon filters and/or bio-trickling filters were equipped for both TSTP.	TSTP / Design Phase / Operation Phase	✓
	- 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.
	- Ventilation system was provided inside the TSTP to ensure adequate air change within the plant.		✓
S3.9.2	- 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. (completed)	Operation Phase	N.A.
	- 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 - completed)		N.A.

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S3.9.2	- 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 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 (i.e. August 2021 to July 2022). 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.	TSTP / Operation Phase	✓
	- 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.
Noise			
S4.8	- Use of quiet PME / quiet construction method.	Construction Sites / Construction Phase	✓
	- Movable noise barriers of 3 m 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. (no demolition works)		✓
	- 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.		✓
	- Include noise levels specification when ordering new equipment items.	Construction Sites / Operation Phase	✓
	- 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.

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S4.11	- Designated monitoring stations as defined in EM&A Manual / during construction phase.	NM1 & NM2 / Construction Phase	✓
	Water Quality		
S5.9.3	- Furthermore, 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.	Construction Sites / Construction Phase	✓
	- 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.	Construction Sites / Construction Phase	✓
EP Clause 2.11	- 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.	Construction Sites / Construction Phase	✓
	- Mitigation/ precaution measures recommended in the method statement of submarine outfall construction should be implemented.		✓
	- 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	**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.	Land Sites & Drainage / Construction Phase	✓
	- 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.		✓

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S5.9.4	- 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.	Land Sites & Drainage / Construction Phase	✓
S5.9.5	- 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.	Land Sites & Drainage / Construction Phase	✓
S5.9.6	- 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.	Land Sites & Drainage / Construction Phase	✓
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.	Land Sites & Drainage/ Construction Phase	✓
S5.9.9	- The following design measures are also provided in the TSTP and the expanded STKSTW to avoid the risk of emergency discharge: ・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~~	TSTP / Operation Phase	✓
S5.9.10	- Additional measures provided to avoid plant failure associated fine screen include: ・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.	Operation Phase	N.A.
S5.9.12	- 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. - 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.	Operation Phase	N.A. N.A.

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S5.12.1	- 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.	FCZ1A, SGA, M1A, H1A, H4A, N1 & N2 / Construction Phase	✓
S5.12.2	- 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. (completed in July 2021)	Operation Phase	N.A.
Waste Management & Land Contamination			
S6.6.1	- 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.	Construction Sites / Construction Phase	✓
S6.6.3	- 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.	Construction Sites / Construction Phase	✓
S6.6.4	- 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.	Construction Sites / Construction Phase	✓
S6.6.5	- 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.	Construction Sites / Construction Phase	✓
S6.6.6	- 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.	Construction Phase	N.O.
S6.6.7	- All waste materials should be segregated into categories covering: • 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	Construction Sites / Construction Phase	✓

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S6.6.9	- Proper segregation and disposal of construction waste should be implemented. Separate containers should be provided for inert and non-inert wastes.	Construction Sites / Construction Phase	✓
S6.6.11	- 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.	Construction Sites / Construction Phase	✓
S6.6.12	- 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.	Construction Phase	N.A
S6.6.13	- Use of recycled aggregates whenever possible	Design & Construction Phase	N.A
S6.6.14, S6.6.30	- 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.	Construction Sites / Construction Phase	✓
S6.6.15	- 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.	Construction Sites / Construction Phase	✓
S6.6.16	- 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.	Construction Sites / Construction Phase	✓
S6.6.17	- 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.	Construction Sites / Construction Phase	✓
S6.6.18	- 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.	Construction Sites / Construction Phase	✓
S6.6.20	- 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.	Construction Sites / Construction Phase	N.A.

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S6.6.21	- 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.	Construction Sites / Construction Phase	✓
S6.6.22 & S6.6.37	- 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.	Construction Sites / Construction & Operation Phase	✓
S6.6.23 & S6.6.37	- 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.	Construction Sites / Construction & Operation Phase	✓
S6.6.24 & S6.6.37	- 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.	Construction Sites / Construction & Operation Phase	✓
S6.6.25 & S6.6.37	- 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 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.	Construction Sites / Construction & Operation Phase	✓
S6.6.26 & S6.6.37	- 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.	Construction Sites / Construction & Operation Phase	✓
S6.6.27	- 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.	Construction Sites / Construction Phase	✓
S6.6.28	- 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.	Construction Sites / Construction Phase	✓

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
S6.6.29	- 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.	Construction Phase	N.A.
S6.6.32	- 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.	Construction Sites / Construction Phase	✓
S6.6.33	- The recyclable component of the municipal waste generated by the workforce, such as aluminium 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.	Construction Sites / Construction Phase	✓
S6.6.35	- Dewatered sludge should be delivered by sealed sludge tanker for treatment at the Sludge Treatment Facility in Tuen Mun.	Operation Phase	N.A.
S6.6.36	- 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.	Operation Phase	N.A.
Ecology			
S7.7.3	- 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.	Construction Sites / Construction Phase	✓
	- 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.A.
Landscape & Visual			
Table 9.6of EM&A Manual	**Preservation of Existing Vegetation:** - Existing trees designated to be retained in-situ should be properly protected. Tree protection measures to be undertake 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.	Construction Sites / Construction Phase	✓

EIA Ref	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of Measures	Implementation Status in Construction Phase*
	Preservation of Existing Vegetation (con't) - 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.	Construction Sites / Construction Phase	✓
	Control of Site Construction Activities: - 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: ・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 environmental 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.	Construction Sites / Construction Phase	✓
Table 9.7of EM&A Manual	**Suitable design of the proposed TSTP:** - 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 ・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.	Construction Sites / Design & Construction Phase	✓
Cultural Heritage			
S10.3.50	- 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.	Construction Phase	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	Recommended Environmental Protection Measures/ Mitigation Measures	Location / Duration of 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.	Construction Phase	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.

*Implementation Status:
✓ = Compliance of mitigation measure
× = 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

Weather and Meteorological Conditions during Reporting Month

December 2023 Weather

Station: Hong Kong Observatory

Date	Mean Pressure (hPa)	Air Temperature			Mean Relative Humidity (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)		
December 2023						
1	1021.5	23.2	21.5	19.6	69	0
2	1021.7	21.5	20.0	18.2	70	0
3	1020.4	23.3	21.4	20.1	73	Trace
4	1017.2	24.4	21.9	20.5	76	Trace
5	1015.6	24.1	21.7	19.7	73	0
6	1017.6	22.5	21.5	19.9	67	Trace
7	1017.8	25.1	21.0	18.4	47	0
8	1016.7	24.0	21.4	19.2	68	0
9	1014.6	24.9	22.9	21.6	80	0
10	1013.8	26.3	23.9	22.5	80	Trace
11	1014.6	27.3	24.2	22.3	85	0.3
12	1016.2	28.7	24.7	22.3	80	0.3
13	1019.4	23.2	22.3	21.6	82	Trace
14	1018.7	24.6	23.1	21.7	81	Trace
15	1016.3	26.9	24.4	23.2	81	0
16	1020.5	23.9	18.9	13.5	71	0.1
17	1024.9	15.2	13.4	11.4	69	0
18	1022.1	19.0	17.3	14.8	80	Trace
19	1021.2	19.0	16.8	14.7	75	0
20	1023.3	15.6	13.6	10.8	65	0
21	1027.1	12.3	10.9	9.8	65	0
22	1030.1	12.3	10.5	8.6	51	0
23	1029.9	13.3	11.0	8.1	58	0.2
24	1028.6	16.5	13.3	10.1	52	0
25	1026.7	18.2	14.9	12.1	51	0
26	1025.2	19.6	16.6	14.5	63	0
27	1024.0	21.8	18.7	16.6	62	Trace
28	1022.3	23.6	20.1	18.2	73	Trace
29	1021.1	21.0	19.4	18.3	79	0
30	1018.3	23.0	20.7	18.3	70	Trace
31	1018.0	25.7	21.8	19.0	73	0

Note (From Hong Kong Observatory):
Trace means rainfall less than 0.05 mm

Source: Hong Kong Observatory

Appendix J

Cumulative statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Environmental Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Month	Cumulative Project-to-Date
Air	1	0	1
Noise	2	0	2
Water	0	0	0
Waste	0	0	0
Total	3	0	3

Cumulative Statistics on Notification of Summons and Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Notification of Summons and Prosecutions This Month	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Appendix K

Summary of Site Audit in the Reporting Month

Summary Site Environmental Audit in the Reporting Month

Parameters	Date	Observations and Recommendations	Follow-up action	Date
Air Quality	No specific observation was identified in the reporting month			
Noise	No specific observation was identified in the reporting month			
Water Quality	No specific observation was identified in the reporting month			
Chemical and Waste Management	15/12/2023	Observation 1: Construction waste should be cleared regularly (STKSTW)	Construction waste was cleared	16/12/2023
	22/12/2023	Reminder 1: The general refuse should be cleared (STKSTW)	Refuse was cleared	23/12/2023
	27/12/2023	Observation 1: Tarpaulin sheet should be provided for the breaker to prevent oil leakage.	Tarpaulin sheet was provided	28/12/2023
Landscape and Visual Impact	No specific observation was identified in the reporting month			
Permit / Licenses	No specific observation was identified in the reporting month			

Date of Inspection: 15 December 2023

	
Defect	Rectified
Observation 1: Construction waste should be cleared regularly.	

Date of Inspection: 22 December 2023

Reminder 1:
General refuse should be cleared (STKSTW)

Date of Inspection: 27 December 2023

	
Defect	Rectified
Observation 1: Tarpaulin sheet should be provided for the breaker to prevent oil leakage.	

Appendix L

Outstanding Issues and Deficiencies

Outstanding Issues and Deficiencies

Parameters	Outstanding Issues	Deficiencies
Air Quality	NA	Any items of deficiencies can be referred to **Appendix K**.
Noise	NA	
Water Quality	NA	
Chemical and Waste Management	NA	
Landscape and Visual Impact	NA	
Permit / Licenses	NA	

Appendix M

The on-site time & duties of ET and IEC

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

On-site Time & Duties for the Team of ET during the reporting month		
Works to be carried on-site	**Purposes**	**Actual Man-hour per week**
Environmental site inspection **(8, 15, 22 & 27 December 2023)**	• 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	• To keep a contemporaneous log-book of any such instance or circumstance or change of circumstances.	1 hour per week
Impact noise monitoring **(8, 15, 22 & 27 December 2023)**	• 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.	3 hours per week
Meeting with the ER, IEC, and contractor. **(8, 15, 22 & 27 December 2023)**	• 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. • To review the complaint issue with ER, IEC and Contractor to prevent further complaints.	2 hours per week

Additional Monitoring for Critical work activities (recommended)	Purposes	Additional minimum on-site time
Construction Phase		
Monitoring of decommission of existing rising main and demolition of sewage pumping station inside the close area of Sha Tau Kok Chuen	• 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.
Operation Phase		
Marine Water quality monitoring during the first year of the TSTP	• 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).	Completed.
Continuous monitoring of treated sewage effluent from the TSTP	• 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.	Completed.
Testing & Commissioning for the TSTP	• To ascertain the effectiveness of the deodorization systems as required in the EM&A at the TSTP and STKSTW during the operation phase.	Completed.
Monitoring of odour emission at the exhausts at TSTP	• To check any non-compliance with the monitoring parameter as stipulated in the EM&A Manual.	1 hour per six months
Odour patrol during the period of maintenance of the deodorization system for TSTP	• 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 month		
Works to be carried on-site	**Purposes**	**Actual Man-hour per week**
General site inspection or Monthly site inspection	• To ensure the EIA recommendations and EP requirements are complied with • To review the effectiveness of environmental mitigation measures and 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	• To inspect and audit the on-site logbook kept by the ET	1 hour per week
Audit of Monitoring Works by the ET	• 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.	• 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
Additional Monitoring for Critical work activities (recommended)	**Purposes**	**Additional minimum on-site time**
Construction Phase		
Construction of submarine outfall in Starling Inlet by Horizontal Directional Drilling	• To ensure the EIA recommendations and EP requirements are complied with • To review the effectiveness of environmental mitigation measures and 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	4 hours per week