

# Monthly EM&A Report (March 2023)

0185/21/ED/0527 02

Sai O Trunk Sewer Sewage Pumping Station



Ref.: SHKSOSPSEM00\_0\_0079L.23

19 April 2023

By Fax (2827 0485)

Sun Hung Kai Properties Ltd. 42/F., Sun Hung Kai Centre 30 Harbour Road, Wan Chai, Hong Kong

Attention: Mr. Sunny Cheung

Dear Sir,

#### Re: Sai O Trunk Sewer Sewage Pumping Station Environmental Permit No. EP-597/2021 Monthly EM&A Report (March 2023)

Reference is made to the Environmental Team's submission of the Monthly EM&A Report for March 2023 (ET's ref.:0185/21/ED/0527 02) certified by the ET Leader and provided to us via e-mail on 19 April 2023.

We are pleased to inform you that we have no further comments on the captioned submission. We write to verify the captioned submission in accordance with Condition 3.4 of EP-597/2021 and Section 12.4.1.1 of EM&A Manual for the captioned project.

Thank you very much for your attention and please feel free to contact the undersigned should you require further information.

Yours sincerely, For and on behalf of Ramboll Hong Kong Ltd.

Y H Hui Independent Environmental Checker

c.c. AECOM Ms. Janice Tam / Mr. CK Man	(By Fax: 3894 5801)
Fugro Mr. Calvin Leung	(By Fax: 2450 6138)
SGJV Mr. Eddie Tse	(By Fax: 3894 5801)

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# **Document Control**

## **Document Information**

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## **Client Information**

Client	Light Time Investments Limited
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Client Contact	Mr. Sunny Cheung

## **Environmental Team**

Initials	Name	Role	Signature
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СҮ	Cyrus C.Y. Lai	Senior Environmental Consultant	
MS	Michelle T. Shum	Assistant Environmental Consultant	51.

# **EXECUTIVE SUMMARY**

- i. This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Sai O Trunk Sewer Sewage Pumping Station. Light Time Investments Limited has appointed Fugro Technical Services Limited (FTS) to undertake the Environmental Team services for the project and implement the EM&A works.
- ii. This is the 14<sup>th</sup> Monthly EM&A Report for the Project which summaries findings of the EM&A programme during the reporting period from 1 March 2023 to 31 March 2023.

#### **Breaches of Environmental Quality Performance Limits (Action & Limit levels)**

- iii. No Action and Limit Level exceedance was recorded for air quality monitoring and construction noise monitoring in the reporting month.
- iv. No corrective actions were required according to the Event-Action Plans.

#### **Complaint Log**

v. No complaints were received in the reporting period.

#### Notifications of any Summons and Successful Prosecutions

vi. No notifications of summons and prosecutions were received in the reporting period.

#### **Reporting Change**

vii. There were no reporting changes during the reporting month

#### **Future Key Issues**

viii. The main works will be anticipated in the next month are as follow:

Pump Room – Structure - Wall to CJ 500mm below S1

- Remove S2 and concrete packing
- Internal falsework and working platform
- Vertical blinding against pipe pile
- Waterproofing on vertical blinding
- External working platform and formwork
- Rebar
- Internal formwork
- Concreting
- Remove formwork and trim CJ

#### Pump Room – Structure - Ground Slab

• Remove noise cover and S1 including concrete packing

**Rising Main and Gravity Sewer** 

- Earthwork and ELS
- Install sewer & rising main and concrete manhole

Transformer Room and Switch Room

• Wall and roof slab



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# 1. INTRODUCTION

#### 1.1 Background

- 1.1.1 The proposed Sai O Trunk Sewer Sewage Pumping Station (Sai O Trunk Sewer SPS) is a part of Public Works Programme Item 4125DS - Tolo Harbour Sewerage of Unsewered Areas, Stage II, is a core component of the proposed trunk sewerage system in Ma On Shan along Sai Sha Road. It is required to receive all sewage flows along Sai Sha Road from Kei Ling Ha Lo Wai to Cheung Muk Tau and the adjacent residential development, health care institution and education institutions, and then convey the sewage to Sha Tin Sewage Treatment Works.
- 1.1.2 Based on the latest design, the installed capacity per day of the proposed Sai O Trunk Sewer SPS is about 20,600m<sup>3</sup> for coping with the sewerage needs of both existing and future developments. Location of the proposed Sai O Trunk Sewer SPS is shown in **Figure 1.1**.
- 1.1.3 The proposed Sai O Trunk Sewer SPS include the following main components:
  - Loading/unloading bay
  - Inlet chamber
  - Coarse screen channel
  - Distribution chamber
  - Wet wells
  - Valve chamber
  - Emergency storage tank
  - Deodorizing unit
  - Switch room
  - Transformer room
- 1.1.4 The Project is a designated project under Schedule 2 of the Environmental Impact Assessment Ordinance (EIAO) (Cap. 499) for which Environmental Impact Assessment (EIA) report and Environmental Monitoring and Audit (EM&A) Manual was approved by EPD (Register No.: AEIAR-230/2021) on 4 June 2021. The Environmental Permit (EP) (EP No. EP-597/2021) was issued by EPD on 28 September 2021.
- 1.1.5 Fugro Technical Services Limited (FTS) has been appointed as the Environmental Team (ET) by Light Time Investments Limited to undertake the Environmental Team services for the Project and implement the EM&A works under Sai O Trunk Sewer Sewage Pumping Station (hereinafter referred as "the Project").



1.1.6 This is the 14<sup>th</sup> Monthly EM&A report to document the findings of site inspection activities and EM&A programme for this project from 1 March 2023 to 31 March 2023 (reporting period) and is submitted to fulfil Condition 3.4 of the EP and Section 12.4 of the EM&A Manual. According to Condition 4 of the EP, electronic reporting is provided on the internet website to facilitate public inspection of the report.

#### 1.2 **Project Organization**

1.2.1 The Project Organization structure is shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Party	Position	Name	Telephone
Project Proponent (PP) (Light Time Investments Ltd.)	Senior Project Manager	Mr. Sunny Cheung	3894 5934
Engineer's Representative (ER) (AECOM Asia Co. Ltd.)	Senior Resident Engineer	Mr. C.K. Man	3894 5919
Independent Environmental Checker (IEC) (Ramboll Hong Kong Ltd.)	Independent Environmental Checker	Mr. Y.H. Hui	3465 2888
Contractor (Sanfield-Gammon Construction JV Company Ltd.)	Environmental Officer	Ms. Carrie Kwan	3894 5816
Environmental Team (ET) (Fugro Technical Services Ltd.)	Environmental Team Leader (ETL)	Mr. Calvin Leung	3565 4441

Table 1.1 – Contact Information of Key Personnel

### 1.3 Construction Programme and Activities

1.3.1 The construction programme of this project is shown in **Appendix B**.

#### 1.4 Works undertaken during the month

#### 1.4.1 Major construction activities were undertaken in the reporting month were:

Pump Room – Structure - Base slab and Wall to CJ 500mm below S3

- Waterproofing on vertical blinding
- Backfilling to 500mm below S3

Pump Room – Structure - Base slab and Wall to CJ 500mm below S2

- Remove formwork and trim CJ
- Waterproofing to vertical concrete face
- Backfill to -3.90 mPD
- Lay twin rising main to Pump Room
- Backfilling to -0.50 mPD

#### Pump Room – Structure - Wall to CJ 500mm below S1

- Remove S2 and concrete packing
- Internal falsework and working platform
- Vertical blinding against pipe pile
- Waterproofing on vertical blinding



**Rising Main and Gravity Sewer** 

- Earthwork and ELS
- Install sewer & rising main and concrete manholes

Transformer Room and Switch Room

• Wall and roof slab

#### 1.5 Status of Environmental Licences, Notification and Permits

1.5.1 A summary of the relevant permits, licenses and/or notifications on environmental protection for this project is presented in **Table 1.2**.

Permit/ Notification/ License	Reference No	Valid From	Valid Till	
Environmental Permit	EP-597/2021	28-Sep-2021	NA	
Notification of Construction Works under APCO	432718	18-Apr-2018	31-May-2023	
Billing Account under Construction Waste Disposal Charging Scheme	7031695	28-Aug-2018	NA	
Effluent Discharge License under WPCO	WT00040139-2021	11-Mar-2022	31-Mar-2027	
Chemical Waste Producer Registration	8334-741-S4115-01	14-Aug-2018	31-Aug-2023	
Construction Noise Permit	GW-RN0255-23	12-Mar-2023	07-Jun-2023	

#### Table 1.2 – Environmental Licenses, Notification and Permits Summary

Notes:

NA = Not Applicable



# 2. AIR QUALITY

#### 2.1 Monitoring Requirement

2.1.1 In accordance with the EM&A Manual, 1-hour Total Suspended Particulates (TSP) levels should be measured at the designated air quality monitoring station to ensure that any deteriorating air quality could be readily detected and timely action shall be undertaken to rectify such situation. Impact 1-hour TSP monitoring was conducted for at least three times every 6 days when the highest dust impact occurs.

### 2.2 Monitoring Equipment

- 2.2.1 1-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) deployed at the designated monitoring station. The HVS shall meet all the requirements of the EM&A Manual.
- 2.2.2 Wind data monitoring equipment is provided at the conspicuous locations for logging wind speed and wind direction near to the air quality monitoring location. The equipment installation location is agreed with the ER and the IEC.
- 2.2.3 The model of the air quality monitoring equipment used is summarized in **Table 2.1**.

ltem	Brand	Model	Equipment	Serial No.	
		TE-5170 (TSP)	High Volume Sampler	HVS-05	
		TE-300-310X	-Mass Flow Controller	3088	
1	Tisch	TE-5005X	-Blower Motor Assembly	2083	
		TE-5007X		-Mechanical Timer	5159
		TE-5009X	-Continuous Flow Recorder	5483	
2	Global Water	GL500-7-2	Wind Station	WS-03	
3	Tisch	TE-5025A	Calibration Kit	2154	

Table 2.1 – Air Quality Monitoring Equipment

### 2.3 Monitoring Parameters and Frequency

#### 2.3.1 The parameters and frequencies of impact noise monitoring is summarized in **Table 2.2**.

Table 2.2 – Monitoring Parameters and Frequencies of Air Quality Monitoring

Parameter	Frequency
1-hour TSP	At least three times every 6 days when the highest dust impact occurs



### 2.4 Monitoring Methodology

#### **HVS Installation**

- 2.4.1 The following guidelines were adopted during the installation of HVS:
  - i. A horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
  - ii. Two samplers shall be placed less than 2 meters apart;
  - iii. The distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
  - iv. A minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
  - v. A minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
  - vi. No furnace or incinerator flue is nearby;
  - vii. Airflow around the sampler is unrestricted;
  - viii. The sampler is more than 20 metres from the dripline;
  - ix. Any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
  - x. Permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
  - xi. A secured supply of electricity is needed to operate the samplers.

#### **Operating / Analytical Procedures**

- 2.4.2 Prior to the commencement of the dust sampling, the flow rate of the HVS shall be properly set. The flow rate shall be indicated on the flow rate chart. The power supply should be checked to ensure the proper functioning of the sampler. The sampler is recommended to be operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air monitoring station.
- 2.4.1 The filter holding frame should be removed by loosening the four nuts and placing carefully a weighted and conditioned filter at the centre with the stamped number upwards on a supporting screen.
- 2.4.2 The filter should be aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. The filter holding frame should be tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.



- 2.4.3 A programmed timer should be used to control the duration of operation. Information should be recorded on the record sheet, which included the starting time, the weather condition and the filter number.
- 2.4.4 After sampling process is finished, the filter should be removed and sent to the laboratory for weighting. The elapsed time should also be recorded.
- 2.4.5 All filter papers should be equilibrated in a conditioning environment for 24 hours before weighting. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than  $\pm$ 3°C; the relative humidity (RH) should be <50% and not vary by more than  $\pm$ 5%. A convenient working RH is 40%.

#### 2.5 Maintenance and Calibration

- 2.5.1 The high volume motors and their accessories should be properly maintained, including routine motor brushes replacement and electrical wiring checking, to ensure that the equipment and a continuous power supply were in good working condition.
- 2.5.2 Initial calibration of dust monitoring equipment shall be conducted upon installation and thereafter at bimonthly intervals. The transfer standard shall be traceable to the internationally recognized primary standard and be calibrated annually. The calibration certificate for the HVS is provided in **Appendix C**.

#### 2.6 Monitoring Locations

- 2.6.1 In accordance with the EM&A Manual, air quality monitoring should be carried out at a designated monitoring location.
- 2.6.2 As limitation of stable electricity supply & safety concern could not be obtained from the designated dust monitoring location, an alternative monitoring location (CA\_M1(a)) was proposed to measure 1-hour TSP levels in accordance with EP Condition 3.1 & Section 2.2.1.20 of the EM&A manual. The alternative monitoring location (CA\_M1(a)) was approved by EPD on 15 December 2021.
- 2.6.3 The air quality monitoring location summarised in **Table 2.3** and shown in **Figure 2.1**.

#### Table 2.3 – Air Quality Monitoring Locations

Monitoring Location ID	Location
CA_M1(a)	Construction Site Boundary near Hong Kong Baptist Theological Seminary (HKBTS) Staff & Students Quarters

#### 2.7 Monitoring Results

- 2.7.1 The schedule of air quality monitoring in reporting month is provided in **Appendix D**.
- 2.7.2 The monitoring data of 1-hr TSP are summarized in **Table 2.4**. The Detailed air quality monitoring results & graphs are presented in **Appendix E** & **Appendix F** respectively.



Table 2.4 – Summary of Air Quality Monitoring Results

Monitoring Station	Average (μg/m³)	Range (μg/ m³)	Action Level (μg/ m³)	Limit Level (µg/ m³)
1-hour TSP				
CA_M1(a)	96.8	45.1 – 145.9	339	500

- 2.7.3 No Action / Limit Level exceedance was recorded for 1-hr TSP at CA\_M1(a).
- 2.7.4 No effect that arose from the other special phenomena and work progress of the concerned site was noted during the current monitoring month.
- 2.7.5 The Action and Limit Levels for impact air quality monitoring have been set and are presented in **Appendix G**.
- 2.7.6 The Event and Action Plan for Air Quality is given in **Appendix H**.
- 2.7.7 The weather conditions during the monitoring are provided in **Appendix I**.
- 2.7.8 The wind data obtained from the on-site wind station during the reporting period is provided in **Appendix J**.



# 3. NOISE

#### 3.1 Monitoring Requirement

3.1.1 In accordance with the EM&A Manual, Leq (30min) monitoring is conducted at least once a week when there are Project-related construction activities being undertaken within a radius of 300 m from the monitoring stations. The monitoring is conducted during the construction phase between 0700 and 1900 on normal weekdays at the designated monitoring locations.

### 3.2 Monitoring Equipment

- 3.2.1 As referred to the requirements of the Technical Memorandum (TM) issued under the NCO, the sound level meters in compliance with the International Electro technical Commission Publications 651: 1979 (Type 1) and 804: 1985 (Type 1) specifications should be used for carrying out the noise monitoring. Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. The measurements may be accepted as valid only if the difference between calibration levels obtained before and after the noise measurement is less than 1.0 dB (94 dB ± 0.1 dB).
- 3.2.2 The model of the noise monitoring equipment used is summarized in **Table 3.1**.

ltem	Brand	Model	Equipment	Serial No.
1	Casella	CEL-63X Series	Integrating Sound Level Meter	1488293
2	Casella	CEL-120/1	Calibrator	3321858
3	Benetech	GM816	Anemometer	WS-10

Table 3.1 – Construction Noise Monitoring Equipment

### 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
LAeq (30 min) (L10 and L90 will be recorded for reference)	At each station at 0700-1900 hours on normal weekdays at a frequency of once a week when construction activities are underway



#### 3.4 Monitoring Methodology

- 3.4.1 Noise measurement should be conducted as the following procedures:
  - The monitoring station will set at a point 1m from the exterior of the sensitive receivers building façade and set at a position 1.2m above the ground. (In case façade measurement is not feasible on-site, a free field correction of +3dB(A) will be applied.)
  - The battery condition was checked to ensure good functioning of the meter.
  - Parameters such as frequency weighting, the time weighting and the measurement time will set as follows:
    - frequency weighting: A
    - time weighting: Fast
    - measurement time: 30 minutes
  - Prior to and after noise measurement, the meter shall be calibrated using the calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement is more than 1.0 dB, the measurement will considered invalid and repeat of noise measurement is required after re-calibration or repair of the equipment.
  - Noise measurement should be paused during periods of high intrusive noise if possible and observation shall be recorded when intrusive noise is not avoided.
  - Noise measurements shall not be made in fog, rain, wind with a steady speed exceeding 5 m/s or wind with gusts exceeding 10 m/s. The wind speed shall be checked with a portable wind speed meter capable of measuring the wind speed in m/s. Calibration certificate of the anemometer is provided in **Appendix C**.

#### 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.
  - Relevant calibration certificates are provided in **Appendix C**.



### 3.6 Monitoring Locations

- 3.6.1 In accordance with the EM&A Manual, noise monitoring should be carried out at 2 designated monitoring locations.
- 3.6.2 The noise monitoring locations are summarised in **Table 3.3** and shown in **Figure 3.1**.

Table 3.3 – Construction Noise Monitoring Location

Monitoring Location ID	Location	Measurements							
CN_M1	In front of the HKBTS Staff & Students Quarters	Free Field							
CN_M2	In front of the HKBTS Administration and Education Block	Façade							

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

#### 3.7 Monitoring Results

- 3.7.1 The schedule of noise monitoring in reporting month is provided in **Appendix D**.
- 3.7.2 The noise monitoring data are summarized in **Table 3.4**. The Detailed noise monitoring results & graphs are presented in **Appendix E** & **Appendix F** respectively.

Table 3.4 – Summary of Construction Noise Monitoring Results

Frequency	Location	Correct	ed L <sub>Aeq</sub>	Action Level	Limit Level		
and Period		Range (dB(A))	Average (dB(A))				
0700-1900 hours in	CN_M1	55.6 – 64.2	62.6	When one	70dB(A) during normal teaching		
normal weekdays LAeq (30min)	CN_M2	47.1 – 59.1	57.1	complaint is received	examination periods 65 dB(A) during		

Remark:

1. CN\_M1: Free-field measurement (+3 dB(A) correction has been applied).

- 3.7.3 No Action / Limit Level exceedance of location CN\_M1 & CN\_M2 was recorded for construction noise in the reporting month.
- 3.7.4 Construction Noise and Road traffic noise along Ning Ming Road was observed at CN\_M1 & CN\_M2 during the monitoring month. No effect that arose from the other special phenomena was noted during the current monitoring month.
- 3.7.5 The Action and Limit Levels for Construction Noise have been set and are presented in **Appendix G**.
- 3.7.6 The Event and Action Plan for Construction Noise is given in **Appendix H**.
- 3.7.7 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**.



### 3.8 Comparison of Noise Monitoring data with EIA Predictions

3.8.1 The noise monitoring data was compared with the EIA predictions as summarized in **Table 3.5**.

Monitoring Station	EIA ID	Maximum Predicted Mitigated Construction Noise Level L <sub>eq</sub> (30min) dB(A)	Maximum Construction Noise Level in March 2023 L <sub>eq</sub> (30min) dB(A)					
CN_M1	N1b	72	64.2					
CN_M2	N2	66	59.1					

Table 3.5 - Comparison of Noise monitoring data with EIA predictions

Notes:

Predicted Construction Noise Levels extracted from Table 4.8 of EIA Report, AEIAR-230/2021

3.8.2 The construction noise monitoring results at CN\_M1 and CN\_M2 were below the Maximum Predicted mitigated Construction Noise Level in the approved Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-230/2021).



# 4. SITE INSPECTION AND AUDIT

#### 4.1 Site Inspection

- 4.1.1 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.
- 4.1.2 In the reporting month, 4 site inspections were carried out on 6, 13, 20 and 27 March 2023.
- 4.1.3 No outstanding issues were reported during the reporting month. The Site Environmental Audit are summarized in **Appendix K**.

#### 4.2 Advice on the Solid and Liquid Waste Management Status

- 4.2.1 The Contractor registered as a chemical waste producer for the Contract. Sufficient numbers of receptacles were available for general refuse collection and sorting.
- 4.2.2 The monthly summary of waste flow table is detailed in **Appendix L**.
- 4.2.3 If off-site disposal is required, the excavated marine mud from the land-based works shall be disposed of at the designated disposal sites within Hong Kong as allocated by the Marine Fill Committee or other locations as agreed by the Director. The Contractor shall ensure no spilling and overflowing of materials during loading / unloading / transportation is allowed.
- 4.2.4 The Contractor was reminded that chemical waste should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packing, Labelling and Storage of Chemical Waste.



# 5. NON-COMPLIANCE, COMPLAINTS, NOTIFICATIONS OF SUMMONS AND SUCCESSFUL PROSECUTIONS

#### 5.1 Non-compliance (Exceedances of Action & Limit levels)

- 5.1.1 No Action / Limit Level exceedance was recorded for 1-hr TSP level at CA\_M1(a) in the reporting month.
- 5.1.2 No Action / Limit Level exceedance was recorded for construction noise at CN\_M1 & CN\_M2 in the reporting month.
- 5.1.3 No corrective actions were required according to the Event-Action Plans.

#### 5.2 Complaints, Notification of Summons and Prosecution

- 5.2.1 No environmental complaint, notification of summons and successful prosecution were received in the reporting month.
- 5.2.2 Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Appendix M**.
- 5.2.3 No corrective actions were required.



# 6. IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURE

#### 6.1 Implementation Status

The Contractor had implemented environmental mitigation measures and requirements as stated in the EIA Report, the EP and EM&A Manual. **Appendix N** summarized the Implementation Status of Environment Mitigation Measures.



# 7. FUTURE KEY ISSUES

#### 7.1 Construction Programme for the Next Month

Pump Room – Structure - Wall to CJ 500mm below S1

- Remove S2 and concrete packing
- Internal falsework and working platform
- Vertical blinding against pipe pile
- Waterproofing on vertical blinding
- External working platform and formwork
- Rebar
- Internal formwork
- Concreting
- Remove formwork and trim CJ

Pump Room – Structure - Ground Slab

• Remove noise cover and S1 including concrete packing

**Rising Main and Gravity Sewer** 

- Earthwork and ELS
- Install sewer & rising main and concrete manhole

Transformer Room and Switch Room

• Wall and roof slab

#### 7.2 Key Issues for the Coming Month

7.2.1 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.

#### 7.3 Monitoring Schedules for the Next Month

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



# 8. CONCLUSION AND RECOMMENDATION

#### 8.1 Conclusions

- 8.1.1 1-hour TSP impact monitoring was carried out in the reporting month. No Action / Limit Level exceedance at CA\_M1(a) was recorded during the period.
- 8.1.2 Construction noise monitoring was carried out in the reporting month. No Action / Limit Level exceedance at CN\_M1 & CN\_M2 was recorded during the period.
- 8.1.3 Four environmental site inspections were carried out in the reporting month. Recommendations on mitigation measures for Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 8.1.4 Two landscape and visual site audits were carried out in the reporting month. Recommendations on mitigation measures for Permit/ Licenses were given to the Contractor for remediating the deficiencies identified during the site inspections.
- 8.1.5 Referring to the Contractor's information, no environmental complaint, notification of summons and successful prosecution was received in the reporting month.

#### 8.2 Comment and Recommendations

8.2.1 The recommended environmental mitigation measures, as proposed in the EIA report and EM&A Manual 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.

# 8.2.2 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.

Construction Noise Impact

• No specific observation was identified in the reporting month.

Water Quality Impact

No specific observation was identified in the reporting month.

Chemical Waste and Construction Waste Management

- No specific observation was identified in the reporting month. Landscape and Visual Impact
- No specific observation was identified in the reporting month.

Permit/ Licenses

• No specific observation was identified in the reporting month.



# Figure 1.1

Location of the proposed Sai O Trunk SPS







#### PROJECT

**TOLO HARBOUR** SEWERAGE OF UNSEWERED AREAS STAGE 2 -INVESTIGATION, DESIGN AND CONSTRUCTION CLIENT



算法 新聞 Drainage Services De

#### CONSULTANT 工程期間公司

AECOM Asia Company Ltd. www.aecom.com

## SUB-CONSULTANTS

#### ISSUE/REVISION



#### STATUS

## SCALE 比例

DIMENSION UNIT

A1 1 : 1500

METRES

KEY PLAN



#### CONTRACT NO.

60547289

SHEET TITLE

LOCATION OF THE PROPOSED SAI O TRUNK SEWER SEWAGE PUMPING STATION

#### SHEET NUMBER

60547289/EM&A/FIGURE 1.1

# Figure 2.1

Air Quality Monitoring Location





SITE BOUNDARY 500m ASSESSMENT AREA South ASSESSMENT AREA
 REPRESENTATIVE AIR
 SENSITIVE RECEIVER
 (CA\_MI1(a)) PROPOSED AIR QUALITY MONITORING
 POINT DURING CONSTRUCTION PHASE



#### PROJECT

TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS STAGE 2 -INVESTIGATION, DESIGN AND CONSTRUCTION CLIENT



築務署 Drainage Services Department

#### CONSULTANT

AECOM Asia Company Ltd. www.aecom.com

#### SUB-CONSULTANTS 分词工程随因公司

#### ISSUE/REVISION



#### STATUS

SCALE

DIMENSION UNIT

A11:2000

METRES

KEY PLAN

PROJECT NO.

CONTRACT NO.

60547289

SHEET TITLE

LOCATIONS OF PROPOSED DUST MOINTORING POINT

#### SHEET NUMBER

60547289/EM&A/FIGURE 2.1

# Figure 3.1

Noise Monitoring Locations







#### PROJECT

TOLO HARBOUR SEWERAGE OF UNSEWERED AREAS STAGE 2 -INVESTIGATION, DESIGN AND CONSTRUCTION CLIENT



算法 新考 Drainage Services De

#### CONSULTANT 工程期間公司

AECOM Asia Company Ltd. www.aecom.com

#### SUB-CONSULTANTS 分列工程期間公司

#### ISSUE/REVISION



#### STATUS

### SCALE 比例

DIMENSION UNIT

CONTRACT NO.

A1 1 : 1500

METRE

KEY PLAN #헤르

## PROJECT NO.

60547289

#### SHEET TITLE

LOCATIONS OF PROPOSED NOISE MOINTORING POINT

#### SHEET NUMBER

60547289/EM&A/FIGURE 3.1

# **Appendix A**

**Project Organization Chart** 





#### PROJECT मा

**TOLO HARBOUR** SEWERAGE OF UNSEWERED AREAS STAGE 2 -INVESTIGATION, DESIGN AND CONSTRUCTION 



集務署 Drainage Services De

#### CONSULTANT 工程期间公司

AECOM Asia Company Ltd. www.aecom.com

#### SUB-CONSULTANTS 分式電纜間公司

#### ISSUE/REVISION



#### STATUS

SCALE

#### DIMENSION UNIT

CONTRACT NO.

A11: AS SHOUWN

#### KEY PLAN #헤르

#### PROJECT NO.

60547289

#### SHEET TITLE

PROJECT ORGANISATION

#### SHEET NUMBER

60547289/EM&A/FIGURE 1.2

# **Appendix B**

**Construction Programme** 

fugro



				June		ylı
21	28		04	11	18	25 2
	•					
					•	·
		F	Revision		Checke	d Appr
						_

ID	Activity	Days	Start	Finish	<b></b>	March		A	Anril	20	023	May		June		
					26	05 12	19 26	02 09	16	23	30	07 14	21 28	04 11	18	25
SSR1540	Noise barrier footing (NB19, NB20, NB21), 180m 2WF	198	25-Jul-22 A	31-May-23				· · · · · · · · · · · · · · · · · · ·		·						
SSR1550	Drainage (carrier), 176m	65	18-Apr-23	06-Jul-23												
SSR1570	Site formation work Page (P100: Cb280, 450)	26	28-Jun-23	29-Jul-23												
East Bound (Po	rtions 5 & 26)															
Utilities Works										+						
SSR2120	CLP (3 x 170m), 50m/wk, 2WF	26	03-Feb-23 A	04-Mar-23 A					}							
West Bound																
SSR2562	Noise barrier footing NB24, 86m	105	25-Oct-22 A	29-Apr-23		·····										
SSR2565	Drainage (twin DN 1100) stage 1	153	15-Aug-22 A	08-Mar-23 A												
SSR2568	Drainage (twin DN1100) stage 2	36	15-Apr-23	29-May-23												
SSR2570	Drainage (carrier) stage 1	32	07-Feb-23 A	15-Apr-23						ļļ.						
SSR2575		12	17-Apr-25	04-1vidy-25												
Area 3 - Sai Sha	Road (R100: Ch450-800)	00	05 Widy 25	17 Jul 25				+		÷+-						
West Bound																
SSR3535	RW17: Bay 34a, 34b and 34c footing	48	27-Mar-23 A	01-Jun-23			· · · · · · · · · · · · · · · · · · ·	-+-jjj		;; ; ;		; ;				
SSR3545	RW17: Bay 34 - 41 - pile cap	48	17-Dec-22 A	29-Apr-23												
SSR3560	Drainage (carrier), stage 2 - 146m	78	12-Apr-23	15-Jul-23												
Slope No.8																
SSR3730	Excavation to +20mPD and Construct U-Channel	30	31-Jan-23 A	06-Mar-23 A												
SSR3740	Excavation to below +18mPD Soil Naile (12 po c)	20	21 Mar 22	13-IVIAI-23 A				<u></u>	+							
SSR3750	Suit Nalis (12 HO.S)	20	12-Δpr-23	12-Api-23												
SSR3700	Soil Nails (12 no s)	7	06-May-23	13-May-23												
SSR3780	Excavation to F.L. (approx +14mPD)	11	15-May-23	27-May-23												
SSR3790	Construct U Channels & Hydroseeding	70	06-Mar-23 A	17-Jun-23					-							
Areas 4 - Sai Sha	Road (R100: Ch800-960)															
East Bound									]							
Utilities Works			1													
SSR4190	CATV-160m,CMHK-160m,HGC-160m,HKBN-160m,HKT-160m,SMT-45m,TGT-160m,VTL-19	56	13-Feb-23 A	10-May-23												
West Bound		50								ļ						
SSR4568	Noise barrier NB33 - pile Caps	53	06-IVIar-23 A	11-IVIAY-23												
SSR/1570	Drainage (carrier) stage 1	58	20-rep-23 A	15-Api-25												
SSR4575	Utility and footpath	24	31-Mar-23	03-May-23					- <u>-</u>	·						
SSR4577	TTM to divert footpath	1	04-May-23	04-May-23												
SSR4578	Site formation work stage 1	12	, 17-Jun-23	, 03-Jul-23	1-1											
Utilities Works																
SSR4700	Waterworks (DN400/DN600, 190m incl W/B)	78	07-Jan-22 A	09-Jun-23												
Che Ha Road																
	Access Road - Advanced Works	24	21_Mar_22*	03-May-23						<u>¦</u>						
CHR0030	Trial Pit / UIL Detection	18	04-May-23	24-May-23												
CHR0040	Instrumentation	12	04-May-23	17-May-23				1								
CHR0050	BD Consent	0	, 15-Apr-23*		1			•								
CHR0060	BA10	6	15-Apr-23	21-Apr-23												
Section 1 - Che	Ha Road Roundabout								]							
CHR0120	Workfront 1 - excavation for retaining wall (RW), 12 bays	48	25-May-23	22-Jul-23												
CHR0130	Workfront 1 - plate load test	6	02-Jun-23	08-Jun-23												
CHR0140	Workfront 1 - RW base slab, 12 bays	48	09-Jun-23	05-Aug-23												
CHR0150	Workfront 1 - RW Wall stem, 12 bays	96	19-Jun-23	25 May 22												
CHR0152	Workfront 2 - excavation for retaining wall (RVV), 7 bays	6	22-Apr-23	25-IVIdy-25												
CHR0160	Workfront 2 - BW base slab. 7 bays	28	08-May-23	09-Jun-23												
CHR0170	Workfront 2 - RW wall stem, 7 bays	56	17-May-23	24-Jul-23	1									· · · · · · · · · · · · · · · · · · ·		
Section 3 - Villa	ge Junciton to End of Che Ha Road															
CHR0520	Settle village issue	0	01-Jun-23*						}				•			
CHR0530	Sewerage and drainage works	96	01-Jun-23	22-Sep-23												
Areas 5 - Sai Sha	a Road (R100: Ch960-1110)															
West Bound																
SSR5550	Drainage (carrier), 150m	58	05-May-23	15-Jul-23												
SSR5700	Waterworks (DN400/DN600, 150m incl W/B)	75	11-Jan-23 A	15-Jun-23			······	·····		<u>.</u>						
							· ·		i	i i		Data		l	Chockod	
				S	AI SH	A ROAD WIDEN	IING					P. 2	- F	IC VISIUI I	Unecked	
																+
		тыг						1/02/2022								+
								1/03/2023								+
											SSR - R					+
												L				

ID	Activity	Days	Start	Finish	1	March				Aoril	20	)23	May				June			
					26 05	12	19	26	02 09	16	23	30	07 14	21	28	04	11 18	25		
Area 6 - Sai Sh	a Road (R100: Ch1100 - R200: Ch180)																			
West Bound (	Stage 2)										+									
SSR6570	Remove temporary pavement	79	27-Jun-22 A	23-Mar-23 A																
SSR6580	Site formation work	90	05-Sep-22 A	06-May-23																
SSR6610	Roadworks (incl Permanent Roundabout & Fire Hydrants)	10	25-Juli-25	14-Jul-25			·				<u> </u>									
Utilities Works	Roadworks (incline maneric Roandabour & Fire Hydranis)	50	07 OCI 22 A	21 Jun 25																
SSR6590	CLP (210m), 50m/wk	28	26-Nov-22 A	27-Apr-23		·•			·····											
SSR6600	CATV-35m,CMHK-210m,HGC-210m,HKBN-210m,HKT-210m,SMT-210m,VTL-140m)	52	02-Feb-23 A	06-Jun-23					· · · · · · · · · · · · · · · · · · ·											
Soft Landscap	ing Works						]													
SSR6810	Soft Lanscaping Works	56	06-Jun-23	12-Aug-23																
Area 7 - Sai Sh	a Road (R200: Ch180 - R300: Ch140)																			
East Bound																				
	CAT\/140m CMHK-140m HGC-140m HKBN-140m HKT-140m TGT-140m\/TL-140m\//T-1	24	31-Mar-23	03-May-23			+			<u></u>	- <u> </u>									
West Bound	CALA-T4011/CALINE-T4011/11C-T4011/11C14011/11C1-T4011/101-T4011/01-T4011/01-T4011/01-T4011/01-T4011/01-T4011/01	24	51-Ividi-25	05-10189-25			++				+									
SSR7547	RW8: Structure, 7 Bays	85	11-Feb-23 A	05-May-23																
SSR7558	SPW4: Lagging Wall and Capping beam	66	30-Dec-22 A	, 31-Mar-23 A			· · · · · · · · · · · · · · · · · · ·				+									
SSR7570	Waterworks	24	06-May-23	03-Jun-23								•								
SSR7610	Drainage (carrier), 190m	52	18-May-23	20-Jul-23																
Area 8 - Sai Sh	a Road (R300: Ch140-314)																			
East Bound				10.1.1		÷		·····			<u>.</u>									
SSR8060	Installation of Noise Barrier Panels at NB17/18	30	31-Mar-23*	10-May-23																
	Stage 1 Designage (exercise)	109	14 Eab 22 A	27 Jun 22																
55R8540	Stage 1 - Drainage (carner)	108	28-lun-23	27-Juli-23							++-									
Utilities Conne	ction		20 Jun 23	12 501 25				••••••												
Towngas																				
UC1020	Completion of Towngas Works	0		31-Mar-23				•	•											
UC1030	Towngas Connection Works (say, 2 months)	59	31-Mar-23	15-Jun-23*						1					1					
Waterworks																				
UC1060	Completion of Waterworks (Outside Green Area)	0		31-May-23											•					
UC1070	Completion of Waterworks (Green Area) except Area 7 to Tin Liu Road	0		15-Jun-23													•			
UC1080	Waterwork Connection	52	16-Jun-23	17-Aug-23*																
Area 7.1 - Acce	ess Road to Tin Liu Village																			
TL P2510	Lagging Wall SrWS Zone 1	60	05-Dec-22 A	20-Mar-23 A			<u>.</u>				++-									
Stage 3 - Road	dworks	00	05 DCC 22 A	20 10101 23 7			+	••••••	+ +		++-									
TLR3110	Zone 1: Drainage, 50m	24	31-Mar-23	03-May-23			1	•••••			- <u>+</u>									
TLR3125	Zone 1: gasmain and telecom duct	24	04-May-23	01-Jun-23																
TLR3130	Zone 1: Roadworks (permanent 1st half and temporary)	24	02-Jun-23	30-Jun-23						]										
TLR3210	Zone 2: Drainage, 50m	52	31-Mar-23	06-Jun-23		¦										<u>-</u>				
TLR3225	Zone 2: gasmain and telecom duct	24	07-Jun-23	06-Jul-23							+									
Tseng Tau Roa	d (Section 2 of the Works)																			
Area 7.2 - Tser	ng Tau Road (R400: Ch100-250)						+													
TTR1465	RW/27-29 - Bay 1 - BD innection of formation condition	1	06-Mar-23 A	06-Mar-23 A																
TTR1518	RW27-29 (4 bass)	110	07-Mar-23 A	15-Iul-23		·														
TTR1524	RW 6 - RC works (15 bays)	170	10-Nov-22 A	28-Jul-23							+									
TTR1527	Rising main from Site B (9 ways) (Nga Yiu Tau Road - RW6 Bay 10)	130	20-Oct-22 A	28-Jul-23	- <u>+</u>	- <del>;</del>	······		+	- <u>(</u>		<u> </u>					· · · · · · · · · · · · · · · · · · ·			
TTR1535	Rising main from Site B (9 ways) (RW6 Bay 9 - RW 27-29)	126	31-Mar-23	02-Sep-23				•												
Area 7.3 - Outs	standing Works at Tseng Tau Road																			
Stage 1 Eastbo	bund Lane including Footpath / Cycle Track / Planter																			
A2150	Footpath, cycle track and amenity	115	17-Oct-22 A	06-Jun-23																
Stage 2 - Wes	toound Lane	22	27 Eab 22 A	15 14-4 22 4			+													
A1750	Local mappale covers & guilty gratings	22	27-Feb-23 A 31-Mar-23	15-IVIar-23 A							<u>.</u>									
A1755	TTM for permanent traffic including road marking	24	24-May-23	25-May-23							++-									
A1757	Traffic signs and street furniture	12	10-May-23	23-May-23		+					++-									
Stage 3 - Foot	path/Planter (Site B Side)			, -																
A1770	Utility (Telecom & lighting)	34	21-Feb-23 A	04-May-23					· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·		1					
A1775	Cable & lighting installation (by others)	12	05-May-23	18-May-23											]					
A1790	Construct U channel & E2 kerb along footpath, 320m, 100m/wk	24	24-Mar-23 A	28-Apr-23																
A1810	Filling to permanent level (300m3), say 2 layers	24	11-Apr-23	09-May-23																
				54		ים וא י							P. 3 Date			Revision	Chec	ked Appr		
				07									- 12-Apr-23							
		THF	REE MON	NTHLY F	Rolling PF	ROGRAN	MME AS C	DF 31	/03/2023											
												SSR - R								
U	Activity Days Start Finish 2023					523	May													
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					26	05	12	19 26	02	Ap		23	30	07	14	21	28	04 June	18	25
A1815	Construct traffic islands and roundabout	24	27-Mav-23	24-Jun-23				20	52		10						_~	<u> </u>		
Δ1818	Footpath paving blocks	24	25-Δnr-22	23-Mav-22	<u> </u> -								<u> </u>	·····					++	
Stare 4 Coft L	andscaning Works	27		23 IVIUY-23	l															
5/dge 4 - 50/1 L	Soft landscaning works	24	24-14-14-22	21_lun 22	<b> </b> -											·····				
A1020	Juil lanuscapility works	24	24-iVidy-23	21-JUII-23																
	Completion of Outstanding works at Iseng Tau Koad	U		24-JUN-23	<u> </u>	¦													+	
Iseng Tau Pump																				
Green Roof					<u> . </u>					<u></u>			L							
TTSPS1073	Finishing works and metal works	0	25-Feb-23 A	02-May-23																
TTSPS1074	Place planter soil for Green Roof includes Irrigation System	20	31-Mar-23	27-Apr-23	<b> </b> .									<u></u>			<u></u>		<u></u>	<u></u> _
TTSPS1075	Planting works on green roof	52	27-Apr-23	30-Jun-23	<u> </u>															
External Works	s and ABWF/E&M Works																			[1]
TTSPS1120	E&M works	140	21-Nov-22 A	24-Jun-23									!							
TTSPS1130	ABWF works (interior finish and building envelope)	100	25-Aug-22 A	29-Apr-23																
TTSPS1132	Remaining Boundary Wall and Additional Manhole	90	30-Jan-23 A	06-Jun-23									÷							
TTSPS1135	External works (fencing, planter, EVA, signage, etc)	48	31-Mar-23	01-Jun-23						·	·									
T&C and Statut																			+	
		26	21_May_22	20-lun-22															- <del> </del>	
TTSP51140		20	51-IVIdy-25	27 Jul 22																
TISPS1150	FSD Inspection, ASD Inspection, OP	18	06-Jun-23	27-JUN-23															·	
Works Outside	Green Area (Section 3 of the Works)																			
(1) Pipe Jacking	for DN1800 Rising Main				<b> </b> -															
Section 1 (684r	m) - Shaft 3 to Shaft 4				<u>  .</u>						l		l							
RM1093	Lay twin DN630 pipes, pressure test and grouting to Shaft 4 (454m)	126	15-Mar-22 A	30-Mar-23 A																
RM1098	Construct Inspection Chamber at Shaft 3A	78	20-Sep-22 A	27-Mar-23 A																
Section 3 (147r	m) - Shaft 5 to Shaft 4				[]								[							
RM1320	Set Up in Shaft 5	24	23-Aug-21 A	31-Mar-23		1														
Section 5 (420r	m) - Shaft 7 to Ma On Shan (Gravity Sewer by Trench Method)				1															
RM1290	Gravity sewer M4.01 to M4.15 (363m)	300	25-Oct-21 A	31-May-23				·····		·			+							
Final Pressure	Backfilling and Reinstatement	300	10 500 LI A	52 . May 25	l	·													++	
	Dackfilling and reinstatement at Chaft 4 and Chaft 7	E.2	27 1	21 Mar 22 4	l														+	
	Dauxining driu reinstatement at Shaft 4 and Shaft 7	53	27-JUN-22 A	31-IVIAr-23 A															+	
RM1280	Final pressure test (Shaft 1 to 7)	52	18-Feb-23 A	30-IVIar-23 A																
Waterworks Ou	Iside Green Area with 4 WF (Refer to Detailed Prog)	1			<u> </u>															
WW1110	Waterworks - Work Front 1 (700m)	480	02-Dec-19 A	31-May-23		·														
WW1120	Waterworks - Work Front 2 (960m)	550	31-Jul-20 A	17-May-23		<u> </u>	l			<u></u>										
WW1135	Waterworks - Work Front 3, (1251m)	891	31-Mar-20 A	15-May-23											-					
WW1140	Waterworks - Work Front 4 (1835m)	700	02-Jan-20 A	13-May-23																
WW1145	Testing of Waterworks from Work Front 1 to Work Front 4	25	01-Jun-23*	30-Jun-23	Ι								[					 !		
Sai O Pumping	Station (Section 4)												[							
Pump Room																				
Structure - Bas	e Slab to CI 500mm below S3 (-5.50 mPD)				<b> </b> -														+	
SUBCODE	Base slah - waterproofing on vertical concrete face	2	28_Mar_22 A	28-Mar 22 4	<b> </b> -														++	
50F32200	Pace clab. Packfilling to E00mm below 52	2	20-1VIdI -23 A	11 Mar 22 A	┨-┼				+-+-+										-+	
SUPSZ270		5	09-IVIAL-53 A	11-IVIAI-23 A	<b> </b> -}														+	
Structure - Bas	e stab and vvali to CJ SUUMM below SZ (-U.SU MPD))				L.									·····						
SOPS2380	Base slab - remove formwork and trim CJ	2	28-Feb-23 A	U1-Mar-23 A	<b>-</b>															
SOPS2390	Base slab - waterproofing to vertical concrete face	2	04-Mar-23 A	04-Mar-23 A	ļ															
SOPS2400	Base slab - backfill to -3.90 mPD	2	09-Mar-23 A	11-Mar-23 A	L															
SOPS2480	Wall - remove formwork and trim CJ	2	27-Feb-23 A	01-Mar-23 A	<b>-</b>															
SOPS2490	Wall - waterproofing to vertical concrete face	2	04-Mar-23 A	04-Mar-23 A																
SOPS2500	Lay twin rising main to Pump Room	4	17-Mar-23 A	23-Mar-23 A	1															
SOPS2510	Backfilling to -0.50 mPD	3	09-Mar-23 A	11-Mar-23 A	Π					[										
Structure - Wal	ll to CJ 500mm below S1 (+2.20 mPD)				[]															
SOPS2550	Wall - remove S2 and concrete packing	11	25-Mar-23 A	11-Apr-23	1															
SOPS2560	Wall - internal falsework and working platform	23	23-Mar-23 A	22-Apr-23	11	;			· · · · · · · · · · · · · · · · · · ·	·	;}									
SOPS2570	Wall - vertical hlinding against nine nile	25	18-Mar-22 A	27_∆nr_72	<u> </u>		i							·····		+			++	
SOF 32370		21	10 IVIAI -23 A	22 Mpi=23	<b>∤</b> -}	·			· · · · · · · · · · · · · · · · · · ·					·····		·				
SOP(3500	Well, external working platform and formula	21	20-IVIdT-23 A	25-Apr-23																
SOPS2590	vvali - external working platform and formwork	4	24-Apr-23	27-Apr-23					· · · · · · · · · · · · · · · · · · ·				<u> </u>							
SOPS2600	Wall - rebar	21	03-Apr-23	02-May-23	<b> </b> -					<u></u>										
SOPS2610	Wall - internal formwork	22	11-Apr-23	06-May-23	<b> </b> .									<u></u>						
SOPS2620	Wall - concreting (to +2.20 mPD)	19	17-Apr-23	09-May-23	<b> </b>															
SOPS2630	Wall - remove formwork and trim CJ	19	20-Apr-23	12-May-23	<u> </u>															
SOPS2640	Wall - waterproofing to vertical concrete face	2	15-May-23	16-May-23																
SOPS2650	Backfilling to +2.20 mPD	4	17-May-23	20-May-23	Π															
Structure - Gro	und Slab				[]															
SOPS2700	Remove noise cover and S1 including conrete packing	33	19-Apr-23	29-Mav-23	1								+							
			p. 20			<u>, i</u>		i		1	. :		. :			. :		i	<u> </u>	;
				-											Date		R	evision	Checked	Appr
				SA	AI SHA	A ROAD	WIDEN	NNG						P.4	2-Anr-22				0001.00	
														Ľ	- npi-20					
		_												Ļ						
		THR	EE MON	ITHLY	ROLL	ING PR	DGRAN	1ME AS OF 3	1/03/2023											
								-	-											
													00n - NN							

D Activity Days				Finish	sh 2023												
							March					April				May	
					26	05	12	19	26	02	09	16	23	30	07	14	
SOPS2710	Wall and ground slab - internal false work and working platform	3	30-May-23	01-Jun-23													
SOPS2720	Wall and ground slab - vertical blinding against pipe pile	3	02-Jun-23	05-Jun-23													
SOPS2730	Wall and ground slab - waterproofing on vertical blinding	3	06-Jun-23	08-Jun-23													
SOPS2740	Wall and ground slab - external working platform and formwork	3	30-May-23	01-Jun-23													
SOPS2750	Wall and ground slab - wall rebar	4	09-Jun-23	13-Jun-23			-									-	
SOPS2760	Wall and ground slab - internal wall and soffit formwork	6	14-Jun-23	20-Jun-23													
SOPS2770	Wall and ground slab - ground slab rebar	4	21-Jun-23	26-Jun-23													
SOPS2780	Wall and ground slab - concreting	1	27-Jun-23	27-Jun-23													
SOPS2790	Wall and ground slab - remove formwork and trim CJ	2	28-Jun-23	29-Jun-23													
Rising Main and	d Gravity Sewer															}	
ELS																	
SOPS3020	Earthwork and ELS (3 layers of supports)	72	26-Nov-22 A	22-Apr-23													
Installation and	d Backfilling																
SOPS3030	Install sewer & risiing main and construct manholes	52	14-Mar-23 A	24-May-23								1				1	-
SOPS3040	Backfilling and remove 3 layers of supports	42	24-May-23	15-Jul-23												-	
Transformer Ro	oom and Switch Room																
SOPS4015	Cable trench	5	30-May-23	03-Jun-23													
SOPS4020	Wall and roof slab	50	14-Mar-23 A	16-May-23					;			:					
SOPS4030	Dwarf wall on roof and waterproofing	24	17-May-23	14-Jun-23													
ABWF Works																-	
SOPS5000	Interior finish - transformer room & switch room	26	05-Jun-23	06-Jul-23	[ [											}	
SOPS5030	Roof finish	52	15-Jun-23	16-Aug-23													

	5 000
	12-Apr-23
THREE MONTHLY BOLLING PROGRAMME AS OF 31/03/2023	
	nw/

				June		1.1
21	28	3	04	11	18	25
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		•				· · · · · · · · · · · · · · · · · · ·
		F	Revision		Checke	ed Appr
						1

# **Appendix C**

Equipment Calibration Certificates



Air Quality Monitoring Equipment







19/F, Fugro House – KCC2, 1 Kwai On Rd, Kwai Chung, NT, Hong Kong

## **TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET**

NA 1.1											
iviodel:		lisch IE-51	70			Date	of Calibration:	15-Feb-23			
Equipm	ent No.:	HVS-05				Next Cal	ibration Date:	14-Apr-23			
Location	า:						Technician:	Ho Woo			
				CO	NDI	TIONS					
		Sectored	Processo (bPa)	102	2 5 0	Co	racted Dressu	ro (mm Ha):	769		
		Sea Level	monoraturo (°C):	102:	3.5U	Cor		re (mm Hg):	768		
		Te	inperature ( c).		10.5		Tem	perature (K).	209		
				CALIBR	ΑΤΙΟ						
		N 4 I - I - [		1			Oatal Claura	2 1 1 0 0 5			
		Nodel:	11SCN 1E-5025A	<u>.</u>		C	Usia Siope:	2.11005			
	Calibr	ation Date:	2134 24-Apr-22	-			Expiry Date:	24-Apr-23			
CALIBRATIONS											
Plate	H2O (L)	H2O (R)	H2O	Qstd		I	IC		LINEAR		
No.	(in)	(in)	(in)	(m <sup>3</sup> /m	in)	(chart)	(corrected)	REG	RESSION		
18	8.70	-5.90	14.600	1.	856	61.00	62.22	Slope =	34.1427		
13	8.20	-5.30	13.500	1.	785	57.00	58.14	Intercept =	-2.2134		
10	7.40	-4.60	12.000	1.	683	53.00	54.06	Corr. coeff.=	0.9913		
7	6.20	-3.40	9.600	1.	507	49.00	49.98				
5	4.90	-2.80	7.700	1.	350	43.00	43.86				
Qstd = $IC = I[Sc$ $Qstd = =$ $IC = cor$ $I = actu$ $m = ca$ $b = cali$	1/m[Sqrt(H qrt(Pa/Pstd standard fle rected cha al chart res librator Qst	2O(Pa/Pstd )(Tstd/Ta)] ow rate rt response ponse td slope d intercept	)(Tstd/Ta))-b]		0	70.00 60.00 50.00	FLOW	RATE CHART			
Ta = act $Pa = act$ $Tstd = 2$ $Pstd = 7$	tual temper tual pressu 298 deg K 760 mm Hg	rature durin re during ca	g calibration (d Ilibration (mm I	eg K) Hg)	rt response (I	40.00					
<b>For subsequent calculation of sampler flow:</b> 1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)					Actual che	20.00					
<ul> <li>m = sampler slope</li> <li>b = sampler intercept</li> <li>l = chart response</li> <li>Tav = daily average temperature</li> <li>Pav = daily average pressure</li> </ul>						0.00	0.500 Standard	1.000 1.50 Flow Rate (m <sup>3</sup>	00 2.000 3/min)		
Calibra	ted by : _	Woo	Date :_16 <u>Fe</u>	b 2023	S	Supervised	by :	Date :	16 <u>Feb 2023</u>		



RECALIBRATION DUE DATE:

April 24, 2023

Certificate of Calibration

Calibration Certification Information											
Cal. Date:	April 24, 20	)22	Roots	meter S/N:	438320	Ta:	295	°K			
Operator:	Jim Tisch					Pa:	751.1	mm Hg			
Calibration	Model #:	TE-5025A	Calil	prator S/N:	2154		Ū.				
								7			
		Vol. Init	Vol. Final	ΔVol.	ΔTime	ΔP	ΔΗ				
	Run	(m3)	(m3)	(m3)	(min)	(mm Hg)	(in H2O)				
	1	1	2	1	1.4680	3.2	2.00				
	2	3	4	1	1.0350	6.4	4.00				
	3	5	6	1	0.9240	8.0	5.00				
	4	7	8	1	0.8800	8.8	5.50	-			
	5 9 10			1	0.7290	12.8	8.00				
			]	Data Tabula	tion			]			
	Vstd	Qstd	γ (Psid	/ ia /		Qa					
	(m3)	(x-axis)	(y-ax	IS)	Va	(x-axis)	(y-axis)	-			
	0.9941	0.0772	1.41	3U 02	0.9957	0.6783	0.8863	-			
	0.9696	1 0690	1.99	42	0.9915	1.0707	1.2534	-			
	0.9866	1 1212	2.23	27	0.9893	1 1 2 2 0	1.4014				
	0.9813	1 3461	2.34	52 60	0.9885	1 3484	1,4098	-			
		m=	2.110	005	0.5050	m= 1.321					
	OSTD	b=	-0.018	868	0A	b= -0.01172		1			
	2010	r=	0.999	998		r=	0.99998				
	[	97 - 17 - 17 - 17 - 17 - 17 - 17 - 17 -		Calculatio	1						
	Vstd=	ΔVol((Pa-ΔP)	/Pstd)(Tstd/Ta	a)	-						
	Qstd=	Vstd/∆Time			Qa=	Va/ATime	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	1			
			For subsequ	ent flow ra	te calculatio	ns:		1			
	Qstd=	1/m (( \\ \[ \] \[ \] \  \  \  \  \  \  \  \  \  \  \  \  \	Pa <u>Tstd</u> Pstd Ta	-))-b)	Qa=	1/m ((√∆ł	H(Ta/Pa))-b)				
	Standard	Conditions						1			
Tstd:	298.15	°K				RECA	LIBRATION				
Pstd	760	mm Hg				ommonde o	nnual rocalibrati	on nor 1000			
AH: calibrat	ormanomot	tor roading /:	n H2O)		10 Code	of Federal	Pogulations Part	50 to 51			
AP. rootsma	ter manome	eter reading (I	(mm Hg)		Appondia I	B to Dart FO	Regulations Part	JUIU JI,			
Ta: actual a	bsolute tem	perature (°K)	(111118)		Appendix B to Part 50, Reference Method for th						
Pa: actual b	arometric pr	ressure (mm	Hg)		Determination of Suspended Particulate Matter in						
b: intercept		Contract of the Contract of th			th	e Atmosphe	ere, 9.2.17, page	30			
m: slope	1949 Ballon Andrea Street Street Street						na an ann a ann an an an an an an an an				

sch Environmental, Inc.

45 South Miami Avenue

illage of Cleves, OH 45002

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



# CALIBRATION REPORT OF WIND METER

EP No.: EP Location:	-597/2021 Sai O Trunk Sewer Sev	wage Pumping Star	tion	Date of Calibration: Next Calibration Date: Technician:	30-Nov-2022 29-May-2023 Ho Woo				
Brand: Model:	Global Water GL500-7-2	Equipment ID:	WS-03						
			Anemometer						
Brand: Model:	Smart Sensor AR816	Equipment ID:	WS-03						
			Procedures:						
1.	Wind Still Test:	The wind speed s	sensor was held by hand until	stabilized.					
2.	Wind Speed Test:	By direct comparison the reading between the wind speed sensor and the Anemometer.							
3.	Wind Direction Test:	The wind meter was calibrated in-situ and compared with a marine compass from four directions.							

Wind Still Test:

Wind Speed (m/s)
0.00

Wind Speed Test:





Remarks:

- 1. Actual Wind Speed Value (m/s) = 0.8502 x (Reading of Global Water Instrument) + 0.031
- 2. Correlation coefficient  $(R^2) = 0.9941$
- 3. Acceptable Range:  $R^2 >= 0.99$

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# CALIBRATION REPORT OF WIND METER

Wind Direction Test:

	Marine Compass (o)
0	3
52	53
92	94
272	271

Report Date:

30/11/2022

Cheung Wang Ching Project Consultant

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Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report No. : 212769CA220614

Page 1 of 1

# CALIBRATION CERTIFICATE OF ANEMOMETER

## **Client Supplied Information**

Client : Fugro Technical Services Limited

Project : Calibration Services

## Details of Unit Under Test, UUT

Description :	Anemometer
Manufacturer :	Smart Sensor
Model No. :	AR816
Serial No.	N/A
Equipment ID. :	AM-001
	00 M 0000

Next Calibration Date : 28-Mar-2023

## Laboratory Information

Details of Reference Equipment -

Description : Reference Anemometer

Equipment ID.: R-101-4

Date of Calibration : 29-Mar-2022 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

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

## **Calibration Results :**

Reference Reading	UUT Reading	Error
(m/s)	(m/s)	(m/s)
2.1	2.0	-0.1
3.6	4.0	0.4
5.4	6.0	0.6
7.0	8.0	1.0
8.8	10.0	1.2

## **Remarks**:

1. The equipment being used in this calibration is traceable to recognized National Standards.

2. The expanded uncertainty is 0.5 m/s with a coverage factor of 2 at a confidence level of 95%.

3. The reported readings in this calibration are an average from 10 trials.

Checked by :	_Date : <u>81- 3</u>	<u>3 - 2022</u> Certified by	: Kit Leung	_ Date :_	1-4-2022
CA-R-297 (22/07/2009)		Leung	Kwok Tai (Assistan	t Manager)	

\*\* End of Report \*\*

Noise Monitoring Equipment





Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong Page 1 of 1

Report no.: 212769CA221783

# IBRATION CERTIFICATE OF SOUND LEVEL METER

### at Supplied Information

onent Supplied in	Iomation										
lient : Fugro Technical Services Ltd.											
Project : Calibration Services											
Details of Unit Under Test, UUT											
Description	: Sou	ind Level Meter									
Manufacturer	: Cas	ella									
		Meter	Microphone	e Preamplifier							
Model No.	:	CEL-63X	CE-251		CEL-4	95					
Serial No.	:	1488293	02772		00402	20					
Equipment ID	: N/A										
Next Calibration Da	te : 27	Jul-2023									
Specification Limit	: EN	61672-1: 2003 Class	5 1								
Laboratory Inform	ation										
Details of Reference	e Equipment -										
Description	: B & K Aco	ustic Multifunction Ca	alibrator 4226 (	Tradition	nal free	field set	ting)				
Equipment ID.	: R-108-1										
Date Receipt of UU	T : 27-Jul-202	2									
Date of Calibration	: 28-Jul-202	2									
Calibration Location	1 : Calibration	Laboratory of FTS	Ambient Te	emperati	ure :	20±2	°C				
Method Used	: By direct c	omparison	Relative Hu	umidity	:	<80% R	<b>≀</b> .Η.				
Calibration Result	s :	<b>*</b>									
Paramet	ers	Mean Value	e (dB)	Specific	ation L	imit(dB)					
	4000Hz	0.6		2.6	to	-0.6					
	2000Hz	1.0		2.8	to	-0.4					
A-weiathina	1000Hz	0.0		1.1	to	-1.1					
frequency	500Hz	-3.3		-1.8	to	-4.6					
response	250Hz	-8.6		-7.2	to	-10.0					
	125Hz	-16.1		-14.6	to	-17.6					
	63Hz	-26.1		-24.7	to	-27.7					
Differential level	94dB-104dB	0.0			± 0.6						
linearity	ity 104dB-114dB 0.0 ± 0.6										

### Remarks :

1. The equipment used in this calibration is traceable to recognized National Standards.

2. For calibration: Reference SPL are 94, 104 & 114dB, range setting is 20-140dB & time weighting is fast

- 3. The mean value is the average of four measurements.
- 4 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 : /\_\_\_\_\_ Certified by : \_\_\_\_\_ Date : \_\_\_\_\_ Date : \_\_\_\_\_ 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.: 212769CA221230

Page 1 of 1

## **CALIBRATION CERTIFICATE OF SOUND CALIBRATOR**

Client : Fugro Technical Services Ltd.

**Project : Calibration Services** 

## **Client Supplied Information**

. . . . . . .

Details of Unit Under	Test,	UU	Т
Description		:	Sound (

Description		: Sound Calibrator
Manufacturer		: Casella (Model CEL-120/1
Serial No.		: 3321858
Equipment ID		: N/A
Next Calibration Date	;	08-Jun-2023
Specification Limit	į	EN 60942: 2003 Class 1

## Laboratory Information

Details of Calibration Equipment

Description :	Reference Sound level meter		
Equipment ID. :	R-119-2		
Date of Calibration :	09-Jun-2022		
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)	Parameters (Setting of UUT) Mean Value (error of measurement)				
94dB	0.1 dB	+0.4dP			
114dB	0.1 dB	±0.40D			

## **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 :	Cerny	Date :_	24-6-2022	Certified by :_	K.T. Jeun M	Date : 75- 6-707
CA-R-297 (22/07/20	009)			Leung	Kwok Tai (Assista	ant Manager)
			**	End of Report *	*	

End of Report



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report No. : 212769CA221052(1)

Page 1 of 1

# CALIBRATION CERTIFICATE OF ANEMOMETER

## **Client Supplied Information**

Client : Fugro Technical Services Limited

Project : Calibration Services

## Details of Unit Under Test, UUT

Description	:	Anemor	neter
Manufacturer	:	BENET	ECH
Model No.	;	GM816	
Serial No.	:	N/A	
Equipment ID.	÷	WS-10	
		~~	

Next Calibration Date : 30-May-2023

## Laboratory Information

Details of Reference Equipment -

Description : Reference Anemometer

Equipment ID.: R-101-4

Date of Calibration : 31-May-2022 Ambient Temperature : 22 °C

Calibration Location : Calibration Laboratory of FTS

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

## **Calibration Results :**

Reference Reading	UUT Reading	Error
(m/s)	(m/s)	(m/s)
2.0	1.9	-0.1
4.0	3.7	-0.3
6.0	5.3	-0.8
8.0	7.0	-1.0
10.0	8.7	-1.3

## **Remarks**:

1. The equipment being used in this calibration is traceable to recognized National Standards.

2. The expanded uncertainty is 0.5 m/s with a coverage factor of 2 at a confidence level of 95%.

3. The reported readings in this calibration are an average from 10 trials.

 Checked by :
 Curve
 Date :
 31-5-2022
 Certified by :
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\*\* End of Report \*\*

# **Appendix D**

Environmental Monitoring Schedule



# Project: EP-597/2021 Sai O Trunk Sewer Sewage Pumping Station

Sun	Mon	Tue	Wed	Thur	Fri	Sat
			1 March	2 • AQM • NM	3	4
5	6 • Site Inspection	7	8 • AQM • NM	9	10	11
12	<ul><li>13</li><li>Site Inspection</li></ul>	14 • AQM • NM	15	16	17	18
19	20 • Site Inspection • AQM • NM	21	22	23	24 • AQM	25
26	<ul><li>27</li><li>Site Inspection</li></ul>	28	29	30 • AQM • NM	31	

# Impact Air Quality & Noise Monitoring Schedule (March 2023)

## Remarks

- 1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition;
- 2. Air Quality Monitoring(AQM): 3 x 1-hours TSP Monitoring in every 6 days;
- Monitoring Locations: CA\_M1(a) Construction Site Boundary near Hong Kong Baptist Theological Seminary (HKBTS) Staff & Students Quarters
- Noise Monitoring(NM): one set of Leq (30 min) between 0700 and 1900 hours on normal weekdays once a week; Monitoring Locations: CN\_M1 In front of the HKBTS Staff & Students Quarters Monitoring Locations: CN\_M2 In front of the HKBTS Administration and Education Block
- 4. Site Inspection: Once a week



# Project: EP-597/2021 Sai O Trunk Sewer Sewage Pumping Station

# Impact Air Quality & Noise Monitoring Schedule (April 2023)

Sun	Mon	Tue	Wed	Thur	Fri	Sat
						1 April
2	<ul><li>3</li><li>• Site Inspection</li></ul>	4	5 • AQM • NM	6	7	8
9	10	<ul><li>11</li><li>Site Inspection</li><li>AQM</li><li>NM</li></ul>	12	13	14	15
16	<ul><li>17</li><li>Site Inspection</li><li>AQM</li><li>NM</li></ul>	18	19	20	21 • AQM	22
23/30	<ul><li>24</li><li>Site Inspection</li></ul>	25	26	27 • AQM • NM	28	29

## Remarks

1. Actual monitoring may be subjected to change due to any safety concern or adverse weather condition;

2. Air Quality Monitoring(AQM): 3 x 1-hours TSP Monitoring in every 6 days; Monitoring Locations: CA\_M1(a) Construction Site Boundary near Hong Kong Baptist Theological Seminary (HKBTS) Staff & Students Quarters

 Noise Monitoring(NM): one set of Leq (30 min) between 0700 and 1900 hours on normal weekdays once a week; Monitoring Locations: CN\_M1 In front of the HKBTS Staff & Students Quarters Monitoring Locations: CN\_M2 In front of the HKBTS Administration and Education Block

4. Site Inspection: Once a week



# **Appendix E**

Air Quality & Construction Noise Monitoring Results

UGRO

### 1-hr TSP Monitoring Results

#### Monitoring Location : CA\_M1(a) Construction Site Boundary near Hong Kong Baptist Theological Seminary (HKBTS) Staff & Students Quarters

				Elapsed-Ti	me Meter	Sampling	Temperature	Atmospheric	Filte	er Paper \	Neight		Flow Rate	Э	Total		Concen	tration	
Start Date	Start Time	Weather Condition	Filter Identification No.	Start	Stop	Time (min)	(K)	Pressure (mmHg)	Initial Weight	Final Weight	Particulate Weight	Intial	Final	Average	Volume (m <sup>3</sup> )	Value	Average	Action Level	Limit Level
	13:15	Fine	M11525	6197.41	6198.39	59	292.8	767.9	2.6833	2.6935	0.010	1.37	1.37	1.37	80.65	126.5			
2-Mar-23	14:19	Fine	M11516	6198.39	6199.37	59	292.8	767.9	2.7473	2.7546	0.007	1.25	1.25	1.25	73.67	99.1	102.6	339	500
	15:17	Fine	M11520	6199.37	6200.35	59	292.8	767.9	2.6916	2.6978	0.006	1.28	1.28	1.28	75.42	82.2			1
	8:56	Fine	M11579	6200.35	6201.33	59	294.6	764.8	2.7218	2.7255	0.004	1.39	1.39	1.39	82.00	45.1			
8-Mar-23	10:01	Fine	M11578	6201.33	6202.31	59	294.6	764.8	2.7172	2.7224	0.005	1.34	1.37	1.35	79.40	65.5	53.7	339	500
	11:05	Fine	M11580	6202.31	6203.29	59	294.6	764.8	2.7208	2.7245	0.004	1.25	1.25	1.25	73.32	50.5			
	9:00	Fine	M11581	6203.29	6204.27	59	292.7	762.7	2.7372	2.7483	0.011	1.40	1.40	1.40	82.15	135.1			
14-Mar-23	10:04	Fine	M11534	6204.27	6205.25	59	292.7	762.7	2.6782	2.6841	0.006	1.25	1.25	1.25	73.44	80.3	97.7	339	500
	11:23	Fine	M11535	6205.25	6206.23	59	292.7	762.7	2.6815	2.6872	0.006	1.25	1.25	1.25	73.44	77.6			
	10:18	Cloudy	M11582	6206.23	6207.21	59	294.8	759.1	2.7298	2.7421	0.012	1.42	1.45	1.43	84.28	145.9			
20-Mar-23	11:22	Cloudy	M11537	6207.21	6208.19	59	294.8	759.1	2.7166	2.7243	0.008	1.18	1.18	1.18	69.57	110.7	117.2	339	500
	12:26	Cloudy	M11588	6208.19	6209.17	59	294.8	759.1	2.7108	2.7184	0.008	1.36	1.36	1.36	79.95	95.1			1
	9:41	Fine	M11691	6209.17	6210.15	59	298.6	758.6	2.6930	2.7027	0.010	1.26	1.26	1.26	74.29	130.6			1
24-Mar-23	10:49	Fine	M11688	6210.15	6211.13	59	298.6	758.6	2.6943	2.7030	0.009	1.26	1.26	1.26	74.29	117.1	116.2	339	500
	11:58	Fine	M11683	6211.13	6212.11	59	298.6	758.6	2.6705	2.6787	0.008	1.38	1.38	1.38	81.16	101.0			1
	9:41	Fine	M11591	6212.11	6213.09	59	293.8	759.7	2.7282	2.7342	0.006	1.24	1.24	1.24	73.18	82.0			1
30-Mar-23	10:43	Fine	M11684	6213.09	6214.07	59	293.8	759.7	2.6705	2.6773	0.007	1.24	1.24	1.24	73.18	92.9	94.0	339	500
	11:49	Fine	M11592	6214.07	6215.05	59	293.8	759.7	2.7195	2.7277	0.008	1.30	1.30	1.30	76.65	107.0			1
															Min	45.1			
															Maria	145.0			

Max 145.9 Average 96.9





Report No. : 181172EN230658

# 

Page 1 of 1

## **Test Report on Analysis of Filters**

## Information Supplied by Client

Client	:	Fugro Technical Services Ltd.
Client's address	•	13/F, Fugro House – KCC2, No.1 Kwai On Road, Kwai Chung, N.T., H.K.
Project	:	Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Station
Sample description	:	3 samples of TSP filter paper
Sample identification	:	-
Sampling date	:	-
Test required	1	Provision of conditioned & tared filter paper and subsequent reconditioning and reweighing of returned filter paper for TSP monitoring
Laboratory Information		
Filter paper I.D.	•	M11516, M11520, M11525
Date of receipt of sample	:	02/03/2023
Date test completed	:	04/03/2023
Test method used	•	USEPA Method 40 CFR Part 50 Appendix B.

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g		
M11516	2.7473	2.7546		
M11520	2.6916	2.6978		
M11525	2.6833	2.6935		

Supervised by:C.H. Chiu	Certified by	Approved Signatory: HO Kin Man, John sistant General Manager – Laboratories
	Date ** End of Report **	2 (3 (2023



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

# Report No. : 181172EN230658(1)

Page 1 of 1

### Information Supplied by Client Fugro Technical Services Ltd. Client • 13/F, Fugro House - KCC2, No.1 Kwai On Road, Kwai Chung, Client's address N.T., H.K. Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Project Station 3 samples of TSP filter paper Sample description ÷ Sample identification : Sampling date • Provision of conditioned & tared filter paper and subsequent Test required reconditioning and reweighing of returned filter paper for TSP monitoring Laboratory Information Filter paper I.D. : M11578, M11579, M11580 Date of receipt of sample : 08/03/2023 Date test completed 09/03/2023 : Test method used USEPA Method 40 CFR Part 50 Appendix B. :

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g		
M11578	2.7172	2.7224		
M11579	2.7218	2.7255		
M11580	2.7208	2.7245		

Supervised by : \_\_\_\_\_C.H. Chiu Certified by Approved Signatory: HO Kin Man, John Assistant General Manager - Laboratories 3 w Date \*\* End of Report \*\*



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

# Report No. : 181172EN230658(2)

Page 1 of 1

Information Supplied by Client					
Client	:	Fugro Technical Services Ltd.			
Client's address	:	13/F, Fugro House – KCC2, No.1 Kwai On Road, Kwai Chung, N.T., H.K.			
Project	:	Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Station			
Sample description	:	3 samples of TSP filter paper			
Sample identification	:	-			
Sampling date	:	-			
Test required :		Provision of conditioned & tared filter paper and subsequent reconditioning and reweighing of returned filter paper for TSP monitoring			
Laboratory Information					
Filter paper I.D.	:	M11534, M11535, M11581			
Date of receipt of sample	:	14/03/2023			
Date test completed	:	16/03/2023			
Test method used	:	USEPA Method 40 CFR Part 50 Appendix B.			

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g	
M11534	2.6782	2.6841	
M11535	2.6815	2.6872	
M11581	2.7372	2.7483	

Supervised by : \_\_\_\_\_ C.H. Chiu Certified by Approved Signatory: HO Kin Man, John Assistant General Manager - Laboratories 2013/2022 Date \*\* End of Report \*\*



## Report No. : 181172EN230658(3)

Page 1 of 1

### Information Supplied by Client Client Fugro Technical Services Ltd. 13/F, Fugro House - KCC2, No.1 Kwai On Road, Kwai Chung, Client's address N.T., H.K. Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Project Station Sample description 3 samples of TSP filter paper • Sample identification Sampling date Test required Provision of conditioned & tared filter paper and subsequent reconditioning and reweighing of returned filter paper for TSP monitoring Laboratory Information Filter paper I.D. M11582, M11587, M11588 : Date of receipt of sample : 21/03/2023 Date test completed : 22/03/2023 Test method used USEPA Method 40 CFR Part 50 Appendix B. :

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g		
M11582	2.7298	2.7421		
M11537	2.7166	2.7243		
M11588	2.7108	2.7184		

Certified by Supervised by : \_\_\_\_\_ C.H. Chiu Approved Signatory : HO Kin Man, John Assistant General Manager – Laboratories Date JUR \*\* End of Report \*



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report No. : 181172EN230658(4)

Page 1 of 1

#### Information Supplied by Client Client Fugro Technical Services Ltd. • Client's address 13/F, Fugro House - KCC2, No.1 Kwai On Road, Kwai Chung, : N.T., H.K. Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Project Station Sample description 3 samples of TSP filter paper : Sample identification : -Sampling date : -Test required Provision of conditioned & tared filter paper and subsequent • reconditioning and reweighing of returned filter paper for TSP monitoring Laboratory Information Filter paper I.D. M11683, M11688, M11691 : Date of receipt of sample : 24/03/2023 Date test completed : 28/03/2023 Test method used USEPA Method 40 CFR Part 50 Appendix B. :

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g
M11683	2.6705	2.6787
M11688	2.6943	2.7030
M11691	2.6930	2.7027

Supervised by :	C.H. Chiu	Certified by	Approved Signatory: HO Kin Man, John sistant General Manager – Laboratories
		Date ** End of Report **	1. 31/3/2023



Fugro Development Centre 5 Lok Yi Street, Tai Lam Tuen Mun, NT Hong Kong

Report No. : 181172EN230658(5)

**Test Report on Analysis of Filters** 

Page 1 of 1

Information Supplied by Client						
Client	:	ugro Technical Services Ltd.				
Client's address	:	13/F, Fugro House – KCC2, No.1 Kwai On Road, Kwai Chung, N.T., H.K.				
Project	:	Provision of ET Services for Sai O Trunk Sewer Sewage Pumping Station				
Sample description	;	3 samples of TSP filter paper				
Sample identification		-				
Sampling date	:	-				
Test required :		Provision of conditioned & tared filter paper and subsequent reconditioning and reweighing of returned filter paper for TSP monitoring				
Laboratory Information						
Filter paper I.D.	:	M11591, M11592, M11684				
Date of receipt of sample	:	30/03/2023				
Date test completed	:	31/03/2023				
Test method used	:	USEPA Method 40 CFR Part 50 Appendix B.				

## Results :

Filter paper I.D.	Initial wt. of filter, g	Final wt. of filter, g		
M11591	2.7282	2.7342		
M11592	2.7195	2.7277		
M11684	2.6705	2.6773		

Supervised by :	C.H. Chiu	Certified by Approved Signatory: HO Kin Man, John Assistant General Manager – Laboratories
		Date : <u>314(2078</u> ** End of Report **

## **Noise Monitoring Results**

Data		Wind Speed	Start Time	Noise Monitoring (30min)(dB(A))			
Date weather	(m/s)	Corrected Leq		Leq	L90	L10	
2-Mar-23	Fine	0.3	9:24	60.2	57.2	53.5	60.0
8-Mar-23	Fine	0.1	9:03	64.1	61.1	54.5	64.5
14-Mar-23	Fine	0.3	13:17	64.2	61.2	52.0	63.0
20-Mar-23	Cloudy	0.2	10:26	63.9	60.9	52.5	62.5
30-Mar-23	Fine	0.3	10:27	55.6	52.6	49.5	55.0
			Average :	62.6			
Baseline Level: 64.3							
			Action Level :	el : When one valid documented complaint is received			
			Limit Level :	70dB(A) for schools and 65dB(A) during school examination periods			

Monitoring Location : CN\_M1 In front of the HKBTS Staff & Students Quarters

### Monitoring Location : CN\_M2 In front of the HKBTS Administration and Education Block

Date	Weather	Wind Speed	Start Time	Noise Monitoring (30min)(dB(A))			
		(m/s)		Leq	L90	L10	
2-Mar-23	Fine	0.3	10:08	53.9	51.0	55.5	
8-Mar-23	Fine	0.1	9:39	58.9	53.5	61.5	
14-Mar-23	Fine	0.4	13:49	58.4	49.0	60.0	
20-Mar-23	Cloudy	0.2	11:04	59.1	49.5	61.0	
30-Mar-23	Fine	0.4	11:42	47.1	46.5	50.5	
			Average :	57.1			
			Baseline Level:	62.5			
			Action Level :	When one valid documented complaint is received			
			Limit Level :	70dB(A) for schools and 65dB(A) during school examination periods			

Remarks: 1. Noise results at CN\_M1 were calculated by +3 dB (A) correction for free-field measurement.



# **Appendix F**

Air Quality & Construction Noise Monitoring Graphs

UGRO



# 1-hr TSP Monitoring Graph



## **Noise Monitoring Graph**



Remark: The Examination of HKBTS was conducted on 2 December and from 12 to 16 December 2022.

Leq (30min)

•

Date

Limit Level



# **Appendix G**

Action and Limit Level



## Action and Limit Levels for Air Quality

Monitoring Parameter	Monitoring Station	Action Level	Limit Level
1-hour TSP	CA_M1(a)	339 μg/m³	500 μg/m³

## Action and Limit Levels for Construction Noise

Monitoring Parameter	Monitoring Station	Action Level	Limit Level	
0700-1900 hours in	CN_M1	When one documented	70dB(A) during normal teaching period &	
LA <sub>eq</sub> (30min)	CN_M2	complaint is received	65 dB(A) during examination periods	

Remark:

CN\_M1: Free-field measurement (+3 dB(A) correction has been applied).



# **Appendix H**

**Event and Action Plan** 



## **Event and Action Plan for Air Quality (Construction Dust)**

	ACTION					
EVENI	ET	IEC	ER	Contractor		
Action level being exceeded by one sampling	<ol> <li>Identify source, investigate the causes of complaint and propose remedial measures;</li> <li>Inform Contractor, IEC and ER;</li> <li>Repeat measurement to confirm finding; and</li> <li>Increase monitoring frequency to daily.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method; and</li> <li>Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	1. Notify Contractor.	<ol> <li>Identify source(s), investigate the causes of exceedance and propose remedial measures;</li> <li>Implement remedial measures; and</li> <li>Amend working methods agreed with the ER as appropriate.</li> </ol>		
Action level being exceeded by two or more consecutive sampling	<ol> <li>Identify source;</li> <li>Inform Contractor, IEC and ER;</li> <li>Advise the Contractor and ER on the effectiveness of the proposed remedial measures;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Discuss with IEC and Contractor on remedial actions required;</li> <li>If exceedance continues, arrange meeting with Contractor, IEC and ER; and</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET, ER and Contractor on possible remedial measures;</li> <li>Advise the ET and ER on the effectiveness of the proposed remedial measures; and</li> <li>Supervise Implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Identify source and investigate the causes of exceedance;</li> <li>Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification;</li> <li>Implement the agreed proposals; and</li> <li>Amend proposal as appropriate.</li> </ol>		
Limit level being exceeded by one sampling	<ol> <li>Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>Inform Contractor, IEC, ER, and EPD;</li> <li>Repeat measurement to confirm finding;</li> <li>Increase monitoring frequency to daily; and</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol> <li>Check monitoring data submitted by ET;</li> <li>Check Contractor's working method;</li> <li>Discuss with ET and Contractor on possible remedial measures;</li> <li>Advise the ER on the effectiveness of the proposed remedial measures; and</li> <li>Supervise implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>Notify Contractor;</li> <li>Ensure remedial measures properly implemented.</li> </ol>	<ol> <li>Identify source(s) and investigate the causes of exceedance;</li> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification;</li> <li>Implement the agreed proposals; and</li> <li>Amend proposal if appropriate.</li> </ol>		
Limit level being exceeded by two or more consecutive sampling	<ol> <li>Notify IEC, ER, Contractor and EPD;</li> <li>Identify source;</li> <li>Repeat measurement to confirm findings;</li> <li>Increase monitoring frequency to daily;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Arrange meeting with IEC and ER to discuss the remedial actions to be taken;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Check monitoring data submitted by the ET;</li> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of exceedance in writing;</li> <li>In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>Supervise the implementation of remedial measures; and</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol> <li>Identify source(s) and investigate the causes of exceedance;</li> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Revise and resubmit proposals if problem still not under control; and</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>		



## **Event and Action Plan for Noise (Construction Noise)**

EVENIT	ACTION					
EVENI	ET	IEC	ER	Contractor		
Action Level	<ol> <li>Notify IEC and Contractor;</li> <li>Carry out investigation;</li> <li>Report the results of investigation to the IEC, ER and Contractor;</li> <li>Discuss with the Contractor and formulate remedial measures; and</li> <li>Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol> <li>Review the analyzed results submitted by the ET;</li> <li>Review the proposed remedial measures by the Contractor and advise the ER accordingly; and</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analyzed noise problem; and</li> <li>Ensure remedial measures are properly implemented.</li> </ol>	<ol> <li>Submit noise mitigation proposals to IEC; and</li> <li>Implement noise mitigation proposals.</li> </ol>		
Limit Level	<ol> <li>Identify source;</li> <li>Inform IEC, ER, EPD and Contractor;</li> <li>Repeat measurements to confirm findings;</li> <li>Increase monitoring frequency;</li> <li>Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; and</li> <li>If exceedance stops, cease additional monitoring.</li> </ol>	<ol> <li>Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and</li> <li>Supervise the implementation of remedial measures.</li> </ol>	<ol> <li>Confirm receipt of notification of failure in writing;</li> <li>Notify Contractor;</li> <li>Require Contractor to propose remedial measures for the analyzed noise problem;</li> <li>Ensure remedial measures properly implemented; and</li> <li>If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol> <li>Take immediate action to avoid further exceedance;</li> <li>Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>Implement the agreed proposals;</li> <li>Resubmit proposals if problem still not under control; and</li> <li>Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>		

-fugro

# **Appendix I**

Weather and Meteorological

Conditions during Reporting Month



## Weather Condition (March 2023)

			Mean			
Date	Mean Pressure (hPa)	Maximum (°C)	Mean (°C)	Minimum (°C)	Relative Humidity (%)	Total Rainfall (mm)
1 March 2023	1021.5	24.4	19.7	16.4	71	0
2 March 2023	1023.8	23.2	19.8	17.8	70	0
3 March 2023	1024.9	22.4	18.6	16.5	56	0
4 March 2023	1024.4	23.8	19.6	17.3	65	0
5 March 2023	1023.6	23.5	19.7	17.3	57	0
6 March 2023	1022.4	24.1	20.0	17.4	50	0
7 March 2023	1020.9	24.1	20.1	17.7	56	0
8 March 2023	1019.7	25.7	21.6	19.1	77	0
9 March 2023	1017.7	27.0	22.5	19.5	75	0
10 March 2023	1017.6	26.6	22.4	20.3	68	0
11 March 2023	1018.3	26.0	22.1	19.9	67	0
12 March 2023	1018.9	25.6	22.6	20.2	71	0.1
13 March 2023	1020.4	22.4	20.1	19.1	64	Trace
14 March 2023	1016.8	22.9	19.7	18.7	73	0
15 March 2023	1017.4	24.5	21.0	18.7	77	0
16 March 2023	1018.4	25.8	22.0	19.4	72	Trace
17 March 2023	1016.8	26.1	21.7	20.0	83	0.5
18 March 2023	1015.5	26.8	22.3	19.8	80	0
19 March 2023	1015.2	21.9	20.6	20	86	0.6
20 March 2023	1012.0	24.4	21.8	20.1	88	0.3
21 March 2023	1009.2	25.4	23.7	22.1	85	Trace
22 March 2023	1008.0	25.6	24.7	24.1	83	Trace
23 March 2023	1008.6	26.3	25.0	24.1	81	0
24 March 2023	1011.4	29.0	25.6	23.3	80	0
25 March 2023	1013.1	26.4	23.4	20.9	89	53.5
26 March 2023	1014.0	21.6	20.8	20.0	91	5.9
27 March 2023	1016.2	20.0	18.6	17.5	86	6.3
28 March 2023	1017.6	20.1	18.7	17.2	84	Trace
29 March 2023	1015.4	21.8	19.9	18.4	86	0.9
30 March 2023	1012.9	21.4	20.8	19.8	89	0.3
31 March 2023	1013.3	21.1	20.3	19.6	92	1.9

Remark:

1. Trace means rainfall less than 0.05 mm.

Source: Hong Kong Observatory



# **Appendix J**

Wind Data


Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
01 Mar 2023 00:00	2.9	NEN	02 Mar 2023 00:00	2.8	NEN
01 Mar 2023 01:00	2.9	N	02 Mar 2023 01:00	2.9	SEE
01 Mar 2023 02:00	2.9	NEN	02 Mar 2023 02:00	2.9	SE
01 Mar 2023 03:00	3.0	SEE	02 Mar 2023 03:00	2.8	NE
01 Mar 2023 04:00	2.9	W	02 Mar 2023 04:00	2.9	SEE
01 Mar 2023 05:00	3.0	SEE	02 Mar 2023 05:00	2.8	E
01 Mar 2023 06:00	2.9	SW	02 Mar 2023 06:00	2.8	E
01 Mar 2023 07:00	2.8	NE	02 Mar 2023 07:00	2.7	SE
01 Mar 2023 08:00	2.7	NEE	02 Mar 2023 08:00	2.7	NE
01 Mar 2023 09:00	2.7	E	02 Mar 2023 09:00	2.7	SES
01 Mar 2023 10:00	2.7	NEN	02 Mar 2023 10:00	2.7	SEE
01 Mar 2023 11:00	2.7	SE	02 Mar 2023 11:00	2.7	SEE
01 Mar 2023 12:00	2.7	E	02 Mar 2023 12:00	2.7	E
01 Mar 2023 13:00	2.6	E	02 Mar 2023 13:00	2.7	E
01 Mar 2023 14:00	2.7	N	02 Mar 2023 14:00	2.7	NE
01 Mar 2023 15:00	2.7	N	02 Mar 2023 15:00	2.7	NEN
01 Mar 2023 16:00	2.7	N	02 Mar 2023 16:00	2.7	NE
01 Mar 2023 20:00	2.7	N	02 Mar 2023 17:00	2.7	N
01 Mar 2023 18:00	2.7	NE	02 Mar 2023 18:00	2.7	NEN
01 Mar 2023 19:00	2.7	NE	02 Mar 2023 19:00	2.7	N
01 Mar 2023 20:00	2.8	NEN	02 Mar 2023 20:00	2.7	NEN
01 Mar 2023 21:00	2.8	NEN	02 Mar 2023 21:00	2.7	NEN
01 Mar 2023 22:00	2.8	NEN	02 Mar 2023 22:00	2.8	N
01 Mar 2023 23:00	2.8	SES	02 Mar 2023 23:00	2.7	N



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
3 Mar 2023 00:00	2.7	NE	4 Mar 2023 00:00	2.7	NE
3 Mar 2023 01:00	2.7	NEN	4 Mar 2023 01:00	2.9	NE
3 Mar 2023 02:00	2.7	NEN	4 Mar 2023 02:00	2.7	NEN
3 Mar 2023 03:00	2.7	N	4 Mar 2023 03:00	2.8	SES
3 Mar 2023 04:00	2.7	N	4 Mar 2023 04:00	2.9	SE
3 Mar 2023 05:00	2.7	NEN	4 Mar 2023 05:00	2.8	NEN
3 Mar 2023 06:00	2.7	NEN	4 Mar 2023 06:00	2.8	SE
3 Mar 2023 07:00	2.8	N	4 Mar 2023 07:00	2.7	N
3 Mar 2023 08:00	2.7	NEN	4 Mar 2023 08:00	2.7	N
3 Mar 2023 09:00	2.7	N	4 Mar 2023 09:00	2.7	NEN
3 Mar 2023 10:00	2.7	NEN	4 Mar 2023 10:00	2.7	SEE
3 Mar 2023 11:00	2.7	NE	4 Mar 2023 11:00	2.7	E
3 Mar 2023 12:00	2.6	NEN	4 Mar 2023 12:00	2.7	NEE
3 Mar 2023 13:00	2.7	NEN	4 Mar 2023 13:00	2.6	SES
3 Mar 2023 14:00	2.7	N	4 Mar 2023 14:00	2.7	NEN
3 Mar 2023 15:00	2.7	NEN	4 Mar 2023 15:00	2.7	NEN
3 Mar 2023 16:00	2.7	NE	4 Mar 2023 16:00	2.7	NEN
3 Mar 2023 17:00	2.7	NEN	4 Mar 2023 17:00	2.7	NEN
3 Mar 2023 18:00	2.7	N	4 Mar 2023 18:00	2.8	NE
3 Mar 2023 19:00	2.7	N	4 Mar 2023 19:00	2.7	NEN
3 Mar 2023 20:00	2.7	NEN	4 Mar 2023 20:00	2.8	E
3 Mar 2023 21:00	2.7	NEN	4 Mar 2023 21:00	2.7	NE
3 Mar 2023 22:00	2.7	NEN	4 Mar 2023 22:00	2.8	SEE
3 Mar 2023 23:00	2.7	NE	4 Mar 2023 23:00	2.9	N



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
5 Mar 2023 00:00	2.9	NEN	6 Mar 2023 00:00	2.7	NEN
5 Mar 2023 01:00	2.9	SEE	6 Mar 2023 01:00	2.8	NE
5 Mar 2023 02:00	2.8	NE	6 Mar 2023 02:00	2.8	NE
5 Mar 2023 03:00	2.8	NE	6 Mar 2023 03:00	2.7	N
5 Mar 2023 04:00	2.7	NE	6 Mar 2023 04:00	2.7	NEN
5 Mar 2023 05:00	2.8	SE	6 Mar 2023 05:00	2.7	NE
5 Mar 2023 06:00	2.9	W	6 Mar 2023 06:00	2.8	NE
5 Mar 2023 07:00	2.8	E	6 Mar 2023 07:00	2.7	N
5 Mar 2023 08:00	2.7	NE	6 Mar 2023 08:00	2.7	N
5 Mar 2023 09:00	2.7	W	6 Mar 2023 09:00	2.7	SEE
5 Mar 2023 10:00	2.6	SE	6 Mar 2023 10:00	2.7	SE
5 Mar 2023 11:00	2.7	N	6 Mar 2023 11:00	2.7	NEN
5 Mar 2023 12:00	2.6	E	6 Mar 2023 12:00	2.7	NE
5 Mar 2023 13:00	2.7	NE	6 Mar 2023 13:00	2.7	N
5 Mar 2023 14:00	2.7	N	6 Mar 2023 14:00	2.7	NE
5 Mar 2023 15:00	2.7	N	6 Mar 2023 15:00	2.7	NEN
5 Mar 2023 16:00	2.6	N	6 Mar 2023 16:00	2.7	NEN
5 Mar 2023 17:00	2.7	N	6 Mar 2023 17:00	2.7	NE
5 Mar 2023 18:00	2.7	NEN	6 Mar 2023 18:00	2.7	NEN
5 Mar 2023 19:00	2.7	NE	6 Mar 2023 19:00	2.7	NE
5 Mar 2023 20:00	2.7	NEN	6 Mar 2023 20:00	2.7	NEN
5 Mar 2023 21:00	2.8	NE	6 Mar 2023 21:00	2.7	NEN
5 Mar 2023 22:00	2.7	NEE	6 Mar 2023 22:00	2.8	NEE
5 Mar 2023 23:00	2.8	SE	6 Mar 2023 23:00	2.8	SEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
7 Mar 2023 00:00	2.8	SEE	8 Mar 2023 00:00	2.9	NE
7 Mar 2023 01:00	2.8	NE	8 Mar 2023 01:00	2.9	NE
7 Mar 2023 02:00	2.7	NE	8 Mar 2023 02:00	2.8	SEE
7 Mar 2023 03:00	2.8	NE	8 Mar 2023 03:00	2.9	NEE
7 Mar 2023 04:00	2.7	NE	8 Mar 2023 04:00	2.9	N
7 Mar 2023 05:00	2.7	NEE	8 Mar 2023 05:00	2.8	SEE
7 Mar 2023 06:00	2.8	NE	8 Mar 2023 06:00	2.8	NEN
7 Mar 2023 07:00	2.7	NE	8 Mar 2023 07:00	2.7	SEE
7 Mar 2023 08:00	2.7	NE	8 Mar 2023 08:00	2.7	NEN
7 Mar 2023 09:00	2.7	N	8 Mar 2023 09:00	2.6	NEE
7 Mar 2023 10:00	2.7	NEN	8 Mar 2023 10:00	2.7	NEN
7 Mar 2023 11:00	2.7	NE	8 Mar 2023 11:00	2.6	N
7 Mar 2023 12:00	2.7	NEN	8 Mar 2023 12:00	2.7	E
7 Mar 2023 13:00	2.6	NEE	8 Mar 2023 13:00	2.8	NEN
7 Mar 2023 14:00	2.7	E	8 Mar 2023 14:00	2.7	N
7 Mar 2023 15:00	2.7	NE	8 Mar 2023 15:00	2.6	NEN
7 Mar 2023 16:00	2.7	NEN	8 Mar 2023 16:00	2.7	N
7 Mar 2023 17:00	2.7	NEN	8 Mar 2023 17:00	2.7	NE
7 Mar 2023 18:00	2.7	N	8 Mar 2023 18:00	2.8	SE
7 Mar 2023 19:00	2.7	N	8 Mar 2023 19:00	2.8	NEE
7 Mar 2023 20:00	2.8	NEE	8 Mar 2023 20:00	2.8	SE
7 Mar 2023 21:00	2.7	NE	8 Mar 2023 21:00	2.8	NEE
7 Mar 2023 22:00	2.8	SW	8 Mar 2023 22:00	2.8	NEE
7 Mar 2023 23:00	2.8	SW	8 Mar 2023 23:00	2.8	SWS



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
9 Mar 2023 00:00	2.8	NEN	10 Mar 2023 00:00	2.8	NE
9 Mar 2023 01:00	2.8	NEE	10 Mar 2023 01:00	2.8	E
9 Mar 2023 02:00	2.8	NEE	10 Mar 2023 02:00	2.8	E
9 Mar 2023 03:00	2.8	SEE	10 Mar 2023 03:00	2.9	SES
9 Mar 2023 04:00	2.8	SES	10 Mar 2023 04:00	2.8	SWS
9 Mar 2023 05:00	2.8	SEE	10 Mar 2023 05:00	2.7	E
9 Mar 2023 06:00	2.8	S	10 Mar 2023 06:00	2.8	NEN
9 Mar 2023 07:00	2.8	E	10 Mar 2023 07:00	2.7	SEE
9 Mar 2023 08:00	2.7	SEE	10 Mar 2023 08:00	2.7	NEE
9 Mar 2023 09:00	2.7	NEE	10 Mar 2023 09:00	2.7	NE
9 Mar 2023 10:00	2.7	SEE	10 Mar 2023 10:00	2.7	NEN
9 Mar 2023 11:00	2.7	NEE	10 Mar 2023 11:00	2.7	N
9 Mar 2023 12:00	2.6	NE	10 Mar 2023 12:00	2.6	N
9 Mar 2023 13:00	2.7	NE	10 Mar 2023 13:00	2.7	NEN
9 Mar 2023 14:00	2.7	NEN	10 Mar 2023 14:00	2.7	N
9 Mar 2023 15:00	2.7	NEN	10 Mar 2023 15:00	2.7	NE
9 Mar 2023 16:00	2.7	NEN	10 Mar 2023 16:00	2.7	N
9 Mar 2023 17:00	2.7	NEN	10 Mar 2023 17:00	2.7	NE
9 Mar 2023 18:00	2.7	NEN	10 Mar 2023 18:00	2.7	NE
9 Mar 2023 19:00	2.7	SEE	10 Mar 2023 19:00	2.7	NEN
9 Mar 2023 20:00	2.8	NEN	10 Mar 2023 20:00	2.8	SE
9 Mar 2023 21:00	2.7	NEN	10 Mar 2023 21:00	2.8	NE
9 Mar 2023 22:00	2.8	SEE	10 Mar 2023 22:00	2.8	E
9 Mar 2023 23:00	2.7	SES	10 Mar 2023 23:00	2.8	SES

Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
11 Mar 2023 00:00	2.8	SEE	12 Mar 2023 00:00	2.8	SES
11 Mar 2023 01:00	2.9	NEE	12 Mar 2023 01:00	2.7	SE
11 Mar 2023 02:00	2.8	NEE	12 Mar 2023 02:00	2.8	NEE
11 Mar 2023 03:00	2.7	N	12 Mar 2023 03:00	2.8	S
11 Mar 2023 04:00	2.7	NE	12 Mar 2023 04:00	2.8	SES
11 Mar 2023 05:00	2.8	NEN	12 Mar 2023 05:00	2.9	SES
11 Mar 2023 06:00	2.7	SEE	12 Mar 2023 06:00	2.8	SE
11 Mar 2023 07:00	2.7	NEE	12 Mar 2023 07:00	2.8	SES
11 Mar 2023 08:00	2.7	N	12 Mar 2023 08:00	2.7	W
11 Mar 2023 09:00	2.7	NEN	12 Mar 2023 09:00	2.7	NE
11 Mar 2023 10:00	2.7	NEN	12 Mar 2023 10:00	2.6	NEE
11 Mar 2023 11:00	2.7	NEN	12 Mar 2023 11:00	2.7	NEE
11 Mar 2023 12:00	2.7	Ν	12 Mar 2023 12:00	2.7	SES
11 Mar 2023 13:00	2.7	N	12 Mar 2023 13:00	2.7	S
11 Mar 2023 14:00	2.7	NEN	12 Mar 2023 14:00	2.7	NEN
11 Mar 2023 15:00	2.7	NEN	12 Mar 2023 15:00	2.7	NEN
11 Mar 2023 16:00	2.7	N	12 Mar 2023 16:00	2.7	NEE
11 Mar 2023 17:00	2.8	NEE	12 Mar 2023 17:00	2.7	NEN
11 Mar 2023 18:00	2.7	NEN	12 Mar 2023 18:00	2.7	NEN
11 Mar 2023 19:00	2.8	S	12 Mar 2023 19:00	2.6	NEE
11 Mar 2023 20:00	2.8	NE	12 Mar 2023 20:00	2.7	NEE
11 Mar 2023 21:00	2.8	SE	12 Mar 2023 21:00	2.7	NE
11 Mar 2023 22:00	2.8	SES	12 Mar 2023 22:00	2.7	E
11 Mar 2023 23:00	2.8	NEE	12 Mar 2023 23:00	2.7	NEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
13 Mar 2023 00:00	2.8	NEN	14 Mar 2023 00:00	2.8	SES
13 Mar 2023 01:00	2.7	NE	14 Mar 2023 01:00	2.7	N
13 Mar 2023 02:00	2.8	NEE	14 Mar 2023 02:00	2.8	SE
13 Mar 2023 03:00	2.7	E	14 Mar 2023 03:00	2.8	SW
13 Mar 2023 04:00	2.7	NEN	14 Mar 2023 04:00	2.9	SE
13 Mar 2023 05:00	2.7	SES	14 Mar 2023 05:00	2.7	E
13 Mar 2023 06:00	2.8	SE	14 Mar 2023 06:00	2.6	N
13 Mar 2023 07:00	2.7	E	14 Mar 2023 07:00	2.7	NEN
13 Mar 2023 08:00	2.7	NE	14 Mar 2023 08:00	2.7	NE
13 Mar 2023 09:00	2.7	NEE	14 Mar 2023 09:00	2.7	SES
13 Mar 2023 10:00	2.7	SE	14 Mar 2023 10:00	2.7	SEE
13 Mar 2023 11:00	2.7	E	14 Mar 2023 11:00	2.7	NE
13 Mar 2023 12:00	2.7	NE	14 Mar 2023 12:00	2.7	NEN
13 Mar 2023 13:00	2.7	NEN	14 Mar 2023 13:00	2.7	NEN
13 Mar 2023 14:00	2.7	NE	14 Mar 2023 14:00	2.7	NEN
13 Mar 2023 15:00	2.7	NEN	14 Mar 2023 15:00	2.8	E
13 Mar 2023 16:00	2.7	E	14 Mar 2023 16:00	2.7	NEN
13 Mar 2023 17:00	2.7	NEN	14 Mar 2023 17:00	2.7	NEE
13 Mar 2023 18:00	2.7	Ν	14 Mar 2023 18:00	2.7	NEE
13 Mar 2023 19:00	2.8	NEN	14 Mar 2023 19:00	2.7	S
13 Mar 2023 20:00	2.7	NEN	14 Mar 2023 20:00	2.7	E
13 Mar 2023 21:00	2.8	SEE	14 Mar 2023 21:00	2.8	NEN
13 Mar 2023 22:00	2.8	E	14 Mar 2023 22:00	2.8	SEE
13 Mar 2023 23:00	2.8	E	14 Mar 2023 23:00	2.8	SEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
15 Mar 2023 00:00	2.8	NEE	16 Mar 2023 00:00	2.8	NEN
15 Mar 2023 01:00	2.8	E	16 Mar 2023 01:00	2.8	SES
15 Mar 2023 02:00	2.8	SWS	16 Mar 2023 02:00	2.8	NEE
15 Mar 2023 03:00	2.8	NE	16 Mar 2023 03:00	2.8	SES
15 Mar 2023 04:00	2.8	N	16 Mar 2023 04:00	2.8	NEE
15 Mar 2023 05:00	2.8	NEE	16 Mar 2023 05:00	2.8	SWS
15 Mar 2023 06:00	2.8	NEN	16 Mar 2023 06:00	2.8	E
15 Mar 2023 07:00	2.8	NE	16 Mar 2023 07:00	2.7	NE
15 Mar 2023 08:00	2.8	S	16 Mar 2023 08:00	2.7	SEE
15 Mar 2023 09:00	2.8	E	16 Mar 2023 09:00	2.7	SE
15 Mar 2023 10:00	2.7	NE	16 Mar 2023 10:00	2.7	SEE
15 Mar 2023 11:00	2.7	NEE	16 Mar 2023 11:00	2.7	NE
15 Mar 2023 12:00	2.7	N	16 Mar 2023 12:00	2.7	NEN
15 Mar 2023 13:00	2.7	N	16 Mar 2023 13:00	2.7	NEN
15 Mar 2023 14:00	2.7	NEN	16 Mar 2023 14:00	2.7	NEN
15 Mar 2023 15:00	2.6	N	16 Mar 2023 15:00	2.7	N
15 Mar 2023 16:00	2.7	NE	16 Mar 2023 16:00	2.7	NEN
15 Mar 2023 17:00	2.7	NEE	16 Mar 2023 17:00	2.7	NE
15 Mar 2023 18:00	2.8	NEE	16 Mar 2023 18:00	2.7	N
15 Mar 2023 19:00	2.8	S	16 Mar 2023 19:00	2.7	NEE
15 Mar 2023 20:00	2.7	NEE	16 Mar 2023 20:00	2.7	SEE
15 Mar 2023 21:00	2.7	SES	16 Mar 2023 21:00	2.7	SE
15 Mar 2023 22:00	2.8	NE	16 Mar 2023 22:00	2.7	NEN
15 Mar 2023 23:00	2.8	NEE	16 Mar 2023 23:00	2.7	NEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
17 Mar 2023 00:00	2.7	SES	18 Mar 2023 00:00	2.7	NE
17 Mar 2023 01:00	2.7	NE	18 Mar 2023 01:00	2.7	NEN
17 Mar 2023 02:00	2.7	E	18 Mar 2023 02:00	2.8	SWS
17 Mar 2023 03:00	2.7	E	18 Mar 2023 03:00	2.7	NE
17 Mar 2023 04:00	2.8	E	18 Mar 2023 04:00	2.7	N
17 Mar 2023 05:00	2.7	SEE	18 Mar 2023 05:00	2.7	NEN
17 Mar 2023 06:00	2.7	NEE	18 Mar 2023 06:00	2.7	NE
17 Mar 2023 07:00	2.7	E	18 Mar 2023 07:00	2.7	SEE
17 Mar 2023 08:00	2.7	SW	18 Mar 2023 08:00	2.7	NEN
17 Mar 2023 09:00	2.7	SEE	18 Mar 2023 09:00	2.7	NEN
17 Mar 2023 10:00	2.7	NEN	18 Mar 2023 10:00	2.7	N
17 Mar 2023 11:00	2.7	NEE	18 Mar 2023 11:00	2.7	S
17 Mar 2023 12:00	2.8	NEE	18 Mar 2023 12:00	2.6	NEN
17 Mar 2023 13:00	2.7	NE	18 Mar 2023 13:00	2.7	N
17 Mar 2023 14:00	2.7	NEN	18 Mar 2023 14:00	2.6	NEN
17 Mar 2023 15:00	2.7	NEN	18 Mar 2023 15:00	2.7	NEE
17 Mar 2023 16:00	2.7	SES	18 Mar 2023 16:00	2.7	NE
17 Mar 2023 17:00	2.8	SWS	18 Mar 2023 17:00	2.7	SE
17 Mar 2023 18:00	2.7	SE	18 Mar 2023 18:00	2.7	SE
17 Mar 2023 19:00	2.7	N	18 Mar 2023 19:00	2.7	S
17 Mar 2023 20:00	2.7	N	18 Mar 2023 20:00	2.7	N
17 Mar 2023 21:00	2.7	NEN	18 Mar 2023 21:00	2.7	N
17 Mar 2023 22:00	2.7	NEE	18 Mar 2023 22:00	2.7	SWS
17 Mar 2023 23:00	2.7	NEE	18 Mar 2023 23:00	2.7	SEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
19 Mar 2023 00:00	2.7	SE	20 Mar 2023 00:00	5.4	S
19 Mar 2023 01:00	2.7	SES	20 Mar 2023 01:00	4.7	SES
19 Mar 2023 02:00	2.7	SWS	20 Mar 2023 02:00	4.8	NEE
19 Mar 2023 03:00	2.7	NE	20 Mar 2023 03:00	4.4	NEN
19 Mar 2023 04:00	2.7	SEE	20 Mar 2023 04:00	4.6	SES
19 Mar 2023 05:00	2.7	NE	20 Mar 2023 05:00	3.7	E
19 Mar 2023 06:00	2.7	NE	20 Mar 2023 06:00	3.2	SES
19 Mar 2023 07:00	2.7	SES	20 Mar 2023 07:00	3.1	N
19 Mar 2023 08:00	2.7	SES	20 Mar 2023 08:00	3.0	NEE
19 Mar 2023 09:00	2.6	S	20 Mar 2023 09:00	2.9	E
19 Mar 2023 10:00	2.7	SEE	20 Mar 2023 10:00	2.9	NE
19 Mar 2023 11:00	2.7	W	20 Mar 2023 11:00	2.8	E
19 Mar 2023 12:00	2.7	NEN	20 Mar 2023 12:00	2.8	NEN
19 Mar 2023 13:00	2.7	NEN	20 Mar 2023 13:00	2.7	N
19 Mar 2023 14:00	2.7	SES	20 Mar 2023 14:00	2.6	NEN
19 Mar 2023 15:00	2.7	SE	20 Mar 2023 15:00	2.7	NEN
19 Mar 2023 16:00	2.7	SW	20 Mar 2023 16:00	2.7	NEN
19 Mar 2023 17:00	2.7	NEE	20 Mar 2023 17:00	2.7	NEN
19 Mar 2023 18:00	2.7	SE	20 Mar 2023 18:00	2.7	NEN
19 Mar 2023 19:00	2.7	NEN	20 Mar 2023 19:00	2.7	NEN
19 Mar 2023 20:00	2.7	NE	20 Mar 2023 20:00	2.8	N
19 Mar 2023 21:00	2.7	NEE	20 Mar 2023 21:00	2.7	SE
19 Mar 2023 22:00	2.7	SWS	20 Mar 2023 22:00	2.8	NEE
19 Mar 2023 23:00	2.8	NEN	20 Mar 2023 23:00	2.8	NEN



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
21 Mar 2023 00:00	2.8	NE	22 Mar 2023 00:00	2.9	NEN
21 Mar 2023 01:00	2.8	NE	22 Mar 2023 01:00	2.8	SWS
21 Mar 2023 02:00	2.9	E	22 Mar 2023 02:00	2.8	SEE
21 Mar 2023 03:00	2.8	NEE	22 Mar 2023 03:00	2.7	SES
21 Mar 2023 04:00	2.8	NEE	22 Mar 2023 04:00	2.8	N
21 Mar 2023 05:00	2.9	E	22 Mar 2023 05:00	2.8	S
21 Mar 2023 06:00	2.8	SWW	22 Mar 2023 06:00	2.7	NEE
21 Mar 2023 07:00	2.8	SWS	22 Mar 2023 07:00	2.7	NEE
21 Mar 2023 08:00	2.7	NE	22 Mar 2023 08:00	2.7	NE
21 Mar 2023 09:00	2.9	NEE	22 Mar 2023 09:00	2.7	NE
21 Mar 2023 10:00	2.8	NEN	22 Mar 2023 10:00	2.7	NEN
21 Mar 2023 11:00	2.7	N	22 Mar 2023 11:00	2.7	SEE
21 Mar 2023 12:00	2.8	NEE	22 Mar 2023 12:00	2.7	NEE
21 Mar 2023 13:00	2.7	NE	22 Mar 2023 13:00	2.7	NEE
21 Mar 2023 14:00	2.7	N	22 Mar 2023 14:00	2.7	NE
21 Mar 2023 15:00	2.8	NEN	22 Mar 2023 15:00	2.7	E
21 Mar 2023 16:00	2.7	NEE	22 Mar 2023 16:00	2.7	N
21 Mar 2023 17:00	2.7	NEN	22 Mar 2023 17:00	2.7	N
21 Mar 2023 18:00	2.7	N	22 Mar 2023 18:00	2.7	E
21 Mar 2023 19:00	2.7	NEE	22 Mar 2023 19:00	2.8	NE
21 Mar 2023 20:00	2.8	NEN	22 Mar 2023 20:00	2.7	NEN
21 Mar 2023 21:00	2.8	NEN	22 Mar 2023 21:00	2.7	SEE
21 Mar 2023 22:00	2.8	E	22 Mar 2023 22:00	2.7	NEN
21 Mar 2023 23:00	2.7	SEE	22 Mar 2023 23:00	2.7	SEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
23 Mar 2023 00:00	2.7	NEE	24 Mar 2023 00:00	2.8	NE
23 Mar 2023 01:00	2.7	SWS	24 Mar 2023 01:00	2.8	S
23 Mar 2023 02:00	2.7	NEN	24 Mar 2023 02:00	2.7	NEN
23 Mar 2023 03:00	2.6	S	24 Mar 2023 03:00	2.8	E
23 Mar 2023 04:00	2.7	SEE	24 Mar 2023 04:00	2.8	SES
23 Mar 2023 05:00	2.8	S	24 Mar 2023 05:00	2.8	NEN
23 Mar 2023 06:00	2.8	NE	24 Mar 2023 06:00	2.8	SEE
23 Mar 2023 07:00	2.7	SEE	24 Mar 2023 07:00	2.7	N
23 Mar 2023 08:00	2.7	N	24 Mar 2023 08:00	2.7	NEN
23 Mar 2023 09:00	2.7	E	24 Mar 2023 09:00	2.7	NEN
23 Mar 2023 10:00	2.7	E	24 Mar 2023 10:00	2.7	NE
23 Mar 2023 11:00	2.7	SE	24 Mar 2023 11:00	2.7	N
23 Mar 2023 12:00	2.7	SES	24 Mar 2023 12:00	2.6	N
23 Mar 2023 13:00	2.6	NE	24 Mar 2023 13:00	2.6	NEN
23 Mar 2023 14:00	2.7	SWW	24 Mar 2023 14:00	2.7	NE
23 Mar 2023 15:00	2.7	NW	24 Mar 2023 15:00	2.7	NE
23 Mar 2023 16:00	2.6	W	24 Mar 2023 16:00	2.7	NEN
23 Mar 2023 17:00	2.7	SE	24 Mar 2023 17:00	2.7	NE
23 Mar 2023 18:00	2.7	NE	24 Mar 2023 18:00	2.7	SE
23 Mar 2023 19:00	2.6	NE	24 Mar 2023 19:00	2.7	E
23 Mar 2023 20:00	2.7	NEE	24 Mar 2023 20:00	2.8	SE
23 Mar 2023 21:00	2.7	SES	24 Mar 2023 21:00	2.7	SES
23 Mar 2023 22:00	2.7	NEN	24 Mar 2023 22:00	2.8	NEE
23 Mar 2023 23:00	2.8	E	24 Mar 2023 23:00	2.8	NEN



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
25 Mar 2023 00:00	2.8	NEE	26 Mar 2023 00:00	3.3	SES
25 Mar 2023 01:00	2.7	NEE	26 Mar 2023 01:00	3.3	NEN
25 Mar 2023 02:00	2.8	NEE	26 Mar 2023 02:00	3.0	E
25 Mar 2023 03:00	2.8	NE	26 Mar 2023 03:00	3.5	SEE
25 Mar 2023 04:00	2.7	NEN	26 Mar 2023 04:00	3.3	E
25 Mar 2023 05:00	2.8	NEE	26 Mar 2023 05:00	3.0	NEN
25 Mar 2023 06:00	2.8	N	26 Mar 2023 06:00	2.7	NEN
25 Mar 2023 07:00	2.9	NEN	26 Mar 2023 07:00	3.2	SE
25 Mar 2023 08:00	3.2	NEN	26 Mar 2023 08:00	3.1	SE
25 Mar 2023 09:00	3.1	E	26 Mar 2023 09:00	2.9	NE
25 Mar 2023 10:00	5.1	NEN	26 Mar 2023 10:00	3.0	NE
25 Mar 2023 11:00	3.4	SES	26 Mar 2023 11:00	3.0	NE
25 Mar 2023 12:00	2.9	NEE	26 Mar 2023 12:00	2.7	SEE
25 Mar 2023 13:00	3.6	NEE	26 Mar 2023 13:00	2.8	E
25 Mar 2023 14:00	2.8	E	26 Mar 2023 14:00	2.7	E
25 Mar 2023 15:00	2.8	SE	26 Mar 2023 15:00	2.7	NE
25 Mar 2023 16:00	2.9	S	26 Mar 2023 16:00	2.8	NEE
25 Mar 2023 17:00	3.0	SE	26 Mar 2023 17:00	2.8	SE
25 Mar 2023 18:00	2.8	SEE	26 Mar 2023 18:00	2.8	NEN
25 Mar 2023 19:00	2.9	NEN	26 Mar 2023 19:00	2.8	NEE
25 Mar 2023 20:00	3.5	E	26 Mar 2023 20:00	2.8	S
25 Mar 2023 21:00	3.2	SE	26 Mar 2023 21:00	2.8	NEN
25 Mar 2023 22:00	3.3	NEE	26 Mar 2023 22:00	2.8	NEE
25 Mar 2023 23:00	3.1	N	26 Mar 2023 23:00	2.9	SEE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
27 Mar 2023 00:00	3.1	NEE	28 Mar 2023 00:00	3.8	SES
27 Mar 2023 01:00	3.4	N	28 Mar 2023 01:00	3.5	N
27 Mar 2023 02:00	3.7	SE	28 Mar 2023 02:00	3.0	NE
27 Mar 2023 03:00	3.9	E	28 Mar 2023 03:00	3.1	NEE
27 Mar 2023 04:00	3.3	SE	28 Mar 2023 04:00	3.5	E
27 Mar 2023 05:00	2.8	NE	28 Mar 2023 05:00	3.1	N
27 Mar 2023 06:00	2.8	NEN	28 Mar 2023 06:00	2.8	NEN
27 Mar 2023 07:00	2.7	N	28 Mar 2023 07:00	3.0	NEE
27 Mar 2023 08:00	2.8	NEN	28 Mar 2023 08:00	3.0	NEN
27 Mar 2023 09:00	2.8	NEE	28 Mar 2023 09:00	2.9	N
27 Mar 2023 10:00	2.7	NEN	28 Mar 2023 10:00	2.9	NEN
27 Mar 2023 11:00	2.7	N	28 Mar 2023 11:00	2.9	NEN
27 Mar 2023 12:00	2.8	N	28 Mar 2023 12:00	2.9	NEN
27 Mar 2023 13:00	2.7	SE	28 Mar 2023 13:00	2.8	N
27 Mar 2023 14:00	2.7	NEN	28 Mar 2023 14:00	2.7	NEN
27 Mar 2023 15:00	2.7	E	28 Mar 2023 15:00	2.8	NEN
27 Mar 2023 16:00	2.7	NE	28 Mar 2023 16:00	2.8	NEN
27 Mar 2023 17:00	2.7	SE	28 Mar 2023 17:00	2.8	NEN
27 Mar 2023 18:00	2.7	NEE	28 Mar 2023 18:00	2.9	NE
27 Mar 2023 19:00	2.9	NEN	28 Mar 2023 19:00	2.9	NEN
27 Mar 2023 20:00	2.8	Ν	28 Mar 2023 20:00	2.8	SES
27 Mar 2023 21:00	2.9	NEN	28 Mar 2023 21:00	2.8	NEN
27 Mar 2023 22:00	2.9	NEN	28 Mar 2023 22:00	2.8	NE
27 Mar 2023 23:00	3.0	NEN	28 Mar 2023 23:00	3.0	NE



Date & Time	Wind Speed (m/s)	Wind Direction	Date & Time	Wind Speed (m/s)	Wind Direction
29 Mar 2023 00:00	2.8	E	30 Mar 2023 00:00	2.7	N
29 Mar 2023 01:00	3.3	N	30 Mar 2023 01:00	2.7	NEE
29 Mar 2023 02:00	2.9	E	30 Mar 2023 02:00	2.7	NE
29 Mar 2023 03:00	2.7	S	30 Mar 2023 03:00	3.0	NE
29 Mar 2023 04:00	3.2	SEE	30 Mar 2023 04:00	4.0	NEE
29 Mar 2023 05:00	3.1	SES	30 Mar 2023 05:00	3.9	NEE
29 Mar 2023 06:00	4.1	NE	30 Mar 2023 06:00	2.9	N
29 Mar 2023 07:00	3.9	E	30 Mar 2023 07:00	3.2	SE
29 Mar 2023 08:00	4.2	NE	30 Mar 2023 08:00	3.0	NEE
29 Mar 2023 09:00	2.7	Ν	30 Mar 2023 09:00	2.9	NE
29 Mar 2023 10:00	2.8	E	30 Mar 2023 10:00	3.2	NEN
29 Mar 2023 11:00	2.8	Ν	30 Mar 2023 11:00	2.8	SE
29 Mar 2023 12:00	2.8	NEN	30 Mar 2023 12:00	2.8	S
29 Mar 2023 13:00	2.7	N	30 Mar 2023 13:00	2.9	SEE
29 Mar 2023 14:00	2.7	N	30 Mar 2023 14:00	2.8	NEE
29 Mar 2023 15:00	2.7	N	30 Mar 2023 15:00	2.8	E
29 Mar 2023 16:00	2.7	NEN	30 Mar 2023 16:00	2.7	E
29 Mar 2023 17:00	2.7	N	30 Mar 2023 17:00	2.8	SES
29 Mar 2023 18:00	2.7	NEN	30 Mar 2023 18:00	2.8	SE
29 Mar 2023 19:00	2.8	NEN	30 Mar 2023 19:00	2.8	NE
29 Mar 2023 20:00	2.7	Ν	30 Mar 2023 20:00	2.8	SEE
29 Mar 2023 21:00	2.7	Ν	30 Mar 2023 21:00	2.8	NEE
29 Mar 2023 22:00	2.8	N	30 Mar 2023 22:00	2.8	SW
29 Mar 2023 23:00	2.8	N	30 Mar 2023 23:00	2.8	NE



Date & Time	Wind Speed (m/s)	Wind Direction
31 Mar 2023 00:00	2.7	SEE
31 Mar 2023 01:00	2.9	NEE
31 Mar 2023 02:00	2.7	NEN
31 Mar 2023 03:00	3.5	NE
31 Mar 2023 04:00	3.9	NE
31 Mar 2023 05:00	4.0	E
31 Mar 2023 06:00	4.0	E
31 Mar 2023 07:00	3.6	NEE
31 Mar 2023 08:00	4.0	SEE
31 Mar 2023 09:00	3.8	NE
31 Mar 2023 10:00	3.8	NEN
31 Mar 2023 11:00	3.6	NEE
31 Mar 2023 12:00	3.0	NEN
31 Mar 2023 13:00	2.9	NEN
31 Mar 2023 14:00	3.7	NEN
31 Mar 2023 15:00	3.3	NEN
31 Mar 2023 16:00	3.8	NEE
31 Mar 2023 17:00	2.9	SE
31 Mar 2023 18:00	3.0	NEN
31 Mar 2023 19:00	3.8	NE
31 Mar 2023 20:00	2.8	Ν
31 Mar 2023 21:00	2.8	S
31 Mar 2023 22:00	2.9	NEN
31 Mar 2023 23:00	3.1	E



# **Appendix K**

Summary of ET's Site Environmental Audit in the Reporting Month

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Summary of	ET's Site	<b>Environmental</b>	Audit in	the Re	porting Month
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Parameters	Date	Observations and Recommendations	Follow-up
Air Quality		NA	
Noise		NA	
Water Quality		NA	
Chemical and			
Waste		NA	
Management			
Landscape and		NA	
Visual Impact		NA	
Permit / Licenses		NA	
Others		NA	

# **Appendix L**

Waste Flow Table



### Waste Flow Table (March 2023)

Monthly Ending	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated		Actual Quantities of Recyclables Generation				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Chemical Waste	General Refuse	Felled Trees	Metals	Paper / Cardboard Packaging	Plastics
	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000m3)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)
2023 Jan	0.238	0.000	0.000	0.000	0.238	0.000	0.000	3.070	0.000	0.000	0.000	0.000
2023 Feb	1.358	0.000	0.000	0.000	1.358	0.000	0.000	10.520	0.000	0.000	0.000	0.000
2023 Mar	1.565	0.000	0.000	0.000	1.565	0.000	0.000	16.230	0.000	0.000	0.000	0.000
2023 Apr												
2023 May												
2023 Jun												
2023 Jul												
2023 Aug												
2023 Sep												
2023 Oct												
2023 Nov												
2023 Dec												
Total	3.161	0.000	0.000	0.000	3.161	0.000	0.000	29.820	0.000	0.000	0.000	0.000

Note:

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.



# **Appendix M**

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



### **Environmental Complaints Log**

Reference No.	Date of Complaint Received	Received From	Received By	Nature of Complaint	Date of Investigation	Outcome	Date of Reply	

### **Cumulative Statistics on Complaints**

Environmental Aspects	Cumulative No. Brought Forward	No. of Complaints 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

### **Cumulative Statistics on Notification of Summons and Successful Prosecutions**

Environmental Aspects	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 N**

Implementation Status of Environmental Mitigation Measures (Construction Phase)



# Implementation Status of Environmental Mitigation Measures (Construction Phase)

EIA	Environmental Protection Measures (Construction Phase) <sup>(1)</sup>	Location &	T 1 4 4"
Ref. (No.)	A) Air Quality	(Implementation Agent)	Status
3.7.1.1	Sufficient dust suppression measures as stipulated under the Air Pollution Control (Construction Dust) Regulation (Cap. 311R), as well as good site practices and		
(A1)	good housekeeping of the site should be properly implemented in order to minimise the construction dust generated. These measures include the followings::		
	a) Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather;		Implemented
	b) Use of frequent watering for particularly dusty construction areas and areas close to ASRs;		Implemented
	c) Use of frequent watering or water sprinklers for major haul roads, material stockpiling areas and other dusty activities within the construction site;		Implemented
	<ul> <li>d) Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering should be applied to aggregate fines;</li> </ul>	All construction sites / construction phase / upon	Implemented
	e) Provide hoarding of not less than 2.4 m high from ground level along the site boundary except for site entrance or exit;	completion of all	Implemented
	f) Open temporary stockpiles should be avoided or covered. Prevent placing dusty material storage piles near ASRs;	construction activities	N/A
	g) Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations;	(Contractor)	Implemented
	h) Establishment and use of vehicle wheel and body washing facilities at the exit points of the site;		Implemented
	i) Imposition of speed controls for vehicles on unpaved site roads, 8 km/hr is the recommended limit;		Implemented
	j) Routing of vehicles and position of construction plant should be at the maximum possible distance from ASRs;		Implemented
	k) Avoid position of material stockpiling areas, major haul roads and dusty works within the construction site close to concerned ASRs; and		Implemented
	1) Avoid unnecessary exposed earth.		Implemented
3.7.1.2	Guidelines stipulated in EPD's Recommended Pollution Control Clauses for Construction Contracts should be incorporated in the contract documents to abate dust		
(A2)	impacts. The clauses include:		
	a) The contractor shall observe and comply with the Air Pollution Control Ordinance and its subsidiary regulations, particularly the Air Pollution Control	All construction sites /	Implemented
	(Construction Dust) Regulation.	construction phase / upon	Impromenteu
	b) The contractor shall undertake at all times to prevent dust nuisance as a result of the construction activities.	completion of all	Implemented
	c) The contractor shall ensure that there will be adequate water supply / storage for dust suppression.	construction activities	Implemented
	d) The contractor shall devise, arrange methods of working and carrying out the works in such a manner so as to minimise dust impacts on the surrounding environment, and shall provide experienced personnel with suitable training to ensure that these methods are implemented.	(Contractor)	Implemented
	e) Before the commencement of any work, the contractor may require to submit the methods of working, plant, equipment and air pollution control system to be used on the site for the engineer inspection and approval.		Implemented
3.4.1.4	Control on fuel combustion from the use of PMEs	All construction sites /	
(A3)	a) Legal control on the types of fuel allowed for use and their sulphur contents in commercial and industrial processes should be observed.	construction phase / upon	Implemented
	b) Only approved or exempted non-road mobile machinery should be allowed to be used in construction sites.	completion of all	Implemented
	c) All construction plants are required to use ultra-low-sulphur diesel (ULSD) (defined as diesel fuel containing not more than 0.005% sulphur by weight).	construction activities (Contractor)	Implemented

Note:

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix B of approved EM&A Manual.

N/A: Not Available, N/O: Not Observed.

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EIA Ref.	Environmental Protection Measures (Construction Phase) <sup>(1)</sup> B) Noise	Location & (Implementation Agent)	Implementation Status
4.8.1.2 (B1)	Good Site Practice         The site Practices listed below should be followed during construction works:         a)       Only well-maintained PME to be operated on site and should be serviced regularly during construction;         b)       Silencers or mufflers on construction equipment should be utilised (if appropriate) and should be properly maintained during the construction;         c)       Mobile plant, if any, should be sited as far away from NSRs as possible;         d)       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;         e)       Plant known to emit noise strongly in one direction should, wherever possible, be orientated to direct noise away from the nearby NSRs; and         f)       Material stockpiles and other structures should be effectively utilised, wherever practicable, in screening noise from on-site construction activities	All construction sites / construction phase / upon completion of all construction activities (Contractor)	Implemented N/A Implemented Implemented Implemented Implemented
4.8.1.3 – 4.8.1.4 & Table 7 (B2)	Use of Quiet PME The Contractors may adopt alternative quiet PME as long as it can be demonstrated that they would not result in construction noise impacts worse than those predicted in this EIA Report. Use of quiet plant should be made reference to the Powered Mechanical Equipment (PME) listed in the Technical Memorandum or the Quality Powered Mechanical Equipment (QPME) / other commonly used PME listed in Environmental Protection Department (EPD) web pages as far as possible which includes the Sound Power Level (SWLs) for specific quiet PME.	All construction sites / construction phase / upon completion of all construction activities (Contractor)	Implemented
4.8.1.5 (B3)	Use of Movable Noise Barriers/Acoustic Mats Movable noise barriers that can be placed close to the construction equipment and moved along with the PME are effective for screening noise from NSRs. A typical design which has been used locally is a wooden framed barrier with a cantilevered upper portion of superficial density no less than 10 kg/m <sup>2</sup> on a skid footing with internal sound absorptive lining. This measure is particularly effective for low level zone of NSRs. A longer cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs. The Contractor shall be responsible for the design and actual position of the movable noise barriers with due consideration given to the position and size of the PME, and the requirement of intercepting the line-of-sight from the NSRs to the PME, as well as ensuring that the barriers should have no opening and gap. It is anticipated that properly designed noise barriers would achieve a 5 dB(A) reduction for mobile PME and a 10 dB(A) reduction for static PME. Acoustic mat with surface mass of not less than 7kg/m <sup>2</sup> would be used for plant items such as piling, oscillator and a 10 dB(A) noise reduction is anticipated.	All construction sites / construction phase / upon completion of all construction activities (Contractor)	Implemented
4.8.1.7	Scheduling of Noisy Activities to outside Examination Period of HKBTS	All construction sites /	
(B4)	To minimise the construction noise impact on HKBTS, the use of piling (oscillator) in ELS and concurrent use of concrete lorry mixer with other PMEs in steel fixing and concreting of structure should be avoided during the examination period of HKBTS.	construction phase / upon completion of all	Implemented
	Contractor should keep close communication with the operator of HKBTS to obtain the updated schedule of examination at the time conducting of the relevant construction works.	construction activities (Contractor)	Implemented

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# Implementation Status of Environmental Mitigation Measures (Construction Phase)

Note:

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix B of approved EM&A Manual.

N/A: Not Available, N/O: Not Observed.

# Implementation Status of Environmental Mitigation Measures (Construction Phase)

EIA Ref.	Environmental Protection Measures (Construction Phase) <sup>(1)</sup>		Implementation	
(No.)	C) Water Quality	Agent)	Status	
5.8.1.1	Construction Site Runoff			
(C1)	Proper site management measures should be implemented to control site runoff and drainage, and thereby prevent high sediment loadings from entering nearby watercourses. The contractor should follow the practices, and be responsible for the design, construction, operation and maintenance of all the mitigation measures as specified in ProPECC PN 1/94 " <i>Construction Site Drainage</i> ". The design of the mitigation measures should be submitted by the contractor to the engineer for approval.			
	These mitigation measures should include the following practices:			
	a) At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities.		Implemented	
	b) Sand / silt removal facilities such as sand / silt traps and sediment basins should be provided to remove sand / silt particles from runoff to meet the requirements of the TM standard under the WPCO. The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94, which states that the retention time for silt / sand traps should be 5 minutes under maximum flow conditions.	All construction sites /	Implemented	
	c) All drainage facilities and erosion and sediment control structures should always be regularly inspected and maintained to ensure proper and efficient operation and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	construction phase / upon completion of all construction activities	Implemented	
	d) Measures should be taken to minimise the ingress of site drainage into excavations. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities.	(Contractor)	Implemented	
	e) If surface excavation works cannot be avoided during the wet season (April to October), temporarily exposed slope / soil surfaces should be covered by a tarpaulin or other means, as far as practicable, and temporary access roads should be protected by crushed stone or gravel, as excavation proceeds. Interception channels should be provided (e.g. along the crest / edge of the excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements should always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. Other measures that need to be implemented before, during and after rainstorms are summarised in ProPECC PN 1/94.		Implemented	
	f) All vehicles and plant should be cleaned before leaving a construction site. An adequately designed and sited wheel washing facility should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.		Implemented	
	g) Open stockpiles of construction materials or construction wastes on-site should be covered with tarpaulin or similar fabric during rainstorms.		Implemented	
5.8.1.2 -	General Construction Activities			
5.8.1.3 (C2)	a) Debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby water bodies and public drainage system.	All construction sites /	Implemented	
	b) Stockpiles of cement and other construction materials should be kept covered when not being used.	construction phase /	Implemented	
	c) Oils and fuels should only be used and stored in designated areas, which have pollution prevention facilities.	upon completion of all construction activities	Implemented	
	d) All fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. Rainwater in the bunds should be cleared after each rain event. Waste oils, fuels and solvents collected within the bund should be handled and treated as chemical waste.	(Contractor)	Implemented	
5.8.1.4	Sewage Effluent	All construction sites /		
(C3)	Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor would be responsible for appropriate disposal of waste matter and maintenance of these facilities.	construction phase / upon completion of all construction activities (Contractor)	Implemented	



#### Sai O Trunk Sewer Sewage Pumping Station

EIA Ref. (No.)	Environmental Protection Measures (Construction Phase) <sup>(1)</sup> C) Water Quality	Location & (Implementation Agent)	Implementation Status
5.8.1.5 (C4)	Construction Works in Close Proximity of Inland Waters The practices outlined in ETWB TC (Works) No. 5/2005 "Protection of natural streams/rivers from adverse impacts arising from construction works" should be adopted where applicable to minimise the water quality impacts upon any natural streams or surface water systems.	All construction sites / construction phase / upon completion of all construction activities (Contractor)	N/A
Note:			

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix B of approved EM&A Manual. N/A: Not Available, N/O: Not Observed.



<b>Implementation</b>	Status of	<b>Environmental</b>	<b>Mitigation</b>	Measures	(Construction	Phase)
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EIA	Environmental Protection Measures (Construction Phase) <sup>(1)</sup>	Location &	T
Ref. (No.)	D) Waste Management	(Implementation Agent)	Status
6.5.1.3	Good Site Practices		
(D1)	Recommendations for good site practices during the construction phase include:		
	a) Nomination of approved personnel, such as a site manager, to be responsible for implementation of good site practices, arrangements for waste collection and effective disposal to an appropriate facility;	All construction sites / construction phase /	Implemented
	<ul> <li>b) Training of site personnel in site cleanliness, concepts of waste reduction, reuse and recycling, proper waste management and chemical waste handling procedures;</li> </ul>		Implemented
	c) Provision of sufficient waste reception / disposal points, and regular collection of waste;		Implemented
	d) Adoption of appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers;	(Contractor)	Implemented
	e) Provision of regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;		Implemented
	f) Adoption of a recording system for the amount of wastes generated, recycled and disposed (including the disposal sites); and		Implemented
	g) Preparation of Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP).		Implemented
6.5.1.4	Waste Reduction Measures		
(D2)	Recommendations to achieve waste reduction are discussed as follow:		
	a) Segregate and store different types of construction related waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;	All construction sites /	Implemented
	b) Provide separate labelled bins to segregate recyclable waste such as aluminium cans from other general refuse generated by the work force, and to encourage collection by individual collectors;	construction phase / upon completion of all	Implemented
	c) Recycle any unused chemicals or those with remaining functional capacity;	construction activities	Implemented
	d) Maximise the use of reusable steel formwork to reduce the amount of C&D materials;	(Contractor)	Implemented
	e) Adopt proper storage and site practices to minimise the potential for damage to, or contamination of construction materials;		Implemented
	f) Plan the delivery and stock of construction materials carefully to minimise the amount of waste generated; and		Implemented
	g) Minimise over ordering and wastage through careful planning during purchasing of construction materials.		Implemented
6.5.1.6– 6.5.1.7	Reducing and Reuse of C&D Materials		
(D3)	a) Careful design, planning together with good site management can reduce over-ordering and generation of C&D materials such as concrete, mortar and cement grouts. Formwork should be designed to minimise the use of standard wooden panels, so that high reuse levels can be achieved. Alternatives such as steel formwork or plastic facing should be considered to increase the potential for reuse.	All construction sites / construction phase /	Implemented
	b) To minimise off-site disposal of inert C&D material, the excavated inert materials with suitable characteristics / size should be reused on-site as fill material as far as practicable, such as for backfilling of the box culvert and drainage pipe works.	construction activities (Contractor)	Implemented
	c) Prior to disposal of non-inert C&D materials, wood, steel and other metals should also be separated for reuse and / or recycle where practicable so as to minimise the quantity of waste to be disposed of to landfill.		Implemented
6.5.1.8 (D4)	Storage of C&D Materials Suitable areas should be designated within the works site boundaries for temporary stockpiling of C&D material. Within stockpile areas, the following measures should be taken to control potential environmental impacts or nuisance:	All construction sites / construction phase /	
	a) cover material during heavy rainfall;	upon completion of all construction activities	Implemented
	b) locate stockpiles to minimise potential visual impacts; and	(Contractor)	Implemented
	c) minimise land intake of stockpile areas as far as possible.		Implemented



#### Sai O Trunk Sewer Sewage Pumping Station

EIA Ref. (No.)	Environmental Protection Measures (Construction Phase) <sup>(1)</sup> D) Waste Management	Location & (Implementation Agent)	Implementation Status
6.5.1.9	Disposal of C&D Materials	All construction sites /	
(D5)	a) In order to monitor the disposal of C&D materials at the designated public fill reception facility and landfill and to control fly-tipping, a trip-ticket system should be included.	construction phase /	Implemented
	<ul> <li>b) When disposing inert C&amp;D materials at a public filling reception facility, the material shall only consist of soil, rock, concrete, brick, cement plaster / mortar, inert building debris, aggregates and asphalt. The material shall be free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered to be unsuitable by the Filling Supervisor.</li> </ul>	construction activities (Contractor)	Implemented
6.5.1.10	Chemical Wastes		
&	a) If chemical waste is produced at the construction site / the SPS, the contractor would be required to register with the EPD as a Chemical Waste Producer.	]	Implemented
6.5.1.12	Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately.		Implemented
(D6)	<ul> <li>c) Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosives, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.</li> </ul>	Operational Phase	Implemented
	d) The contractor shall use a licensed collector to transport and dispose of the chemical wastes at the CWTC or other licensed facility in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.		Implemented
6.5.1.11	General Refuse		
& Table	a) General refuse should be stored in enclosed bins or compaction units separate from C&D materials and chemical wastes.		Implemented
6.2 (D7)	b) A reputable waste collector should be employed by the contractor to remove general refuse / screenings from the site on a regular basis to minimise odour, pest and litter impacts.	All construction sites /	Implemented
	c) Clearly labelled recycling bins should be provided on site to encourage segregation and recycling of aluminium and plastic wastes, and wastepaper to reduce general refuse production.	upon completion of all	Implemented
	d) The contractor should carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins should also be provided in the site as reminders. The recyclable waste materials should then be collected by reliable waste recycling agents on a regular basis.	(Contractor)	Implemented
	e) The collected general refuse will be disposed of at NENT landfill.		Implemented

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Note:

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix B of approved EM&A Manual.

N/A: Not Available, N/O: Not Observed.

EIA	Environmental Protection Measures (Construction Phase) <sup>(1)</sup>	Location &	T
Ref. (No.)	E) Landscape and Visual	(Implementation Agent)	Status
Table	CM1 – Preservation of Trees	All construction sites /	
10.9		construction phase /	
(E1)	Trace to be retained in accordance with DEVR TOW No. 4/2020. Trace Processition	upon completion of all	N/A
	Trees to be retained in accordance with DEVB TC w No. 4/2020 - Trees reservation.	construction activities	
		(Contractor)	
Table	CM2 – Compensatory Tree Planting	All construction sites /	
10.9		construction phase /	
(E2)	Any trees to be felled under the Project shall be compensated in accordance with DEVR TCW No. $1/2020$ - Tree Preservation	upon completion of all	N/A
	Any dees to be relied under the Project shart be compensated in accordance with DE vB TeW 10. 4/2020 - Tree Preservation.	construction activities	
		(Contractor)	
Table	CM3 – Control of Night-time Lighting Glare	All construction sites /	
10.9		construction phase /	
(E3)	Any lighting provision of the construction works at night shall be carefully controlled to prevent light overspill to the pearby VSPs and into the sky	upon completion of all	Implemented
	Any ignuing provision of the construction works at light shart be calciumly controlled to prevent light overspin to the heartoy visits and into the sky.	construction activities	
		(Contractor)	
Table	<u>CM4 – Erection of Decorative Screen Hoarding</u>	All construction sites /	
10.9		construction phase /	
(E4)	Decorative Hoarding, which is compatible with the surrounding settings, shall be erected during construction to minimise the potential landscape and visual impacts	upon completion of all	Implemented
	due to the construction works and activities.	construction activities	
		(Contractor)	
Table	<u>CM5 – Management of Construction Activities and Facilities</u>	All construction sites /	
10.9		construction phase /	
(E5)	The facilities and activities at works sites and areas, which include site office, temporary storage areas, temporary works etc., shall be carefully managed and	upon completion of all	Implemented
	controlled on the height, deposition and arrangement to minimise any potential adverse landscape and visual impacts.	construction activities	
		(Contractor)	
Table	<u>CM6 – Reinstatement of Temporarily Disturbed Landscape Areas</u>	All construction sites /	
10.9		construction phase /	
(E6)	All hard and soft landscape areas disturbed temporarily during construction due to temporary excavations, temporary works sites and works areas shall be reinstated	upon completion of all	N/A
	to equal or better quality, to the satisfaction of the relevant Government Departments.		
		(Contractor)	

### Implementation Status of Environmental Mitigation Measures (Construction Phase)

Note:

(1) Detailed EIA report and EM&A Manual reference refer to the Appendix B of approved EM&A Manual. N/A: Not Available, N/O: Not Observed

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# **Appendix O**

Summary of Outstanding Issues and Deficiencies in the Reporting Month



# Summary of Outstanding Issues and Deficiencies in the Reporting Month

Environmental Aspects	Outstanding Issues	Deficiencies
Air Quality	N/A	
Noise	N/A	
Water Quality	N/A	Any items of defisionsics can be
Chemical and Waste Management	N/A	referred to <b>Appendix K</b>
Landscape and Visual Impact	N/A	
Permit / Licenses	N/A	
Others	N/A	

