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ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE

CONTRACT NO. DC/2013/10 - DESIGN,
BUILD AND OPERATE SAN WAI
SEWAGE TREATMENT WORKS –
PHASE 1

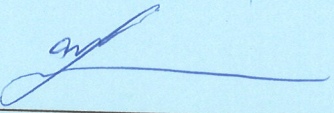
**MONTHLY EM&A REPORT
NO. 16**

(01 AUGUST – 31 AUGUST 2018)

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Issued Date: 10 September 2018

Report No.: ENA86333

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Sewage Services Branch
Harbour Area Treatment Scheme
5/F, Western Magistracy
2A Po Fu Lam Road
Hong Kong

Your reference:

Our reference: HKDSD203/50/105284

Date: 24 September 2018

Attention: Mr Kenneth Kwong

BY EMAIL & POST

(email:

kennethwkkwong@dsd.gov.hk)

Dear Sirs

Agreement No. HATS 02/2016

Services for Independent Environmental Checker (IEC) for

Contract No. DC/2013/10 – Design, Build and Operate San Wai Sewage Treatment Works – Phase 1
Monthly Environmental Monitoring and Audit Report No.16 (August 2018)

We refer to emails of 10, 15 and 22 September 2018 from ETS-Testconsult Limited attaching the Monthly Environmental Monitoring and Audit Report No.16 (August 2018).

We have no comment and hereby verify the Monthly Environmental Monitoring and Audit Report No.16 (August 2018) in accordance with Clause 5.4 of the Environmental Permit no. EP-464/2013.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Nic Lam on 2618 2831.

Yours faithfully

ANewR CONSULTING LIMITED

Independent Environmental Checker

LYMA/LHHN/FSKA/lhnh

cc AECOM – Mr Patrick Leung (email: patrick.leung@swstw-aecom.com)
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EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as “the Contract”). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.

According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003). The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit.

Baseline monitoring was completed in April 2017. Action and Limit Levels were established for air quality, noise and water quality parameters based on the baseline monitoring results.

This is the sixteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries findings of the EM&A works conducted during the reporting period from 01 August 2018 to 31 August 2018.

Site Activities

As informed by the Contractor, site activities were carried out in this reporting month:

- Substructure (ELS & Bulk excavation);
- Substructure (rc structure);
- Backfilling;
- Superstructure (rc and metalworks);
- Removal of ELS;
- Internal ABWF – CEPT;
- Water Tightness Test;
- ABWF - Sludge Dewatering Building;
- Bar Screen Installation;
- Piling Foundation (Prebored H-pile);
- Post-Drilling (Investigation and verification of the quality of socketed H-piles);
- Slope works and Retaining Wall (Eastern Portion);
- Slope works and Retaining Wall (Northern Portion);
- Drainage Inlet connection;
- CLP Cable Duct and Draw Pits (within the Site);
- EVA (Road & Drainage);
- RC Trench and Odour Pipe (DO1, DO2);
- Process Pipe;
- Emergency By-Pass Pipe;
- Sewage Pipe

Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken in accordance with the EM&A Manual for this Contract. The summary of the monitoring activities in this reporting month is listed below:

- 24-hour TSP Monitoring: 6 Occasions at 2 designated locations
- 1-hour TSP Monitoring: 18 Occasions at 2 designated locations
- Noise Monitoring (Day-time): 6 Occasions at 2 designated locations
- Water Quality Monitoring: 13 Occasions at 1 designated location
- Weekly Site inspection: 5 Occasions



Air Quality Monitoring

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

Noise Monitoring

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

Water Quality Monitoring

According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix O**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month.

Weekly Site Inspections

In general, performance on environmental mitigation measures implemented was found to be satisfactory in this reporting month. The major findings observed during site inspections are presented in the **Section 5.0**.

Complaint Log

There was no complaint received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during the reporting period.

Reporting Change

There were no reporting changes during the reporting period.

Future Key Issues

The future key issues to be undertaken in the upcoming month are as follows:

- *Chemical and waste management;*
- *Treatment of runoff and wastewater prior to discharge; and*
- *Dust and Noise generated from construction activities*

1. INTRODUCTION

1.1. Basic Project Information

- 1.1.1. This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Stage 1 (the Project) (hereafter referred to as “the Contract”). The Contract was awarded to ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE (ADCJV) by the Drainage Services Department (DSD) and ETS-Testconsult Limited was appointed as the Environmental Team (ET) by ADCJV to implement the EM&A program in compliance with the EP and the EM&A Manuals.
- 1.1.2. The project involves expansion of the preliminary treatment works at San Wai STW from 164,000 m³/d to 200,000 m³/d Average Dry Weather Flow, upgrading the preliminary treatment level to CEPT and adding centralized disinfection. The site layout plan is shown in **Appendix A**.
- 1.1.3. According to the Section 25 of the Particular Specification (PS) and the Environmental Permit No. EP-464/2013, an EM&A programme should be implemented by an independent Environmental Team (ET) in accordance with the procedures and requirements in the EM&A Manual of the approved EIA report (Registration No. AEIAR-072/2003). These documents are available through the EIA Ordinance Register. The construction works of the Contract commenced on 16 May 2017.
- 1.1.4. The scope of monitoring works includes air quality, construction noise, water quality and environmental site audit. The EM&A requirements for each parameter described in the following sections include:
- *All monitoring parameters;*
 - *Monitoring schedules for the reporting month and forthcoming months;*
 - *Action and Limit levels for all environmental parameters;*
 - *Event/Action Plans;*
 - *Environmental mitigation measures, as recommended in the Project EIA study final report; and*
 - *Environmental requirements in contract documents.*
- 1.1.5. As part of the project EM&A program, baseline monitoring was conducted from 21 March 2017 to 15 April 2017 to determine the ambient environmental conditions before the project commence any major construction works and it had been verified by IEC and endorsed by EPD.
- 1.1.6. This is the sixteenth Monthly Environmental Monitoring and Audit (EM&A) Report for the Contract which summaries the audit findings of the EM&A programme during the reporting period from 01 August 2018 to 31 August 2018.

1.2. Project Organization

1.2.1. The project organization structure and lines of communication with respect to the on-site environmental management structure is shown in **Appendix B**. The key personnel contact names and numbers are summarized in **Table 1.1**.

Table 1.1 Contact Information of Key Personnel

| Party | Position | Name of Key Staff | Tel. No. | E-mail |
|---|---------------------------------|-------------------|-----------|-------------------------------|
| Supervising Officer (AECOM Asia Co. Ltd.) | Resident Engineer | Mr. Patrick Leung | 5222 6561 | patrick.leung@swstw-aecom.com |
| Independent Environmental Checker (ANewR Consulting Limited) | Technical Director | Mr. Adi Lee | 2618 2836 | aymlee@anewr.com |
| | Senior Environmental Consultant | Mr. Nic Lam | 2618 2836 | nhhlam@anewr.com |
| Contractor (ATAL-DEGREMONT-CHINA HARBOUR JOINT VENTURE) | Environmental Officer | Mr. Johnny So | 9513 8899 | johnny.so@c302.checkk.com |
| Environmental Team (ETS-Testconsult Ltd.) | Environmental Team Leader | Mr. C. L. Lau | 2946 7791 | env@ets-testconsult.com |

1.3. Construction Programme

1.3.1. A copy of the Contractor's construction programme is provided in **Appendix C**.

1.4. Construction Works Undertaken During the Reporting Period

1.4.1. A summary of the construction activities undertaken during this reporting period is shown below:

- Substructure (ELS & Bulk excavation);
- Substructure (rc structure);
- Backfilling;
- Superstructure (rc and metalworks);
- Removal of ELS;
- Internal ABWF – CEPT;
- Water Tightness Test;
- ABWF - Sludge Dewatering Building;
- Bar Screen Installation;
- Piling Foundation (Prebored H-pile);
- Post-Drilling (Investigation and verification of the quality of socketed H-piles);
- Slope works and Retaining Wall (Eastern Portion);
- Slope works and Retaining Wall (Northern Portion);
- Drainage Inlet connection;
- CLP Cable Duct and Draw Pits (within the Site);
- EVA (Road & Drainage);
- RC Trench and Odour Pipe (DO1, DO2);
- Process Pipe;
- Emergency By-Pass Pipe;
- Sewage Pipe

2. AIR QUALITY MONITORING

2.1. Monitoring Requirements

- 2.1.1. 1-hr and 24-hr TSP levels were monitored in the reporting month in accordance with the EM&A Manual. Two air monitoring locations were selected which was shown in **Figure 1**.

2.2. Monitoring Equipment

1-hour TSP Monitoring

1-hour TSP levels were measured by using dust meter which are capable of producing comparable results as the by high volume sampling method, to indicate short event impacts. The dust meter is compliant to the clause 1.2.5 of "General Technical Requirement of Environmental Monitoring" and clause 2.2 of "Generic Environmental Monitoring and Audit Manual".

Table 2.1 summarized the dust meter model used during the baseline monitoring. Copies of calibration certificates for dust meters were attached in **Appendix D1**.

Table 2.1 Air Quality Monitoring Equipment

| Equipment | Model |
|---------------------------|----------------------|
| Dust Meter | SIBATA LD-3B |
| High volume sampler (HVS) | Greasby GMW (GS2310) |
| Calibrator | Tisch TE-5025A |

1-hr air quality monitoring (Dust Meter)

Measuring Procedures

The measuring procedures of the dust meter are in accordance with the Manufacturer's instruction Manual as follows:

- Press POWER to ON, check the battery indicator to ensure whether the power supply is enough to conduct the TSP monitoring;
- Press TIMER SET to Manual;
- Press START/STOP SWITCH to start the TSP monitoring;
- Press START/STOP SWITCH to stop the TSP monitoring after monitoring complete;
- Record measured COUNT directly from the dust meter and calculate the TSP level by using the equation of the certificate.

Maintenance & Calibration (QA/QC)

- Dust meter should be checked at 3-month intervals and calibrated at half-year intervals throughout all stages of air quality monitoring.

24-hr air quality monitoring (HVS)

Instrumentation

High volume sampler, as HVS, (Greasby GMWS2310) complete with appropriate sampling inlets were employed for both 1-hour and 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

Installation

The installation of HVS refers to the requirement stated in EM&A Manual.

Operation/Analytical Procedures

Operating/analytical procedures for the operation of HVS are as below:

- Prior to the commencement of the dust sampling, the flow rate of the high volume sampler was properly set (between 0.6m³/min and 1.7m³/min.) in accordance with the manufacturer's

instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50. The flow rate was indicated on the flow rate chart.

- For TSP sampling, fiberglass filters (Whatman G653) were used.
- The power supply was checked to ensure the sampler worked properly.
- On sampling, the sampler was operated 5 minutes to establish thermal equilibrium before placing any filter media at designated air monitoring station.
- The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen.
- The filter was aligned on the screen so that the gasket formed an air-tight seal on the outer edges of the filter. Then the filter holder frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges.
- The programmable timer will be set for a sampling month of 1 hour or 24 hours. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper can be found out by using the filter number.).
- After sampling, the filter was transferred from the filter holder of the HVS to a sealed plastic bag and sent to the laboratory for weighting. The elapsed time was also recoded.
- Before weighting, all filters were equilibrated in desiccators for 24 hour with the temperature of $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$ and the relative humidity (RH) $<50\% \pm 5\%$.

Maintenance & Calibration (QA/QC)

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

Wind Data Monitoring

Wind data (wind speed and wind direction) were directly extracted from Wetland Park Station of Hong Kong Observatory. All wind data during this reporting month are shown in **Appendix G**.

2.3. Monitoring Parameters, Frequency and Duration

- 2.3.1.** Table 2.2 summarizes the monitoring parameters, monitoring duration and frequencies of impact air quality monitoring.

Table 2.2 Monitoring Parameters, Duration and Frequencies of Impact Air Quality Monitoring

| Parameter | Duration | Frequency |
|-----------|------------------|------------------------|
| 1-hr TSP | 1 hr (0800-1900) | Three times per 6 days |
| 24-hr TSP | 24 hr | Once per 6 days |

- 2.3.2.** In this reporting period, a total of 18 occasions of 1-hour TSP monitoring and 6 events of 24-hour TSP monitoring were undertaken and the schedule was shown in **Table 2.3**

Table 2.3 Time Schedule of Impact Air Quality Monitoring

| August 2018 | | | | | | |
|-------------|--------|---------|-----------|----------|--------|----------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | 1 | 2 ▼ | 3 | 4 |
| 5 | 6 | 7 | 8 ▼ | 9 | 10 | 11 |
| 12 | 13 | 14 ▼ | 15 | 16 | 17 | 18 |
| 19 | 20 ▼ | 21 | 22 | 23 | 24 | 25 ▼ |
| 26 | 27 | 28 | 29 | 30 | 31 ▼ | |

Remark: (▼) = Air quality monitoring carried out by ET.

2.4. Action and Limit Levels

The criteria for Action and Limit levels have been set out in the contract document of the Project as follows:

Table 2.4 The criteria of Action and Limit Levels for Air Quality

| Parameters | Action | Limit |
|--|---|------------------------------|
| 1-hour TSP Level ($\mu\text{g}/\text{m}^3$) | For baseline level $\leq 384\mu\text{g}/\text{m}^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2 | 500 $\mu\text{g}/\text{m}^3$ |
| | For baseline level $>384\mu\text{g}/\text{m}^3$, Action level = Limit Level | |
| 24-hour TSP Level ($\mu\text{g}/\text{m}^3$) | For baseline level $< 200\mu\text{g}/\text{m}^3$, Action level = (baseline level plus*1.3 + Limit Level) / 2 | 260 $\mu\text{g}/\text{m}^3$ |
| | For baseline level $\geq 200\mu\text{g}/\text{m}^3$, Action level = Limit Level | |

Following the criteria shown in **Table 2.4**, the Action and Limit levels for 1-hour TSP derived as illustrated in **Table 2.5**.

Table 2.5 Action and Limit Levels for 1-hour TSP and 24-hour TSP

| Air Quality Monitoring Station | 1-hr TSP ($\mu\text{g}/\text{m}^3$) | | 24-hr TSP ($\mu\text{g}/\text{m}^3$) | |
|--------------------------------|---------------------------------------|-------------|--|-------------|
| | Action Level | Limit Level | Action Level | Limit Level |
| ASR1a | 309 | 500 | 260 | 260 |
| ASR2a | 292 | 500 | 228 | 260 |

2.5. Results and Observations

2.5.1. 1-hour and 24-hour TSP Monitoring Results

Monitoring data of both 1-hour and 24-hour TSP monitoring carried out in this reporting month are summarized in **Appendix D2**. Graphical presentation of 1-hour and 24-hour TSP monitoring results for the reporting month is shown in **Appendix D3**. Wind data included wind speed and wind direction was extracted from Wetland Park Station of Hong Kong Observatory during this reporting month and is presented in **Appendix G**.

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

2.5.2. Observation

Generally, 1-hour TSP and 24-hour TSP monitoring results fluctuated well below the Action Level in this reporting period. The major dust source observed near the monitoring stations was mainly from vehicles passing by the container yards and general earth works. It can be concluded that the contractor implemented sufficient dust mitigation measures during this reporting month.

2.6. Event and Action Plan

If the impact monitoring results exceed the Action and Limit Levels, the actions specified in **Table 2.6** shall be carried out.

Table 2.6 Event and Action Plan for Air Quality (Dust) during Construction Phase

| EVENT | ACTION | | | |
|---|---|---|--|--|
| | ET | IEC | ER | CONTRACTOR |
| Action Level being exceeded for one sample | <ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method. | <ol style="list-style-type: none"> 1. Notify Contractor. | <ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate. |
| Action Level being exceeded for two or more consecutive samples | <ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. Discuss with IEC and Contractor on remedial actions required; 6. If exceedance continues, arrange meeting with IEC and ER; 7. If exceedance stops, cease additional monitoring. | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ER on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Ensure remedial measures are properly implemented. | <ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within 3 working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate. |
| Limit Level being exceeded for one sample | <ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC, ER and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; | <ol style="list-style-type: none"> 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures; | <ol style="list-style-type: none"> 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Check monitoring data and Contractor's working methods; | <ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the |

| EVENT | ACTION | | | |
|--|---|--|---|---|
| | ET | IEC | ER | CONTRACTOR |
| | 5. Assess effectiveness of Contractor's remedial actions; 6. Keep EPD and ER informed of the results. | 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly. | 4. Discuss with IEC and Contractor on potential remedial actions; 5. Ensure remedial actions properly implemented. | agreed proposals; 4. Amend proposal if appropriate. |
| Limit Level being exceeded for two or more consecutive samples | 1. Identify source; 2. Inform IEC, ER and EPD the causes & actions taken for the exceedance s; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Investigate the causes of exceedance; 6. Arrange meeting with EPD and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring. | 1. Check monitoring data submitted by ET and Contractor's working method; 2. Discuss with Contractor on the possible mitigation measures; 3. Review the proposed mitigation measures submitted by Contractor and advise the ER accordingly; 4. Supervise the implementation of mitigation measures. | 1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 4. Discuss with IEC and the Contractor on potential remedial actions; 5. Review Contractor's remedial actions whenever necessary to assure their effectiveness; 6. 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. | 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to ER within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not resolved; 5. Stop the relevant portion of works as determined by the ER until the exceedance is abated. |

3. NOISE MONITORING

3.1. Monitoring Requirements

- 3.1.1. Noise levels (L_{eq} , L_{10} and L_{90}) were monitored in the reporting month in accordance with the EM&A Manual.

3.2. Monitoring Equipment

Sound level meters used for impact noise monitoring were Type 1 sound level meters capable of giving a continuous readout of the noise level reading including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They complied with International Electro technical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 3.1** summarized the noise monitoring equipment model used during the baseline monitoring. Copies of calibration certificates for noise meters and calibrators were attached in **Appendix E1**.

Table 3.1 Noise Monitoring Equipment

| Noise Monitoring Equipment | Model |
|----------------------------|------------|
| Sound Level Meter | Rion NL-52 |
| Sound Level Calibrator | Rion NC-73 |

3.3. Monitoring Duration and Frequency

- 3.3.1. Impact noise monitoring for the A-weighted levels L_{eq} , L_{10} and L_{90} in 30-minute interval was recorded once per 6 days.
- 3.3.2. In this reporting period, a total of 6 occasions of noise monitoring were undertaken and the schedule was shown in **Table 3.2**

Table 3.2 Time Schedule of Impact Noise Monitoring

| August 2018 | | | | | | |
|-------------|--------|---------|-----------|----------|--------|----------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | 1 | 2 ▼ | 3 | 4 |
| 5 | 6 | 7 | 8 ▼ | 9 | 10 | 11 |
| 12 | 13 | 14 ▼ | 15 | 16 | 17 | 18 |
| 19 | 20 ▼ | 21 | 22 | 23 | 24 | 25 ▼ |
| 26 | 27 | 28 | 29 | 30 | 31 ▼ | |

Remark: (▼) = Noise monitoring carried out by ET.

3.4. Monitoring Locations

Two noise monitoring stations, NSR1a (晉榮貨櫃服務有限公司) and NSR2a (永康貨櫃服務有限公司) which shown in **Figure 1**, were required to perform impact noise monitoring.

The impact noise monitoring programme was summarized in **Table 3.3**.

Table 3.3 Noise Monitoring Stations

| Noise monitoring station | Type of Measurement |
|--------------------------|---------------------|
| NSR1a | Façade |
| NSR2a | Free Field |

3.5. Monitoring Methodology

Instrumentation

Integrating Sound Level Meters were employed for noise monitoring.

Operation/Analysis Procedures

- The Sound Level Meter was set on a tripod at a height of 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces.
- The battery condition was checked to ensure the correct functioning of the meter.
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
 - Frequency weighting : A
 - Time weighting : Fast
 - Time measurement : 30 mins
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1000HZ. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat measurement would be required after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq} , L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.
- 3dB(A) correction had been added to the results if noise measurements were free-field.
- Noise monitoring would be cancelled in the presence of fog, rain, storm, wind with a steady speed exceeding 5m/s, or wind gusts exceeding 10m/s.

Maintenance and Calibration (QA/QC)

- The microphone head of the sound level meter and calibrator are cleaned with soft cloth at quarterly intervals.
- The meters are sent to the HOKLAS accredited laboratory or equivalent to check and calibrated at yearly intervals.

3.6. Actions and Limit Level

The Action and Limit Levels were established in **Table 3.4** for noise monitoring.

Table 3.4 Action and Limit Levels for Noise Monitoring

| Time Period | Action | Limit |
|--------------------------------|---|-----------|
| 0700 –1900 hrs normal weekdays | When one documented complaint is received | 75 dB(A)* |

Remark: (*)70dB(A) for schools and 65dB(A) for schools during school examination period

3.7. Results and Observations

3.7.1. Results

Monitoring data of noise monitoring carried out in this reporting month are summarized in **Appendix E2**. Graphical presentation of noise monitoring results for the reporting month is shown in **Appendix E3**.

No exceedance of Action and Limit Level of noise monitoring results was recorded during the reporting month.

3.7.2. Observation

The noise monitoring data were found to be lower than the limit level. The major noise source during the monitoring event was the vehicles passing through the container yard entrance and the general earth works inside the construction site.

3.8. Event and Action Plan

If the impact monitoring results exceed the Action and Limit Levels, the actions specified in **Table 3.5** shall be carried out.

Table 3.5 Event/Action Plan for Construction Noise

| EVENT | ACTION | | | |
|--------------|---|--|---|--|
| | ET | IEC | ER | CONTRACTOR |
| Action level | <ol style="list-style-type: none"> 1. Notify IEC and Contractor; 2. Carry out investigation; 3. Report the results of investigation to the IEC and Contractor; 4. Discuss with the Contractor and formulate remedial measures ; 5. Increase monitoring frequency to check the effectiveness of mitigation measures. | <ol style="list-style-type: none"> 1. Review the analyzed results submitted by the ET; 2. Review the proposed remedial measures by the Contractor and advise the ER accordingly; 3. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented. | <ol style="list-style-type: none"> 1. Submit noise mitigation proposal to IEC; 2. Implement noise mitigation proposals. |
| Limit level | <ol style="list-style-type: none"> 1. Notify IEC, ER, EPD & Contractor; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Inform IEC, ER and EPD | <ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 3. Supervise the implementation of remedial measures. | <ol style="list-style-type: none"> 1. Confirm receipt of notification in writing; 2. Notify Contractor; 3. Require Contractor to propose remedial measures for the analyzed noise problem; 4. Ensure mitigation measures are properly implemented; 5. If exceedances continues, consider what portion of the | <ol style="list-style-type: none"> 1. Undertake immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within 3 working days of notification; 3. Implement the agreed proposals; 4. Resubmit proposals if problem still not under control; 5. Stop the relevant portion of |

| | | | | |
|--|--|--|---|---|
| | <p>the causes and actions taken for the exceedances;</p> <p>7. Assess the effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p> | | <p>work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</p> | <p>works as determined by ER, until the exceedance is abated.</p> |
|--|--|--|---|---|

4. WATER QUALITY MONITORING

4.1. Monitoring Requirements

- 4.1.1. Water quality was monitored in the reporting month in accordance with the EM&A Manual at one alternative water quality monitoring station, R1b (at Tin Shui Wai Nullah) which shown in **Figure 2**.

4.2. Monitoring Methodology and Equipment

For In-situ Water Quality Measurement

Dissolved Oxygen (DO) measuring equipment

A portable, weatherproof DO-measuring meter with built-in salinity compensation (e.g. YSI 85, YSI Pro 2030 or equivalent) was used in the baseline monitoring. It can be capable for measuring dissolved oxygen level in the range of 0-20 mg/L and 0-200 % saturation.

For Water Sampling and Sample Analysis

Water Sampler

A water sampler comprising a metal bucket was lowered into the water body.

Water Container

The sample container, made by high-density polythene, was rinsed with a portion of the water sample. The water sample was then transferred to the container, labelled with a unique sample ID and sealed with a screw cap. The water samples were stored in a cool box maintained at 4°C. The water samples will then be delivered to Environmental Laboratory of ETS-Testconsult Ltd (HOKLAS Registration No. 022) on the same day for analysis according to the Standard Method APHA 19ed.

The summary of testing methods of testing parameters required was shown in **Table 4.1**.

Table 4.1 Summary of Testing Procedures for water samples

| Parameters | Testing Procedure | Detection Limit |
|------------------------|--|-----------------|
| Turbidity | Dissolved Oxygen Meter Measurement | 0.1 NTU |
| Dissolved Oxygen | In house method refer to APHA 19 th ed 2130 B | 0.01 mg/L |
| Total suspended solids | In house method refer to APHA 19 th ed 2540D | 0.1 mg/L |

4.3. Monitoring Frequency

- 4.3.1. Water samples were collected 3 times per week in 1 monitoring station. Three parameters including turbidity, dissolved oxygen and total suspended solids would be tested.

Table 4.2 Monitoring Frequency of Water Quality Monitoring

| Parameters | Frequency | No. of sampling stations |
|------------------------|------------------|--------------------------|
| Turbidity | 3 times per week | 1 station |
| Dissolved Oxygen | | |
| Total suspended solids | | |

- 4.3.2. In this reporting period, a total of 13 occasions of water quality monitoring were undertaken and the schedule was shown in **Table 4.3**

Table 4.3 Time Schedule of Impact Water Quality Monitoring

| August 2018 | | | | | | |
|-------------|--------|---------|-----------|----------|--------|----------|
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | 1 | 2 ▼ | 3 | 4 ▼ |
| 5 | 6 | 7 ▼ | 8 | 9 ▼ | 10 | 11 ▼ |
| 12 | 13 | 14 ▼ | 15 | 16 ▼ | 17 | 18 ▼ |
| 19 | 20 | 21 ▼ | 22 | 23 ▼ | 24 | 25 ▼ |
| 26 | 27 | 28 ▼ | 29 | 30 ▼ | 31 | |

Remark: (▼) = Water quality monitoring carried out by ET.

4.4. Quality Assurance (QA) / Quality Control (QC)

For in-situ measurements, at each measurement / sampling, two consecutive measurements of turbidity and dissolved oxygen (DO) were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. If the difference between the first and second measurement is greater than 25% the reading will be discarded and the measurements will be repeated.

For laboratory analysis of water, test method of all test parameters and the QA/QC samples were carried out in accordance with the requirements of HOKLAS.

For our QA/QC procedure, one QC sample, one duplicate sample and one sample spike of every batch of 20 samples were analyzed.

The calibration certifications of water quality monitoring equipments were shown in **Appendix F1**.

4.5. Actions and Limit Levels

The criteria for Action and Limit Levels have been set out as follows:

Table 4.4 The criteria of Action and Limit Levels for Water Quality

| Parameters | Unit | Action Level | Limit Level |
|------------------|------|-------------------------|-------------------------|
| Turbidity | NTU | 95%ile of baseline data | 99%ile of baseline data |
| Dissolved Oxygen | mg/L | 5%ile of baseline data | 1%ile of baseline data |
| Suspended solids | mg/L | 95%ile of baseline data | 99%ile of baseline data |

Following the criteria shown in **Table 4.4**, the Action and Limit Levels for monitoring parameters derived as illustrated in **Table 4.5**.

Table 4.5 Action and Limit Levels for Water Quality

| Parameters | Unit | Action | Limit |
|------------------|------|--------|-------|
| Turbidity | NTU | 19.8 | 20.5 |
| Dissolved Oxygen | mg/L | 1.84 | 1.81 |
| Suspended Solid | mg/L | 17.0 | 17.8 |

4.6. Result and Observation

4.6.1. Result

Monitoring data of water quality monitoring carried out in this reporting month are summarized in **Appendix F2**. Graphical presentation of the monitoring results for the reporting month is shown in **Appendix F3**.

According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix O**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month.

4.6.2. Observation

Generally, the turbidity and suspended solids were found to be lower than the action level. However, on 07 August 2018, the result of suspended solid was found to be extremely high comparing to the data recorded on other monitoring days. After investigation, it was considered as non-Project related. Besides, all results of dissolved oxygen measured in this reporting month were higher than the action level.

4.7. Event and Action Plan

If the impact monitoring results of the individual parameters exceed the Action and Limit Levels, the actions specified in **Table 4.6** shall be carried out.

Table 4.6 Event and Action Plan for Water Quality

| Event | Action | | | |
|---|--|---|--|--|
| | ET Leader | IEC | ER | Contractor |
| Action Level being exceeded by one sampling day | 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources | 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures | 1. Discuss with IEC on the proposed mitigation measures; 2. make agreement on the mitigation measures to be | 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; |



| Event | Action | | | |
|--|---|---|--|---|
| | ET Leader | IEC | ER | Contractor |
| | 3. of impact; Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Repeat measurement on next day of exceedance. | submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. | implemented; 3. Assess the effectiveness of the implemented mitigation measures. | 3. Check all plant and equipment 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER; 6. Implement the agreed mitigation measures. |
| Action Level being exceeded by more than two consecutive sampling days | 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC and Contractor; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC and Contractor; 6. Ensure mitigation measures are implemented; 7. Prepare to increase the monitoring frequency to | 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC on the proposed mitigation measures; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures. | 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET and IEC and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures. |



| Event | Action | | | |
|--|--|---|--|---|
| | ET Leader | IEC | ER | Contractor |
| | 8. daily; Repeat measurement on next day of exceedance. | | | |
| Limit Level being exceeded by one sampling day | 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor or and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level. | 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. | 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures. | 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures. |

| Event | Action | | | |
|---|--|---|---|---|
| | ET Leader | IEC | ER | Contractor |
| Limit Level being exceeded by more than two consecutive sampling days | <ol style="list-style-type: none"> 1. Repeat in-situ measurement to confirm findings; 2. Identify reasons for non-compliance and sources of impact; 3. Inform IEC, Contractor and EPD; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Discuss mitigation measures with IEC, ER and Contractor; 6. Ensure mitigation measures are implemented; 7. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days. | <ol style="list-style-type: none"> 1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; 3. Assess the effectiveness of the implemented mitigation measures. | <ol style="list-style-type: none"> 1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; 4. Assess the effectiveness of the implemented mitigation measures; 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit Level. | <ol style="list-style-type: none"> 1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; 7. As directed by the ER, to slow down or to stop all or part of the marine work or construction activities. |

5. ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1. Site Inspection

5.1.1. Site Inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control mitigation measures for the project. During the reporting period, site inspections were carried out on 03, 10, 17, 23 & 31 August 2018.

5.1.2. Observations for the site inspections within this reporting period are summarized in **Table 5.1** and inspection checklists are attached in **Appendix H**.

Table 5.1 Summary of observation of site inspections

| Date | Observations/ Reminders | Follow-up Action | Closed Date |
|----------------|--|---|----------------|
| 27 July 2018 | 1. General refuse was observed at Portion AB. 2. Stagnant water was observed at Portion AB. 3. Stagnant water was observed near Portion SDB. | 1. General refuse was collected at Portion AB. 2. Stagnant water was cleared at Portion AB. 3. Stagnant water was cleared near Portion SDB. | 03 August 2018 |
| 03 August 2018 | 1. Stagnant water was observed near Portion SDB. | 1. Stagnant water was cleared at Portion SDB. | 10 August 2018 |
| 10 August 2018 | -- | -- | -- |
| 17 August 2018 | 1. Stagnant water was observed at Portion SDB, CEPT & UV. | 1. Stagnant water was cleared at Portion SDB, CEPT & UV. | 23 August 2018 |
| 23 August 2018 | 1. Improper disposal of general refuse was observed. | 1. General refuse was collected. | 31 August 2018 |
| 31 August 2018 | 1. Stagnant water was observed at CEPT. 2. General refuse was observed at CEPT. | Follow-up actions for outstanding observation will be inspected during the next site inspection. | -- |

5.2. Landscape and Visual Audit

5.2.1. Landscape and visual audits were undertaken at least once every two weeks throughout the construction period by a competent landscape architect. During the reporting period, audits were carried out on 10 and 23 August 2018.

5.2.2. Observations and reminders were summarized in the landscape and visual impact assessment checklists which are attached in **Appendix I**.

5.3. Advice on the Solid and Liquid Waste Management Status

5.3.1. All types of waste arising from the construction work are classified into the following:

- Construction & Demolition (C&D) Material;
- Chemical Waste;
- General Refuse; and
- Excavated Soil

5.3.2. The quantities of waste for disposal in this Reporting Period are summarized in **Table 5.2** and **Table 5.3** and the Monthly Summary Waste Flow Table is shown in **Appendix J**. Whenever possible, materials were reused on-site as far as practicable.

Table 5.2 Summary of Quantities of Inert C&D Materials

| Type of Waste | Quantity | Disposal Location |
|--|----------|-----------------------|
| Reused in this Contract (Inert) (m ³) | 0 | -- |
| Reused in other Projects (Inert) (m ³) | 0 | -- |
| Disposed as Public Fill (Inert) (m ³) | 1,605 | Tuen Mun 38 Fill Bank |

Table 5.3 Summary of Quantities of C&D Materials

| Type of Waste | Quantity | Disposal Location |
|---|----------|--|
| Recycled Metal (kg) | 0 | -- |
| Recycled Paper / Cardboard Packing (kg) | 0 | -- |
| Recycled Plastic (kg) | 0 | -- |
| Chemical Wastes (kg) | 0 | -- |
| General Refuses (m ³) | 33,520 | North East New Territories (NENT) Landfill |

5.3.3. To control over the site performance on waste management, the Contractor shall ensure that all solid and liquid waste management works are in full compliance with the relevant license/permit requirements, such as the effluent discharge license and the chemical waste producer registration. The Contractor is also reminded to implement the recommended environmental mitigation measures according to the EM&A Manual based on actual site conditions.

5.4. Discharge License and Results of Effluent Monitoring

5.4.1. Effluent quality was monitored in the reporting month in accordance with the EM&A Manual at the discharge point. A discharge license under Water Pollution Control Ordinance was obtained by the Contractor upon commencement of the Project. Self-monitoring would be performed as per the requirement under the discharge license. According to the EM&A Manual, pH, chemical oxygen demand and total suspended solid are required to be analysed at least once every two week.

5.4.2. Effluent water samples were scheduled to be collected on 07 and 21 August 2018. Since only Wetsep at P8 was operated on 07 August 2018, the effluent water sample was sampled at P8 only on 07 August 2018. The required testing parameter including pH, chemical oxygen demand and total suspended solid were carried out in a HOKLAS laboratory. The methods of chemical oxygen demand and total suspended solid determination follow APHA 19ed 5220 B and APHA 19ed 2540 D respectively. The laboratory reports for the discharge water are presented in **Appendix N**.

5.4.3. For effluent quality monitoring as per the discharge license requirement, the results complied with the discharge license requirement.

5.5. Environmental Licenses and Permits

5.5.1. The valid environmental licenses and permits during the reporting period are summarized in **Appendix K**.

5.6. Implementation Status of Environmental Mitigation Measures

5.6.1. The environmental mitigation measures that recommended in the Environmental Monitoring and Audit Manual covered the issues of dust, noise, water and waste and they are summarized as following:

Dust Mitigation Measures

- The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
- All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition;
- Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point;
- The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores;

- e. Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit;
- f. Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet;
- g. The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials;
- h. Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels;
- i. Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle;
- j. The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet;
- k. Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;
- l. Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet.

Noise Mitigation Measures

- a. Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs.
- b. Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers
- c. The contractor should site noisy equipment and activities as far from sensitive receivers as practical.
- d. Idle equipment should be turned off or throttled down.
- e. Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided
- f. Construction plant should be properly maintained and operated.

Water Quality Mitigation Measures

- a. Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs;
- b. The exposed soil surfaces should also be properly protected to minimize dust emission;
- c. The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel;
- d. Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles;
- e. Provision of site drainage systems and treatment facilities would be required to minimize the water pollution;
- f. A discharge license needs to be applied from EPD for discharging effluent from the construction site;
- g. The treated effluent quality is required to meet the requirements specified in the discharge license;
- h. Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis;
- i. A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis;
- j. Illegal disposal of chemicals should be strictly prohibited;
- k. Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes;

- l. Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handling chemical wastes;
- m. The impact from accidental spillage of chemicals can be effectively controlled through good management practices.

Waste Management Mitigation Measures

- a. Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;
- b. To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce;
- c. Any unused chemicals or those with remaining functional capacity should be recycled;
- d. Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill;
- e. Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and
- f. Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste.

5.6.2. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in **Appendix L**. Most of the necessary mitigation measures were implemented properly. Any deficiencies were noted in the remarks of the schedule.

5.7. Summary of Exceedance of the Environmental Quality Performance Limit

5.7.1. There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.

5.7.2. There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.

5.7.3. According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix O**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month.

5.8. Summary of Complaints, Notification of Summons and Successful Prosecution

5.8.1. There were no complaints received during the reporting period.

5.8.2. There were no notifications of summons or prosecutions received during the reporting period.

5.8.3. A summary of environmental complaints, notifications of summons and successful prosecutions was given in **Table 5.4**.

Table 5.4 Summary of Environmental Complaints Notification of Summons and Successful Prosecution

| Reporting Period | Cumulative Statistic | | |
|--|----------------------|--------------------------|-------------------------|
| | Complaints | Notifications of summons | Successful prosecutions |
| The reporting period | 0 | 0 | 0 |
| From commencement date of construction to end of reporting month | 0 | 0 | 0 |

6. FUTURE KEY ISSUES

6.1. Construction Programme for the Coming Months

6.1.1. As informed by the Contractor, the major construction activities for September 2018 are included:

- Substructure (rc structure);
- Substructure (ELS & Bulk excavation);
- Backfilling;
- Superstructure (rc and metalworks);
- Removal of ELS;
- Internal ABWF – CEPT;
- Water Tightness Test;
- ABWF - Sludge Dewatering Building;
- ABWF - Administration Building & Maintenance Workshop;
- Bar Screen Installation;
- Pile Loading Test;
- Post-Drilling (Investigation and verification of the quality of socketed H-piles);
- Slope works and Retaining Wall (Eastern Portion);
- Slope works (Northern Portion);
- Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains);
- CLP Cable Duct and Draw Pits (within the Site);
- EVA (Road & Drainage);
- RC Trench and Odour Pipe (DO1, DO2);
- Process Pipe;
- Emergency By-Pass Pipe;
- Sewage Pipe;
- Cable Duct and Draw Pits

6.2. Key Issues for the Coming Month

Key issues to be considered in the coming month include:

- Chemical and waste management;
- Treatment of runoff and wastewater prior to discharge; and
- Dust and Noise generated from construction activities;

Mitigation measures to be required in the coming month:

Air Quality Impact

- To provide adequate water spraying in the worksite;
- To operate and maintain automatic wheel washing facilities properly;
- To provide road sweeping site entrance and public roads outside site entrance;
- To ensure implementation of the dust mitigation measures for the site activities;
- To maintain proper operation of the mist spraying system;
- To provide proper maintenance for vehicles and machines on site; and

- To investigate any other dust sources around the air sensitive receivers

Noise

- To switch off equipment if not in use;
- To operate silent equipment;
- To identify the noise sources inside and outside of the site; and
- To follow up any exceedance caused by the construction work inside the worksite

Water Quality Impact

- To ensure the drainage system was maintained properly;
- To maintain the existing silt trap to ensure good efficiency of wheel wash facilities;
- To avoid stagnant water in the drip trays due to rainfall;
- To avoid any stagnant water or provide insecticide to avoid mosquito breeding
-

Chemical and Waste Management

- To remove waste from the site regularly;
- To properly store and handle chemical wastes on site;
- To implement trip ticket system for all the imported public fill and general refuse disposal;
- To maintain proper housekeeping;
- To identify C&D material by packaging, labelling, storage, transportation and disposal in accordance with statutory regulations.

6.3. Environmental Monitoring and Site Inspection Schedule for the Coming Month

- 6.3.1.** The tentative schedule for environmental monitoring and site inspection schedule for September 2018 is provided in **Appendix M**.

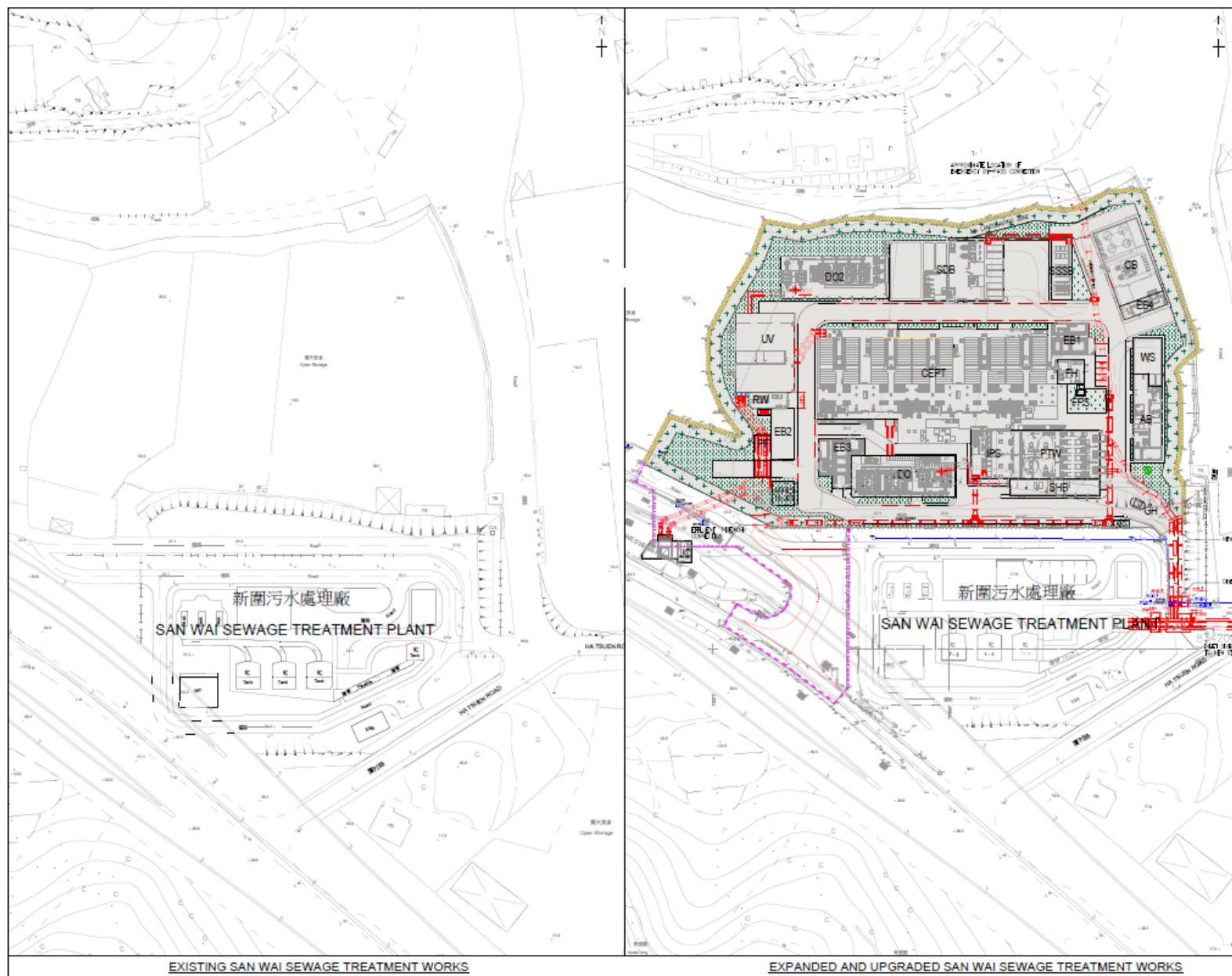
7. CONCLUSION

7.1. Conclusions

- 7.1.1.** There was no Action and Limit level exceedance of 1-hour and 24-hr TSP monitoring was recorded at station ASR1a and ASR2a during this reporting month.
- 7.1.2.** There was no Action and Limit Level exceedance for noise recorded at station NSR1a and NSR2a during the reporting period.
- 7.1.3.** According to the summary of water monitoring results, there was one limit level exceedance of suspended solid at station R1b on 07 August 2018. After investigation, there was concluded that the exceedance was not relevant to this Contract since the results of effluent water sample sampled on 07 August 2018 at P8 complied with the discharge license requirement and thus the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b. Besides, the surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. Therefore, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related. The Investigation Reports No. 002 (including the causes of exceedance, action taken and recommendation for mitigation) for Action or Limit Level Non-compliance were provided in **Appendix O**. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month. Other than the above exceedance, no exceedance of Action and Limit level was recorded in the reporting month.
- 7.1.4.** There were no complaints received during the reporting period.
- 7.1.5.** There were no notifications of summons or prosecutions received during the reporting period.

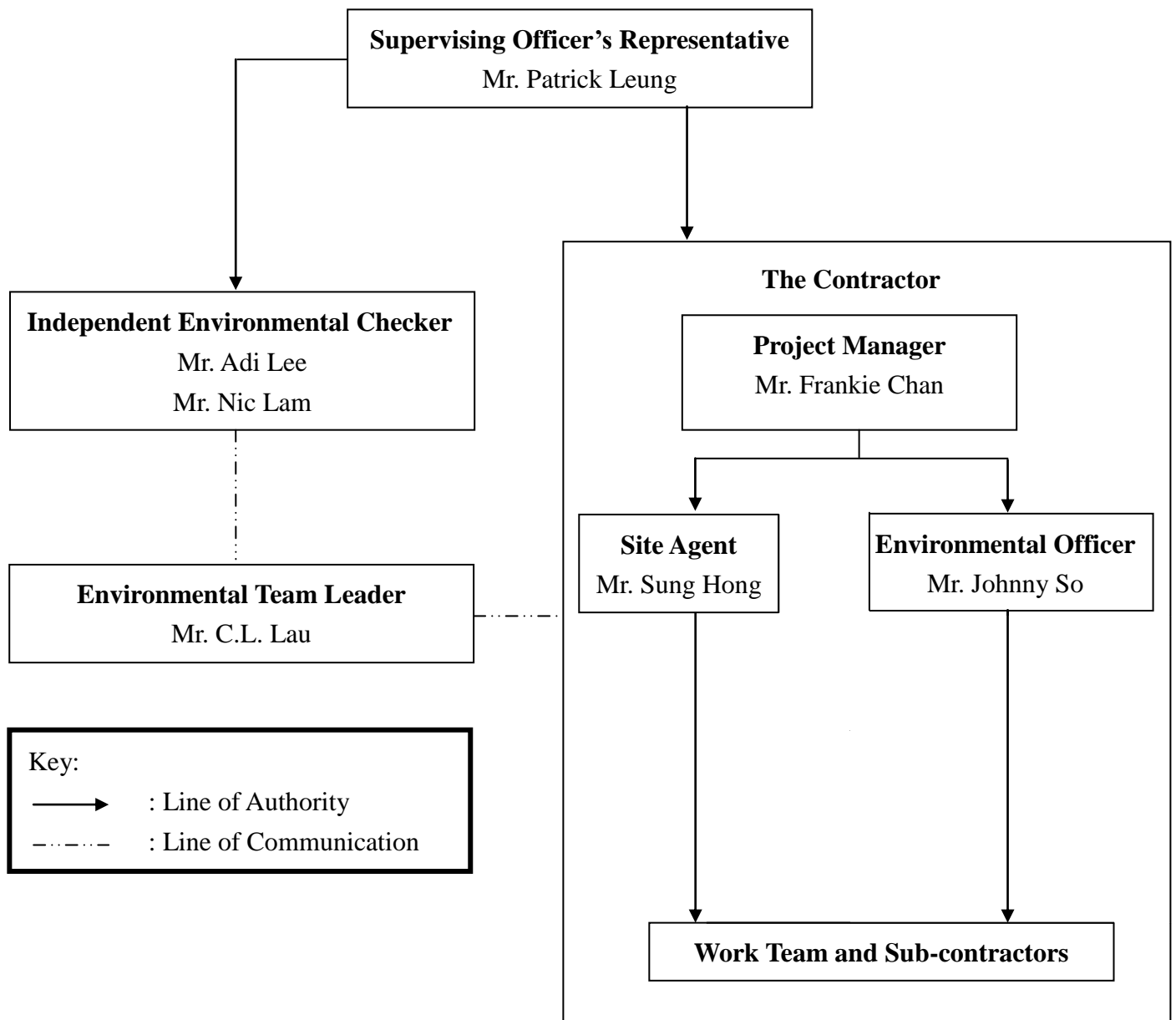
Appendix A

Location of Works Areas



Appendix B

Project Organization Chart



Appendix C

Construction Programme



| DATA DATE: 31-Aug-18 | | LAYOUT: SW Project Phase 1 Rev 9 (3M 31Aug18)1 | | | | | PAGE 2 OF 10 | | | | | | | |
|--|--|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| Control and Monitoring System (AIP21 / DDA21ABCDE) | | | | | | | | | | | | | | |
| DG1924 | DDA21A - Process & Instrumentation Diagram (P&ID) - Design Preparation to SO Approval | 679 | 12-Jan-17 A | 22-Nov-18 | 12-Jan-17 | 27-Aug-18 | 0 | -87 | | | | | | |
| DG1940 | DDA21B - System Control Philosophy - Design Preparation to SO Approval | 638 | 12-Jan-17 A | 11-Oct-18 | 12-Jan-17 | 18-Jun-18 | 0 | -115 | | | | | | |
| DG1956 | DDA21C - Functional Design Specification - Design Preparation to SO Approval | 557 | 03-Apr-17 A | 11-Oct-18 | 03-Apr-17 | 20-Jun-18 | 0 | -113 | | | | | | |
| DG1972 | DDA21D - PLC, SCADA & I/O Allocation Schedules - Design Preparation to SO Approval | 537 | 23-Apr-17 A | 11-Oct-18 | 23-Apr-17 | 22-Jun-18 | 0 | -112 | | | | | | |
| DG1988 | DDA21E - SCADA Graphic Interface - Design Preparation to SO Approval | 509 | 01-Jul-17 A | 22-Nov-18 | 01-Jul-17 | 27-Aug-18 | 0 | -87 | | | | | | |
| Landscaping Works (AIP22 / DDA22AB) | | | | | | | | | | | | | | |
| DG1260 | DDA22A - Landscaping Works (Green Roof) - Design Preparation to SO Approval | 632 | 06-Jan-17 A | 30-Sep-18 | 06-Jan-17 | 02-Jul-18 | 0 | -89 | | | | | | |
| DG1274 | DDA22B - Landscaping Works (Site Wide) - Design Preparation to SO Approval | 473 | 03-Jul-17 A | 18-Oct-18 | 03-Jul-17 | 15-Jul-18 | 0 | -95 | | | | | | |
| Testing and Commissioning Plan (AIP23 / DDA23) | | | | | | | | | | | | | | |
| DG3270 | AIP23 - Outline Testing & Commissioning Plan - Design Preparation to SO Approval | 331 | 28-Nov-17 A | 24-Oct-18 | 28-Nov-17 | 04-Jul-18 | 0 | -112 | | | | | | |
| DG3305 | DDA23 - Detailed Testing & Commissioning Plan - Design Preparation to SO Approval | 214 | 22-Apr-18 A | 21-Nov-18 | 22-Apr-18 | 08-Oct-18 | 0 | -44 | | | | | | |
| General Notes Drawings for Foundation and Civil & Structural (AIP24AB / DDA24AB) | | | | | | | | | | | | | | |
| General Notes Drawings for Civil & Structural (AIP24B / DDA24BC) | | | | | | | | | | | | | | |
| DG3706 | DDA24C - Typical Details for Architecture - Design Preparation to SO Approval | 583 | 22-Feb-17 A | 27-Sep-18 | 22-Feb-17 | 29-Jun-18 | 0 | -91 | | | | | | |
| Site Formation (AIP26 / DDA26) | | | | | | | | | | | | | | |
| DG660 | DDA26 - Site Formation - Design Preparation to SO Approval | 635 | 14-Jan-17 A | 10-Oct-18 | 14-Jan-17 | 24-Jun-18 | 0 | -108 | | | | | | |
| Road Works (AIP27A / DDA27A) | | | | | | | | | | | | | | |
| DG1060 | DDA27A - Road Works - Design Preparation to SO Approval | 554 | 23-Mar-17 A | 28-Sep-18 | 23-Mar-17 | 28-Jun-18 | 0 | -91 | | | | | | |
| Sewerage and Drainage Works (AIP27B / DDA27BC1C2DEF) | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP27B / DDA27BC) | | | | | | | | | | | | | | |
| DG960 | DDA27B - Sewerage and Drainage Works - Design Preparation to SO Approval | 586 | 21-Feb-17 A | 29-Sep-18 | 21-Feb-17 | 01-Jul-18 | 0 | -90 | | | | | | |
| DG988 | DDA27D - Detailed Design Report for Pipe Trenches - C&S - Design Preparation to SO Approval | 536 | 08-May-17 A | 25-Oct-18 | 08-May-17 | 29-Jul-18 | 0 | -88 | | | | | | |
| Boundary Wall & Entrance (AIP28 / DDA28AB) | | | | | | | | | | | | | | |
| DG1160 | DDA28A - Slopes and Retaining Wall - Design Preparation to SO Approval | 604 | 03-Feb-17 A | 29-Sep-18 | 03-Feb-17 | 03-Jul-18 | 0 | -88 | | | | | | |
| DG1195 | DDA28B - Boundary Wall & Entrance - Design Preparation to SO Approval | 512 | 17-Jun-17 A | 11-Nov-18 | 17-Jun-17 | 11-Aug-18 | 0 | -91 | | | | | | |
| Site Wide Utility (AIP30 / DDA30ABCEFGI) | | | | | | | | | | | | | | |
| DG3515 | DDA30A - Site Wide Security Access Control & Communication System - Design Preparation to SO Approval | 609 | 30-Jan-17 A | 01-Oct-18 | 30-Jan-17 | 02-Jul-18 | 0 | -91 | | | | | | |
| DG3774 | DDA30B - Site Wide Utility (U/G Pipework, Ductwork, Cable Route, Cable Draw Pit) - Design Preparation to SO Approval | 505 | 08-Jun-17 A | 25-Oct-18 | 08-Jun-17 | 08-Jul-18 | 0 | -109 | | | | | | |
| DG3788 | DDA30C - Fire Services System and Street Fire Hydrant System - Design Preparation to SO Approval | 498 | 08-Jun-17 A | 18-Oct-18 | 08-Jun-17 | 22-Jun-18 | 0 | -119 | | | | | | |
| DG3816 | DDA30E - Site Wide Utility (Road Lighting) - Design Preparation to SO Approval | 486 | 23-Jun-17 A | 21-Oct-18 | 23-Jun-17 | 22-Jun-18 | 0 | -122 | | | | | | |
| DG3830 | DDA30F - Typical Electrical Installation Drawings - Design Preparation to SO Approval | 506 | 08-Jun-17 A | 27-Oct-18 | 08-Jun-17 | 19-Jul-18 | 0 | -100 | | | | | | |
| DG3844 | DDA30G - Typical Building Services Installation Drawings - Design Preparation to SO Approval | 491 | 23-Jun-17 A | 27-Oct-18 | 23-Jun-17 | 11-Jul-18 | 0 | -108 | | | | | | |
| HAZOP Report (DDA31AB) | | | | | | | | | | | | | | |
| DG3530 | DDA31A - HAZOP Study - Design Preparation to SO Approval | 696 | 01-Dec-16 A | 27-Oct-18 | 01-Dec-16 | 29-May-18 | 0 | -152 | | | | | | |
| DG3545 | DDA31B - Hazardous Zoning Classification Report - Design Preparation to SO Approval | 429 | 01-Sep-17 A | 03-Nov-18 | 01-Sep-17 | 03-Jun-18 | 0 | -154 | | | | | | |
| ELS / Bulk Excavation (Temporary Works) | | | | | | | | | | | | | | |
| ELS for Emergency Bypass | | | | | | | | | | | | | | |
| DG3740 | ELS for Emergency Bypass - Design Preparation to DC and SO Approval | 447 | 12-Jun-17 A | 01-Sep-18 | 12-Jun-17 | 12-Jul-18 | 0 | -51 | | | | | | |
| ELS for Inlet Pipe Connection | | | | | | | | | | | | | | |
| DG3755 | ELS for Inlet Pipe Connection - Design Preparation to DC and SO Approval | 397 | 04-Sep-17 A | 05-Oct-18 | 04-Sep-17 | 16-Jul-18 | 0 | -81 | | | | | | |
| ELS for UV | | | | | | | | | | | | | | |
| DG3769 | ELS for UV - Design Preparation to DC and SO Approval | 363 | 04-Sep-17 A | 01-Sep-18 | 04-Sep-17 | 11-Jul-18 | 0 | -52 | | | | | | |
| Miscellaneous Design | | | | | | | | | | | | | | |
| Equipment Schedules (DDA32A) | | | | | | | | | | | | | | |
| DG2012 | DDA32A - Equipment Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -98 | | | | | | |



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|--|--|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| Penstock & Stoplogs Schedules (DDA32B) | | | | | | | | | | | | | | |
| DG3216 | DDA32B - Penstock & Stoplogs Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -96 | | | | | | |
| Valves Schedules (DDA32C) | | | | | | | | | | | | | | |
| DG3222 | DDA32C - Valves Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -96 | | | | | | |
| Piping and Pipe Support Schedules (DDA32D) | | | | | | | | | | | | | | |
| DG3864 | DDA32D - Piping and Pipe Support Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -96 | | | | | | |
| Painting Schedules (DDA32E) | | | | | | | | | | | | | | |
| DG3228 | DDA32E - Painting Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -96 | | | | | | |
| Instrumentation Schedules (DDA32F) | | | | | | | | | | | | | | |
| DG3234 | DDA32F - Instrumentation Schedules - Design Preparation to SO Approval | 440 | 03-Jul-17 A | 15-Sep-18 | 03-Jul-17 | 09-Jun-18 | 0 | -96 | | | | | | |
| LOT #1 - Building / Facilities Design : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB | | | | | | | | | | | | | | |
| CEPT and System Control Flowmeter Chamber | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP6A / DDA6AB1B2) | | | | | | | | | | | | | | |
| DB4930 | DDA6B2 - SF - C&S - Design Preparation to SO Approval | 579 | 26-Mar-17 A | 25-Oct-18 | 26-Mar-17 | 24-Jun-18 | 0 | -123 | | | | | | |
| Inlet Work, Preliminary Treatment Works, IPS and SHB | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP5A / DDA5AB1B2) | | | | | | | | | | | | | | |
| DB1223 | DDA5A - PTW, IPS & SHB - C&S - Design Preparation to SO Approval | 671 | 26-Nov-16 A | 27-Sep-18 | 26-Nov-16 | 15-Jun-18 | 0 | -104 | | | | | | |
| DB4814 | DDA5B1 - PTW & IPS - C&S - Design Preparation to SO Approval | 650 | 17-Dec-16 A | 27-Sep-18 | 17-Dec-16 | 15-Jun-18 | 0 | -104 | | | | | | |
| DB4830 | DDA5B2 - SHB - C&S - Design Preparation to SO Approval | 627 | 06-Feb-17 A | 25-Oct-18 | 06-Feb-17 | 24-Jun-18 | 0 | -123 | | | | | | |
| Electrical and Mechanical Design (AIP5B / DDA5C1C2DEF) | | | | | | | | | | | | | | |
| DB1264 | DDA5C1-2 - PTW, IPS & SHB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval | 542 | 01-Apr-17 A | 25-Sep-18 | 01-Apr-17 | 25-May-18 | 0 | -123 | | | | | | |
| UV Disinfection Facilities | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP7A / DDA7AB) | | | | | | | | | | | | | | |
| DB1325 | DDA7A - UV Facilities - C&S (Architectural) - Design Preparation to SO Approval | 399 | 11-Aug-17 A | 13-Sep-18 | 11-Aug-17 | 16-Jul-18 | 0 | -59 | | | | | | |
| Electrical and Mechanical Design (AIP7B / DDA7C1C2DEF) | | | | | | | | | | | | | | |
| DB1352 | DDA7C1-1 - UV Facilities - (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval | 639 | 22-Dec-16 A | 22-Sep-18 | 22-Dec-16 | 18-Jun-18 | 0 | -96 | | | | | | |
| DB1384 | DDA7C2-1 - UV Facilities - (Piling & Foundation Design) - CR Drawing - Design Preparation to SO Approval | 639 | 22-Dec-16 A | 22-Sep-18 | 22-Dec-16 | 18-Jun-18 | 0 | -96 | | | | | | |
| Sludge Dewatering Building and Sludge Skip Storage Building | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP8A / DDA8AB1B2) | | | | | | | | | | | | | | |
| DB1433 | DDA8A - SDB and SSSB - C&S - Design Preparation to SO Approval | 657 | 24-Dec-16 A | 11-Oct-18 | 24-Dec-16 | 12-Jul-18 | 0 | -91 | | | | | | |
| DB4858 | DDA8B2 - SSSB - C&S - Design Preparation to SO Approval | 629 | 04-Feb-17 A | 25-Oct-18 | 04-Feb-17 | 24-Jun-18 | 0 | -123 | | | | | | |
| Electrical and Mechanical Design (AIP8B / DDA8C1C2DEF) | | | | | | | | | | | | | | |
| DB1476 | DDA8C1-2 - SDB and SSSB - (Super Structural Design) - GA Drawing - Design Preparation to SO Approval | 517 | 29-Apr-17 A | 27-Sep-18 | 29-Apr-17 | 27-May-18 | 0 | -123 | | | | | | |
| LOT #2 - Building / Facilities Design : AB+WS, DO, CB+EB4, FH | | | | | | | | | | | | | | |
| Chemical Building and EB 4 | | | | | | | | | | | | | | |
| Civil and Structural Design for CB & EB4 (AIP12A / DDA12AB) | | | | | | | | | | | | | | |
| DB2123 | DDA12A - Chemical Building & EB4 - C&S - Design Preparation to SO Approval | 622 | 31-Jan-17 A | 14-Oct-18 | 31-Jan-17 | 04-Jul-18 | 0 | -103 | | | | | | |
| Electrical and Mechanical Design for CB only (AIP12B / DDA12C1C2DEF) | | | | | | | | | | | | | | |
| DB4602 | DDA12D - Chemical Building - Mechanical - Design Preparation to SO Approval | 625 | 05-Feb-17 A | 23-Oct-18 | 05-Feb-17 | 29-Aug-18 | 0 | -54 | | | | | | |
| Administration Building & Maintenance Workshop | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP10A / DDA10AB) | | | | | | | | | | | | | | |
| DB2234 | DDA10A - Admin Bldg. & Workshop - C&S - Design Preparation to SO Approval | 550 | 13-Mar-17 A | 13-Sep-18 | 13-Mar-17 | 29-Jun-18 | 0 | -76 | | | | | | |
| Electrical and Mechanical Design (AIP10B / DDA10C1C2DEF) | | | | | | | | | | | | | | |
| DB2286 | DDA10C1-1 - Admin Bldg. & Workshop (Piling & Foundation Design) - GA Drawing - Design Preparation to SO Approval | 722 | 03-Oct-16 A | 25-Sep-18 | 03-Oct-16 | 25-May-18 | 0 | -123 | | | | | | |
| Deodorization Facilities No.1 and No.2 | | | | | | | | | | | | | | |
| Civil and Structural Design (AIP9A / DDA9AB) | | | | | | | | | | | | | | |
| DB2323 | DDA9A - DO #1 & #2 (Architectural) - C&S - Design Preparation to SO Approval | 638 | 26-Jan-17 A | 25-Oct-18 | 26-Jan-17 | 24-Jun-18 | 0 | -123 | | | | | | |



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|----------------------|--|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|---------------------------|--------------------|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| DB5150 | DDA9B - DO #1 & #2 (Structural) - C&S - Design Preparation to SO Approval | 508 | 05-Jun-17 A | 25-Oct-18 | 05-Jun-17 | 24-Jun-18 | 0 | -123 | | | | | | DDA9B - DO #1 & #2 |
| | Electrical and Mechanical Design (AIP9B / DDA9C1C2DEF) | 649 | 15-Dec-16 A | 25-Sep-18 | 15-Dec-16 | 21-Jun-18 | 0 | -96 | | | | | | |
| DB2348 | DDA9C1 - DO #1 & #2 - GA Drawing - Design Preparation to SO Approval | 649 | 15-Dec-16 A | 25-Sep-18 | 15-Dec-16 | 25-May-18 | 0 | -123 | | | | | DDA9C1 - DO #1 & #2 - GA | |
| DB4634 | DDA9D - DO #1 & #2 - Mechanical - Design Preparation to SO Approval | 607 | 26-Jan-17 A | 25-Sep-18 | 26-Jan-17 | 21-Jun-18 | 0 | -96 | | | | | DDA9D - DO #1 & #2 - Mech | |
| | Street Fire Hydrant Pump Room & GENSET Room | 705 | 07-Dec-16 A | 12-Nov-18 | 07-Dec-16 | 12-Jul-18 | 0 | -123 | | | | | | |
| | Civil and Structural Design (AIP17A / DDA17AB) | 582 | 23-Mar-17 A | 25-Oct-18 | 23-Mar-17 | 11-Jul-18 | 0 | -106 | | | | | | |
| DB2423 | DDA17A - FH Pump Room & GENSET Room (Architectural) - C&S - Design Preparation to SO Approval | 582 | 23-Mar-17 A | 25-Oct-18 | 23-Mar-17 | 24-Jun-18 | 0 | -123 | | | | | DDA17A - FH Pump | |
| DB5220 | DDA17B - FH Pump Room & GENSET Room (Structural) - C&S - Design Preparation to SO Approval | 451 | 01-Aug-17 A | 25-Oct-18 | 01-Aug-17 | 11-Jul-18 | 0 | -106 | | | | | DDA17B - FH Pump | |
| | Electrical and Mechanical Design (AIP17B / DDA17C1C2DE) | 705 | 07-Dec-16 A | 12-Nov-18 | 07-Dec-16 | 12-Jul-18 | 0 | -123 | | | | | | |
| DB2448 | DDA17C1 - FH Pump Room & GENSET Room - GA Drawing - Design Preparation to SO Approval | 675 | 07-Dec-16 A | 13-Oct-18 | 07-Dec-16 | 12-Jun-18 | 0 | -123 | | | | | DDA17C1 - FH Pump R | |
| DB4648 | DDA17D - FH Pump Room & GENSET Room - Electrical - Design Preparation to SO Approval | 599 | 23-Mar-17 A | 12-Nov-18 | 23-Mar-17 | 12-Jul-18 | 0 | -123 | | | | | DDA17D - FH | |
| | LOT #3 - Building / Facilities Design : EB1, EB2, EB3, EB4, RW, DG+ICW, Inlet/Outlet Connection | 808 | 16-Sep-16 A | 02-Dec-18 | 16-Sep-16 | 28-Sep-18 | 0 | -66 | | | | | | |
| | Electrical Building No.1, No.2, No.3, No.4 | 770 | 16-Sep-16 A | 25-Oct-18 | 16-Sep-16 | 12-Jul-18 | 0 | -105 | | | | | | |
| | Civil and Structural Design for EB123 (AIP13A / DDA13AB) | 566 | 08-Apr-17 A | 25-Oct-18 | 08-Apr-17 | 12-Jul-18 | 0 | -105 | | | | | | |
| DB3123 | DDA13A - EB1, EB2 and EB3 - C&S - Design Preparation to SO Approval | 566 | 08-Apr-17 A | 25-Oct-18 | 08-Apr-17 | 12-Jul-18 | 0 | -105 | | | | | DDA13A - EB1, EB | |
| | Electrical and Mechanical Design for EB1234 (AIP13B / DDA13C1C2DE) | 767 | 16-Sep-16 A | 23-Oct-18 | 16-Sep-16 | 10-Jul-18 | 0 | -105 | | | | | | |
| DB3148 | DDA13C1 - EB1, EB2, EB3 & EB4 - GA Drawing - Design Preparation to SO Approval | 767 | 16-Sep-16 A | 23-Oct-18 | 16-Sep-16 | 22-Jun-18 | 0 | -123 | | | | | DDA13C1 - EB1, EB | |
| DB4664 | DDA13D - EB1, EB2, EB3 & EB4 - Electrical - Design Preparation to SO Approval | 607 | 23-Feb-17 A | 23-Oct-18 | 23-Feb-17 | 10-Jul-18 | 0 | -105 | | | | | DDA13D - EB1, EB2 | |
| | Re-use Water Building | 561 | 13-Apr-17 A | 25-Oct-18 | 13-Apr-17 | 24-Jul-18 | 0 | -93 | | | | | | |
| | Civil and Structural Design (AIP14A / DDA14AB) | 561 | 13-Apr-17 A | 25-Oct-18 | 13-Apr-17 | 29-Jun-18 | 0 | -118 | | | | | | |
| DB3223 | DDA14A - Re-use water Building (Architectural) - C&S - Design Preparation to SO Approval | 561 | 13-Apr-17 A | 25-Oct-18 | 13-Apr-17 | 29-Jun-18 | 0 | -118 | | | | | DDA14A - Re-use w | |
| DB5080 | DDA14B - Re-use water Building (Structural) - C&S - Design Preparation to SO Approval | 434 | 18-Aug-17 A | 25-Oct-18 | 18-Aug-17 | 28-Jun-18 | 0 | -119 | | | | | DDA14B - Re-use w | |
| | Electrical and Mechanical Design (AIP14B / DDA14C1C2DEF) | 554 | 13-Apr-17 A | 18-Oct-18 | 13-Apr-17 | 24-Jul-18 | 0 | -86 | | | | | | |
| DB4680 | DDA14D - Re-use water Building - Mechanical - Design Preparation to SO Approval | 554 | 13-Apr-17 A | 18-Oct-18 | 13-Apr-17 | 24-Jul-18 | 0 | -86 | | | | | DDA14D - Re-use wa | |
| | ICW and DG Store & Chemical Waste Storage Building | 733 | 30-Nov-16 A | 02-Dec-18 | 30-Nov-16 | 28-Sep-18 | 0 | -66 | | | | | | |
| | Civil and Structural Design (AIP16A / DDA16AB) | 375 | 16-Oct-17 A | 25-Oct-18 | 16-Oct-17 | 25-Jun-18 | 0 | -122 | | | | | | |
| DB3323 | DDA16A - ICW, DG & Chemical Stores - C&S - Design Preparation to SO Approval | 375 | 16-Oct-17 A | 25-Oct-18 | 16-Oct-17 | 25-Jun-18 | 0 | -122 | | | | | DDA16A - ICW, DG | |
| | Electrical and Mechanical Design (AIP16B / DDA16C1C2D) | 733 | 30-Nov-16 A | 02-Dec-18 | 30-Nov-16 | 28-Sep-18 | 0 | -66 | | | | | | |
| DB3348 | DDA16C1 - ICW, DG & Chemical Stores - GA Drawing - Design Preparation to SO Approval | 703 | 30-Nov-16 A | 03-Nov-18 | 30-Nov-16 | 03-Jul-18 | 0 | -123 | | | | | DDA16C1 - ICW | |
| DB4694 | DDA16D - ICW, DG & Chemical Stores - Building Services - Design Preparation to SO Approval | 558 | 24-May-17 A | 02-Dec-18 | 24-May-17 | 28-Sep-18 | 0 | -66 | | | | | DDA16D - ICW | |
| | Inlet & Outlet Pipe Connections and Diversion Pipeworks | 566 | 08-Apr-17 A | 25-Oct-18 | 08-Apr-17 | 10-Aug-18 | 0 | -76 | | | | | | |
| | Civil and Structural Design (AIP11 / DDA11ABC) | 566 | 08-Apr-17 A | 25-Oct-18 | 08-Apr-17 | 10-Aug-18 | 0 | -76 | | | | | | |
| DB3438 | DDA11B - C&S Detailed Design Report for Inlet Connections Pipework - Design Preparation to SO Approval | 566 | 08-Apr-17 A | 25-Oct-18 | 08-Apr-17 | 10-Aug-18 | 0 | -76 | | | | | DDA11B - C&S Det | |
| | LOT #4 - Building / Facilities Design : GH, PF | 564 | 13-Apr-17 A | 28-Oct-18 | 13-Apr-17 | 30-Aug-18 | 0 | -60 | | | | | | |
| | Payment Flowmeter Chamber | 564 | 13-Apr-17 A | 28-Oct-18 | 13-Apr-17 | 30-Aug-18 | 0 | -60 | | | | | | |
| | Civil and Structural Design (AIP15A / DDA15B) | 550 | 13-Apr-17 A | 14-Oct-18 | 13-Apr-17 | 20-Jul-18 | 0 | -86 | | | | | | |
| DB4323 | DDA15B - Payment Flowmeter - C&S - Design Preparation to SO Approval | 550 | 13-Apr-17 A | 14-Oct-18 | 13-Apr-17 | 20-Jul-18 | 0 | -86 | | | | | DDA15B - Payment Flo | |
| | Electrical and Mechanical Design (AIP15B / DDA15C1C2DEF) | 516 | 31-May-17 A | 28-Oct-18 | 31-May-17 | 30-Aug-18 | 0 | -60 | | | | | | |
| DB4740 | DDA15D - Payment Flowmeter - Mechanical - Design Preparation to SO Approval | 516 | 31-May-17 A | 28-Oct-18 | 31-May-17 | 30-Aug-18 | 0 | -60 | | | | | DDA15D - Payme | |
| | Gatehouse | 550 | 24-Apr-17 A | 25-Oct-18 | 24-Apr-17 | 24-Jun-18 | 0 | -123 | | | | | | |
| | Civil and Structural Design (AIP18A / DDA18AB) | 465 | 18-Jul-17 A | 25-Oct-18 | 18-Jul-17 | 24-Jun-18 | 0 | -123 | | | | | | |
| DB4424 | DDA18A - Gatehouse - C&S - Design Preparation to SO Approval | 465 | 18-Jul-17 A | 25-Oct-18 | 18-Jul-17 | 24-Jun-18 | 0 | -123 | | | | | DDA18A - Gatehou | |
| | Electrical and Mechanical Design (AIP18B / DDA18C) | 536 | 24-Apr-17 A | 11-Oct-18 | 24-Apr-17 | 10-Jun-18 | 0 | -123 | | | | | | |
| DB4754 | DDA18C - Gatehouse - Building Services - Design Preparation to SO Approval | 536 | 24-Apr-17 A | 11-Oct-18 | 24-Apr-17 | 10-Jun-18 | 0 | -123 | | | | | DDA18C - Gatehouse - | |
| | Civil & Structural Works | 774 | 01-Oct-17 A | 14-Nov-19 | 01-Oct-17 | 13-Nov-19 | 0 | 0 | | | | | | |
| | LOT #1 - Bldg / Facilities Const. (Arch1 & Struct1) : CEPT+SF, PTW+IPS+SHB, UV, SDB+SSSB | 524 | 01-Oct-17 A | 08-Mar-19 | 01-Oct-17 | 15-Jan-19 | 0 | -52 | | | | | | |



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|--|---|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| Chemically Enhanced Primary Treatment (CEPT) | | | | | | | | | | | | | | |
| CS1510 | Substructure (ELS & Bulk excavation) | 518 | 01-Oct-17 A | 03-Mar-19 | 01-Oct-17 | 25-Dec-18 | 0 | -67 | | | | | | |
| CS1520 | Substructure (rc structure) | 349 | 01-Oct-17 A | 14-Sep-18 | 01-Oct-17 | 22-Jul-18 | 0 | -54 | 0 | | | | | |
| CS1525 | Removal of ELS | 254 | 26-Jan-18 A | 07-Oct-18 | 26-Jan-18 | 31-Jul-18 | 0 | -67 | 0 | | | | | |
| CS1526 | Backfilling (except in Water Tightness Test area) | 45 | 07-Oct-18 | 21-Nov-18 | 01-Aug-18 | 14-Sep-18 | -67 | -67 | 0 | | | | | |
| CS1530 | Superstructure (rc and metalworks) | 267 | 28-Apr-18 A | 20-Jan-19 | 28-Apr-18 | 13-Nov-18 | 0 | -67 | 0 | | | | | |
| CS1534 | Water Tightness Test + Backfilling | 374 | 22-Feb-18 A | 03-Mar-19 | 22-Feb-18 | 25-Dec-18 | 0 | -67 | 0 | | | | | |
| CS1540 | Internal ABWF - CEPT | 60 | 09-Nov-18 | 08-Jan-19 | 03-Sep-18 | 01-Nov-18 | -67 | -67 | 0 | | | | | |
| System Control Flowmeter Chamber (SF) | | | | | | | | | | | | | | |
| CS1400 | Substructure (rc structure) | 82 | 07-Oct-18 | 27-Dec-18 | 01-Oct-18 | 21-Dec-18 | -6 | -6 | | | | | | |
| CS1405 | Backfilling | 30 | 07-Oct-18 | 05-Nov-18 | 01-Oct-18 | 30-Oct-18 | -6 | -6 | 0 | | | | | |
| CS1410 | Superstructure (rc and metalworks) | 30 | 06-Nov-18 | 05-Dec-18 | 31-Oct-18 | 29-Nov-18 | -6 | -6 | 0 | | | | | |
| Inlet Work, Preliminary Treatment Works and Inlet Pumping Station (PTW & IPS) | | | | | | | | | | | | | | |
| CS1210 | Substructure (ELS & Bulk excavation) | 256 | 26-Jun-18 A | 08-Mar-19 | 26-Jun-18 | 15-Jan-19 | 0 | -52 | | | | | | |
| CS1220 | Substructure (rc structure) | 163 | 26-Jun-18 A | 05-Dec-18 | 26-Jun-18 | 30-Sep-18 | 0 | -66 | 0 | | | | | |
| CS1225 | Backfilling (except in Water Tightness Test area) | 68 | 10-Oct-18 | 16-Dec-18 | 25-Aug-18 | 31-Oct-18 | -46 | -46 | 0 | | | | | |
| Solid Handling Building (SHB) | | | | | | | | | | | | | | |
| CS1300 | Substructure (rc structure) | 190 | 31-Aug-18 | 08-Mar-19 | 10-Jul-18 | 15-Jan-19 | -52 | -52 | 0 | | | | | |
| CS1305 | Backfilling (except in Water Tightness Test area) | 434 | 22-Oct-17 A | 29-Dec-18 | 22-Oct-17 | 29-Dec-18 | 0 | 0 | | | | | | |
| CS1310 | Superstructure (rc and metalworks) | 374 | 22-Oct-17 A | 31-Oct-18 | 22-Oct-17 | 31-Oct-18 | 0 | 0 | | | | | | |
| CS1315 | Water Tightness Test + Backfilling | 30 | 31-Oct-18 | 29-Nov-18 | 31-Oct-18 | 29-Nov-18 | 0 | 0 | | | | | | |
| UV Disinfection Facility (UV) | | | | | | | | | | | | | | |
| CS1910 | Substructure (rc structure) | 43 | 31-Oct-18 | 12-Dec-18 | 31-Oct-18 | 12-Dec-18 | 0 | 0 | | | | | | |
| CS1915 | Backfilling (except in Water Tightness Test area) | 60 | 31-Oct-18 | 29-Dec-18 | 31-Oct-18 | 29-Dec-18 | 0 | 0 | | | | | | |
| CS1920 | Superstructure (rc and metalworks) | 496 | 07-Oct-17 A | 14-Feb-19 | 07-Oct-17 | 15-Dec-18 | 0 | -61 | | | | | | |
| Sludge Dewatering Building (SDB) | | | | | | | | | | | | | | |
| CS1840 | Superstructure (rc and metalworks) | 375 | 07-Oct-17 A | 16-Oct-18 | 07-Oct-17 | 30-Jul-18 | 0 | -78 | -7 | | | | | |
| CS1845 | Water Tightness Test + Backfilling | 168 | 31-Aug-18 | 14-Feb-19 | 01-Jul-18 | 15-Dec-18 | -61 | -61 | 0 | | | | | |
| CS1850 | ABWF - Sludge Dewatering Building | 78 | 30-Sep-18 | 17-Dec-18 | 31-Jul-18 | 16-Oct-18 | -61 | -61 | 0 | | | | | |
| Sludge Skip Storage Building (SSSB) | | | | | | | | | | | | | | |
| CS2900 | Substructure (rc structure) | 249 | 05-Mar-18 A | 08-Nov-18 | 05-Mar-18 | 20-Sep-18 | 0 | -49 | | | | | | |
| LOT #2 - Bldg / Facilities Const. (Arch'l & Struct'l) : AB+WS, DO, CB, FH | | | | | | | | | | | | | | |
| Administration Building & Maintenance Workshop (AB & WS) | | | | | | | | | | | | | | |
| CS1115 | Backfilling | 256 | 03-Apr-18 A | 14-Dec-18 | 03-Apr-18 | 11-Nov-18 | 0 | -33 | | | | | | |
| CS1120 | Superstructure (rc and metalworks) | 157 | 03-Apr-18 A | 05-Sep-18 | 03-Apr-18 | 11-Aug-18 | 0 | -26 | 0 | | | | | |
| CS1125 | Water Tightness Test | 97 | 11-Jul-18 A | 15-Oct-18 | 13-Jul-18 | 12-Sep-18 | 2 | -33 | 0 | | | | | |
| CS1130 | ABWF - Administration Building & Maintenance Workshop | 60 | 16-Oct-18 | 14-Dec-18 | 13-Sep-18 | 11-Nov-18 | -33 | -33 | 0 | | | | | |
| Deodorization Facilities No. 1 (DO 1) | | | | | | | | | | | | | | |
| CS1610 | Substructure (rc structure) | 464 | 19-Oct-17 A | 25-Jan-19 | 19-Oct-17 | 25-Jan-19 | 0 | 0 | | | | | | |
| CS1615 | Backfilling | 406 | 19-Oct-17 A | 28-Nov-18 | 19-Oct-17 | 28-Nov-18 | 0 | 0 | | | | | | |
| CS1620 | Superstructure (rc and metalworks) | 30 | 29-Nov-18 | 28-Dec-18 | 29-Nov-18 | 28-Dec-18 | 0 | 0 | | | | | | |
| Deodorization Facilities No. 2 (DO 2) | | | | | | | | | | | | | | |
| CS1710 | Substructure (rc structure) | 58 | 29-Nov-18 | 25-Jan-19 | 29-Nov-18 | 25-Jan-19 | 0 | 0 | | | | | | |
| Chemical Building (CB) | | | | | | | | | | | | | | |
| CS2310 | Substructure (rc structure) | 411 | 22-Oct-17 A | 06-Dec-18 | 22-Oct-17 | 06-Dec-18 | 0 | 0 | | | | | | |
| CS2315 | Backfilling | 411 | 22-Oct-17 A | 06-Dec-18 | 22-Oct-17 | 06-Dec-18 | 0 | 0 | | | | | | |
| Chemical Building (CB) | | | | | | | | | | | | | | |
| CS2310 | Substructure (rc structure) | 454 | 13-Oct-17 A | 10-Jan-19 | 13-Oct-17 | 09-Jan-19 | 0 | 0 | | | | | | |
| CS2315 | Backfilling | 384 | 13-Oct-17 A | 01-Nov-18 | 13-Oct-17 | 31-Oct-18 | 0 | 0 | | | | | | |
| | | 136 | 17-Aug-18 A | 31-Dec-18 | 17-Aug-18 | 30-Dec-18 | 0 | 0 | | | | | | |



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|---|--|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| CS2320 | Superstructure (rc and metalworks) | 70 | 01-Nov-18 | 10-Jan-19 | 01-Nov-18 | 09-Jan-19 | 0 | 0 | | | | | | |
| LOT #3 - Bldg / Facilities Const. (Arch'l & Strud'l) : EB, RW, DG, ICW, JC | | | | | | | | | | | | | | |
| Electrical Building No.1 (EB1) | | | | | | | | | | | | | | |
| CS2410 | Substructure (rc structure) | 374 | 22-Oct-17 A | 30-Oct-18 | 22-Oct-17 | 30-Oct-18 | 0 | 0 | | | | | | |
| CS2415 | Backfilling | 76 | 06-Oct-18 | 20-Dec-18 | 06-Oct-18 | 20-Dec-18 | 0 | 0 | | | | | | |
| CS2420 | Superstructure (rc and metalworks) | 54 | 31-Oct-18 | 23-Dec-18 | 31-Oct-18 | 23-Dec-18 | 0 | 0 | | | | | | |
| Electrical Building No.2 (EB2) | | | | | | | | | | | | | | |
| CS2510 | Substructure (rc structure) | 55 | 25-Sep-18 | 18-Nov-18 | 25-Sep-18 | 19-Oct-18 | -30 | -30 | 0 | | | | | |
| CS2515 | Backfilling | 90 | 09-Oct-18 | 06-Jan-19 | 09-Oct-18 | 07-Dec-18 | -30 | -30 | 0 | | | | | |
| CS2520 | Superstructure (rc and metalworks) | 60 | 19-Nov-18 | 17-Jan-19 | 20-Oct-18 | 18-Dec-18 | -30 | -30 | 0 | | | | | |
| Electrical Building No.3 (EB3) | | | | | | | | | | | | | | |
| CS2610 | Substructure (rc structure) | 411 | 04-Oct-17 A | 18-Nov-18 | 04-Oct-17 | 19-Oct-18 | 0 | -30 | 0 | | | | | |
| CS2615 | Backfilling | 101 | 02-Oct-18 | 10-Jan-19 | 02-Sep-18 | 11-Dec-18 | -30 | -30 | 0 | | | | | |
| CS2620 | Superstructure (rc and metalworks) | 60 | 19-Nov-18 | 17-Jan-19 | 20-Oct-18 | 18-Dec-18 | -30 | -30 | 0 | | | | | |
| Electrical Building No.4 (EB4) | | | | | | | | | | | | | | |
| CS2710 | Substructure (rc structure) | 344 | 22-Oct-17 A | 30-Sep-18 | 22-Oct-17 | 31-Aug-18 | 0 | -30 | 0 | | | | | |
| CS2715 | Backfilling | 65 | 07-Sep-18 | 10-Nov-18 | 08-Aug-18 | 11-Oct-18 | -30 | -30 | 0 | | | | | |
| CS2720 | Superstructure (rc and metalworks) | 45 | 04-Oct-18 | 17-Nov-18 | 04-Sep-18 | 18-Oct-18 | -30 | -30 | 0 | | | | | |
| CS2730 | ABWF - Electrical Building No.4 | 30 | 18-Nov-18 | 17-Dec-18 | 19-Oct-18 | 17-Nov-18 | -30 | -30 | 0 | | | | | |
| Re-use Water Building (RW) | | | | | | | | | | | | | | |
| CS2010 | Substructure (rc structure) | 62 | 25-Sep-18 | 25-Nov-18 | 25-Aug-18 | 26-Oct-18 | -30 | -30 | 0 | | | | | |
| CS2015 | Backfilling (except in Water Tightness Test area) | 30 | 26-Nov-18 | 25-Dec-18 | 27-Oct-18 | 25-Nov-18 | -30 | -30 | 0 | | | | | |
| CS2020 | Superstructure (rc and metalworks) | 46 | 26-Nov-18 | 10-Jan-19 | 27-Oct-18 | 11-Dec-18 | -30 | -30 | 0 | | | | | |
| DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW) | | | | | | | | | | | | | | |
| CS2800 | Substructure (rc structure) | 393 | 22-Oct-17 A | 19-Nov-18 | 22-Oct-17 | 18-Nov-18 | 0 | 0 | | | | | | |
| CS2805 | Backfilling | 30 | 19-Nov-18 | 19-Dec-18 | 19-Nov-18 | 18-Dec-18 | 0 | 0 | | | | | | |
| CS2810 | Superstructure (rc and metalworks) | 36 | 19-Nov-18 | 25-Dec-18 | 19-Nov-18 | 24-Dec-18 | 0 | 0 | | | | | | |
| Existing Junction Chamber (JC) | | | | | | | | | | | | | | |
| CS2210 | Bar Screen Installation | 120 | 12-Jun-18 A | 09-Oct-18 | 12-Jun-18 | 09-Oct-18 | 0 | 0 | | | | | | |
| LOT #4 - Bldg / Facilities Const. (Arch'l & Strud'l) : GH, PF, FW | | | | | | | | | | | | | | |
| Payment Flowmeter Chamber (PF) | | | | | | | | | | | | | | |
| CS2090 | Post-Drilling | 29 | 09-Aug-18 A | 06-Sep-18 | 01-Aug-18 | 14-Dec-18 | -8 | -23 | 0 | | | | | |
| CS2100 | Substructure (rc structure) | 90 | 31-Aug-18 | 28-Nov-18 | 01-Aug-18 | 29-Oct-18 | -30 | -30 | 0 | | | | | |
| CS2105 | Backfilling | 30 | 29-Nov-18 | 28-Dec-18 | 30-Oct-18 | 28-Nov-18 | -30 | -30 | 0 | | | | | |
| CS2110 | Superstructure (rc and metalworks) | 46 | 29-Nov-18 | 13-Jan-19 | 30-Oct-18 | 14-Dec-18 | -30 | -30 | 0 | | | | | |
| Foul Water Pump Sump (FW) | | | | | | | | | | | | | | |
| CS3395 | Substructure (rc structure) | 60 | 31-Oct-18 | 29-Dec-18 | 31-Oct-18 | 29-Dec-18 | 0 | 0 | | | | | | |
| External Works & Miscellaneous | | | | | | | | | | | | | | |
| CS3200 | Site Formation along Boundary Wall (Perimeter) | 180 | 04-Nov-18 | 03-May-19 | 05-Nov-18 | 03-May-19 | 0 | 0 | | | | | | |
| CS3201 | Slope works and Retaining Wall (Eastern Portion) | 197 | 31-Aug-18 | 15-Mar-19 | 04-Jul-18 | 16-Jan-19 | -58 | -58 | 0 | | | | | |
| CS3203 | Slope works and Retaining Wall (Northern Portion) | 180 | 31-Aug-18 | 26-Feb-19 | 04-Jul-18 | 30-Dec-18 | -58 | -58 | 0 | | | | | |
| CS3210 | Drainage Inlet connection (Diversion of Three Existing Sewage Rising Mains) incl. slope & retaining wall work @ P8 | 253 | 15-Jul-18 A | 25-Mar-19 | 15-Jul-18 | 07-Feb-19 | 0 | -45 | 0 | | | | | |
| CS3225 | Drainage Outlet connection to the Existing Stormwater Drainage System along Ha Tsuen Road | 92 | 12-Nov-18 | 12-Feb-19 | 13-Nov-18 | 12-Feb-19 | 0 | 0 | | | | | | |
| CS3230 | CLP Cable Duct and Draw Pits (within the Site) | 210 | 09-Jul-18 A | 03-Feb-19 | 09-Jul-18 | 03-Feb-19 | 0 | 0 | | | | | | |
| CS3250 | EVA (Road & Drainage) | 503 | 29-Jun-18 A | 14-Nov-19 | 29-Jun-18 | 13-Nov-19 | 0 | 0 | | | | | | |
| CS3252 | RC Trench and Odour Pipe (DO1, DO2) | 180 | 31-Aug-18 | 26-Feb-19 | 22-Jul-18 | 17-Jan-19 | -40 | -40 | 0 | | | | | |

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| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| C53254 | Process Pipe | 180 | 31-Aug-18 | 26-Feb-19 | 30-Jul-18 | 25-Jan-19 | -32 | -32 | 0 | | | | | |
| C53256 | Drainage Pipe (Stormwater) incl. Surface Drainage at Site Platform & On Slope | 180 | 01-Oct-18 | 30-Mar-19 | 02-Oct-18 | 30-Mar-19 | 0 | 0 | 0 | | | | | |
| C53258 | Emergency By-Pass Pipe | 260 | 15-Jul-18 A | 31-Mar-19 | 15-Jul-18 | 31-Mar-19 | 0 | 0 | 0 | | | | | |
| C53260 | Sewage Pipe | 210 | 31-Aug-18 | 28-Mar-19 | 28-Aug-18 | 25-Mar-19 | -3 | -3 | 0 | | | | | |
| C53262 | Cable Duct and Draw Pits | 180 | 30-Sep-18 | 28-Mar-19 | 30-Sep-18 | 28-Mar-19 | 0 | 0 | 0 | | | | | |
| C53276 | WSD External Watermain Laying Works | 180 | 11-Oct-18 | 08-Apr-19 | 11-Oct-18 | 08-Apr-19 | 0 | 0 | 0 | | | | | |
| C53278 | Internal Watermain Laying Works | 150 | 11-Oct-18 | 09-Mar-19 | 11-Oct-18 | 09-Mar-19 | 0 | 0 | 0 | | | | | |
| Green Roof | | 96 | 10-Sep-18 | 14-Dec-18 | 22-Aug-18 | 11-Nov-18 | -19 | -33 | 0 | | | | | |
| C53340 | Administration Building and Maintenance Workshop | 60 | 16-Oct-18 | 14-Dec-18 | 13-Sep-18 | 11-Nov-18 | -33 | -33 | 0 | | | | | |
| C53350 | Sludge Dewatering Building | 60 | 10-Sep-18 | 08-Nov-18 | 22-Aug-18 | 20-Oct-18 | -19 | -19 | 0 | | | | | |
| Statutory Works | | 368 | 25-Jan-18 A | 27-Jan-19 | 25-Jan-18 | 27-Jan-19 | 0 | 0 | 0 | | | | | |
| Electrical Supply & Energization - CLP | | 368 | 25-Jan-18 A | 27-Jan-19 | 25-Jan-18 | 27-Jan-19 | 0 | 0 | 0 | | | | | |
| SR130 | Application of XP by CLP | 249 | 25-Jan-18 A | 30-Sep-18 | 25-Jan-18 | 30-Sep-18 | 0 | 0 | 0 | | | | | |
| SR135 | CLP External Cabling Works | 60 | 29-Nov-18 | 27-Jan-19 | 29-Nov-18 | 27-Jan-19 | 0 | 0 | 0 | | | | | |
| E&M Works | | 865 | 27-Nov-16 A | 11-Apr-19 | 27-Nov-16 | 15-Mar-19 | 0 | -36 | 0 | | | | | |
| Procurement | | 840 | 27-Nov-16 A | 16-Mar-19 | 27-Nov-16 | 15-Mar-19 | 0 | -1 | 0 | | | | | |
| Chemically Enhanced Primary Treatment (CEPT) | | 433 | 10-Nov-17 A | 17-Jan-19 | 10-Nov-17 | 26-Dec-18 | 0 | -21 | 0 | | | | | |
| EM3112 | Manufacturing & Logistic (Major Equipment) | 247 | 21-Feb-18 A | 25-Oct-18 | 21-Feb-18 | 25-Oct-18 | 0 | 0 | 0 | | | | | |
| EM3114 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 307 | 10-Nov-17 A | 13-Sep-18 | 10-Nov-17 | 16-Aug-18 | 0 | -27 | 0 | | | | | |
| EM3116 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 126 | 13-Sep-18 | 17-Jan-19 | 17-Aug-18 | 20-Dec-18 | -27 | -27 | 0 | | | | | |
| EM3118 | CMS Preparation, Submission & Approval (Electrical) | 307 | 10-Nov-17 A | 13-Sep-18 | 10-Nov-17 | 16-Aug-18 | 0 | -27 | 0 | | | | | |
| EM3120 | Manufacturing & Logistic (Electrical) | 126 | 13-Sep-18 | 17-Jan-19 | 17-Aug-18 | 20-Dec-18 | -27 | -27 | 0 | | | | | |
| EM3122 | CMS Preparation, Submission & Approval (Building Services) | 300 | 10-Nov-17 A | 05-Sep-18 | 10-Nov-17 | 05-Sep-18 | 0 | 0 | 0 | | | | | |
| EM3124 | Manufacturing & Logistic (Building Services) | 112 | 06-Sep-18 | 26-Dec-18 | 06-Sep-18 | 26-Dec-18 | 0 | 0 | 0 | | | | | |
| System Control Flowmeter Chamber (SF) | | 777 | 25-Jan-17 A | 13-Mar-19 | 25-Jan-17 | 12-Feb-19 | 0 | -28 | 0 | | | | | |
| EM3132 | CMS Preparation, Submission & Approval (Major Equipment) | 591 | 25-Jan-17 A | 08-Sep-18 | 25-Jan-17 | 10-Jul-18 | 0 | -59 | 0 | | | | | |
| EM3134 | Manufacturing & Logistic (Major Equipment) | 185 | 09-Sep-18 | 13-Mar-19 | 12-Jul-18 | 12-Jan-19 | -59 | -59 | 0 | | | | | |
| EM3136 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 303 | 10-Nov-17 A | 09-Sep-18 | 10-Nov-17 | 15-Jul-18 | 0 | -55 | 0 | | | | | |
| EM3138 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 35 | 09-Sep-18 | 14-Oct-18 | 16-Jul-18 | 19-Aug-18 | -55 | -55 | 0 | | | | | |
| EM3140 | CMS Preparation, Submission & Approval (Electrical) | 349 | 10-Nov-17 A | 25-Oct-18 | 10-Nov-17 | 24-Oct-18 | 0 | 0 | 0 | | | | | |
| EM3142 | Manufacturing & Logistic (Electrical) | 84 | 25-Oct-18 | 17-Jan-19 | 25-Oct-18 | 16-Jan-19 | 0 | 0 | 0 | | | | | |
| EM3144 | CMS Preparation, Submission & Approval (Building Services) | 340 | 10-Nov-17 A | 16-Oct-18 | 10-Nov-17 | 15-Oct-18 | 0 | 0 | 0 | | | | | |
| EM3146 | Manufacturing & Logistic (Building Services) | 120 | 16-Oct-18 | 13-Feb-19 | 16-Oct-18 | 12-Feb-19 | 0 | 0 | 0 | | | | | |
| Inlet Work, Preliminary Treatment Units and Inlet Pumping Station (PTW & IPS) | | 793 | 04-Jan-17 A | 07-Mar-19 | 04-Jan-17 | 07-Mar-19 | 0 | 0 | 0 | | | | | |
| EM3135 | CMS Preparation, Submission & Approval (Major Equipment) | 605 | 04-Jan-17 A | 01-Sep-18 | 04-Jan-17 | 01-May-18 | 0 | -123 | 0 | | | | | |
| EM3137 | Manufacturing & Logistic (Major Equipment) | 160 | 01-Sep-18 | 08-Feb-19 | 01-May-18 | 08-Oct-18 | -123 | -123 | 0 | | | | | |
| EM3141 | Witness FAT - Main Sewage Pumps | 28 | 13-Oct-18 | 10-Nov-18 | 30-Jul-18 | 27-Aug-18 | -75 | -75 | 0 | | | | | |
| EM3635 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 345 | 01-Oct-17 A | 11-Sep-18 | 01-Oct-17 | 13-Jul-18 | 0 | -59 | 0 | | | | | |
| EM3645 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 126 | 11-Sep-18 | 15-Jan-19 | 14-Jul-18 | 16-Nov-18 | -59 | -59 | 0 | | | | | |
| EM3655 | CMS Preparation, Submission & Approval (Electrical) | 349 | 01-Oct-17 A | 14-Sep-18 | 01-Oct-17 | 14-Sep-18 | 0 | 0 | 0 | | | | | |
| EM3665 | Manufacturing & Logistic (Electrical) | 84 | 14-Sep-18 | 07-Dec-18 | 15-Sep-18 | 07-Dec-18 | 0 | 0 | 0 | | | | | |
| EM3675 | CMS Preparation, Submission & Approval (Building Services) | 403 | 01-Oct-17 A | 07-Nov-18 | 01-Oct-17 | 07-Nov-18 | 0 | 0 | 0 | | | | | |
| EM3685 | Manufacturing & Logistic (Building Services) | 120 | 07-Nov-18 | 07-Mar-19 | 08-Nov-18 | 07-Mar-19 | 0 | 0 | 0 | | | | | |
| Solid Handling Building (SHB) | | 628 | 12-Apr-17 A | 30-Dec-18 | 12-Apr-17 | 15-Nov-18 | 0 | -45 | 0 | | | | | |
| EM3145 | CMS Preparation, Submission & Approval (Major Equipment) | 511 | 12-Apr-17 A | 05-Sep-18 | 12-Apr-17 | 05-May-18 | 0 | -123 | 0 | | | | | |
| EM3150 | Manufacturing & Logistic (Major Equipment) | 48 | 06-Sep-18 | 24-Oct-18 | 06-May-18 | 23-Jun-18 | -123 | -123 | 0 | | | | | |



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|---|---|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| EM3695 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 347 | 01-Oct-17 A | 12-Sep-18 | 01-Oct-17 | 15-Jul-18 | 0 | -59 | | | | | | |
| EM3705 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 35 | 15-Sep-18 | 20-Oct-18 | 16-Jul-18 | 19-Aug-18 | -62 | -62 | | | | | | |
| EM3715 | CMS Preparation, Submission & Approval (Electrical) | 336 | 01-Oct-17 A | 01-Sep-18 | 01-Oct-17 | 27-May-18 | 0 | -97 | | | | | | |
| EM3725 | Manufacturing & Logistic (Electrical) | 84 | 01-Sep-18 | 24-Nov-18 | 28-May-18 | 19-Aug-18 | -97 | -97 | | | | | | |
| EM3735 | CMS Preparation, Submission & Approval (Building Services) | 336 | 01-Oct-17 A | 01-Sep-18 | 01-Oct-17 | 18-Jul-18 | 0 | -45 | | | | | | |
| EM3745 | Manufacturing & Logistic (Building Services) | 120 | 01-Sep-18 | 30-Dec-18 | 19-Jul-18 | 15-Nov-18 | -45 | -45 | | | | | | |
| UV Disinfection Facility (UV) | | 480 | 21-Nov-17 A | 15-Mar-19 | 21-Nov-17 | 15-Mar-19 | 0 | 0 | | | | | | |
| EM3190 | Manufacturing & Logistic (Major Equipment) | 320 | 30-Apr-18 A | 15-Mar-19 | 30-Apr-18 | 15-Mar-19 | 0 | 0 | | | | | | |
| EM3191 | Witness FAT - UV | 7 | 16-Nov-18 | 22-Nov-18 | 16-Nov-18 | 22-Nov-18 | 0 | 0 | | | | | | |
| EM3755 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 311 | 21-Nov-17 A | 27-Sep-18 | 21-Nov-17 | 27-Sep-18 | 0 | 0 | | | | | | |
| EM3765 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 147 | 28-Sep-18 | 21-Feb-19 | 28-Sep-18 | 21-Feb-19 | 0 | 0 | | | | | | |
| EM3775 | CMS Preparation, Submission & Approval (Electrical) | 326 | 21-Nov-17 A | 12-Oct-18 | 21-Nov-17 | 12-Oct-18 | 0 | 0 | | | | | | |
| EM3785 | Manufacturing & Logistic (Electrical) | 84 | 13-Oct-18 | 04-Jan-19 | 12-Oct-18 | 04-Jan-19 | 0 | 0 | | | | | | |
| EM3795 | CMS Preparation, Submission & Approval (Building Services) | 374 | 21-Nov-17 A | 29-Nov-18 | 21-Nov-17 | 29-Nov-18 | 0 | 0 | | | | | | |
| Sludge Dewatering Building (SDB) | | 840 | 27-Nov-16 A | 16-Mar-19 | 27-Nov-16 | 11-Jan-19 | 0 | -65 | | | | | | |
| EM3175 | CMS Preparation, Submission & Approval (Major Equipment) | 650 | 27-Nov-16 A | 07-Sep-18 | 27-Nov-16 | 07-May-18 | 0 | -123 | | | | | | |
| EM3180 | Manufacturing & Logistic (Major Equipment) | 190 | 07-Sep-18 | 16-Mar-19 | 07-May-18 | 13-Nov-18 | -123 | -123 | | | | | | |
| EM3815 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 406 | 27-Oct-17 A | 06-Dec-18 | 27-Oct-17 | 07-Dec-18 | 0 | 0 | | | | | | |
| EM3835 | CMS Preparation, Submission & Approval (Electrical) | 331 | 27-Oct-17 A | 23-Sep-18 | 27-Oct-17 | 22-Sep-18 | 0 | 0 | | | | | | |
| EM3845 | Manufacturing & Logistic (Electrical) | 84 | 23-Sep-18 | 16-Dec-18 | 22-Sep-18 | 15-Dec-18 | 0 | 0 | | | | | | |
| EM3855 | CMS Preparation, Submission & Approval (Building Services) | 441 | 27-Oct-17 A | 11-Jan-19 | 27-Oct-17 | 11-Jan-19 | 0 | 0 | | | | | | |
| Sludge Skip Storage Building (SSSB) | | 457 | 04-Sep-17 A | 05-Dec-18 | 04-Sep-17 | 03-Sep-18 | 0 | -92 | | | | | | |
| EM3875 | CMS Preparation, Submission & Approval (Electrical) | 370 | 04-Sep-17 A | 09-Sep-18 | 04-Sep-17 | 11-Jun-18 | 0 | -89 | | | | | | |
| EM3885 | Manufacturing & Logistic (Electrical) | 84 | 12-Sep-18 | 05-Dec-18 | 12-Jun-18 | 03-Sep-18 | -92 | -92 | | | | | | |
| EM3895 | CMS Preparation, Submission & Approval (Building Services) | 370 | 04-Sep-17 A | 09-Sep-18 | 04-Sep-17 | 09-May-18 | 0 | -123 | | | | | | |
| EM3905 | Manufacturing & Logistic (Building Services) | 32 | 09-Sep-18 | 11-Oct-18 | 11-May-18 | 12-Jun-18 | -121 | -121 | | | | | | |
| Administration Building & Maintenance Workshop (AB & WS) | | 697 | 31-Jan-17 A | 28-Dec-18 | 31-Jan-17 | 29-Aug-18 | 0 | -121 | | | | | | |
| EM3125 | CMS Preparation, Submission & Approval (Major Equipment) | 581 | 31-Jan-17 A | 03-Sep-18 | 31-Jan-17 | 05-May-18 | 0 | -121 | | | | | | |
| EM3130 | Manufacturing & Logistic (Major Equipment) | 115 | 04-Sep-18 | 28-Dec-18 | 06-May-18 | 29-Aug-18 | -121 | -121 | | | | | | |
| EM3915 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 368 | 30-Aug-17 A | 01-Sep-18 | 30-Aug-17 | 19-May-18 | 0 | -105 | | | | | | |
| EM3925 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 98 | 04-Sep-18 | 11-Dec-18 | 22-May-18 | 28-Aug-18 | -105 | -105 | | | | | | |
| EM3935 | CMS Preparation, Submission & Approval (Electrical) | 368 | 30-Aug-17 A | 02-Sep-18 | 30-Aug-17 | 22-May-18 | 0 | -102 | | | | | | |
| EM3945 | Manufacturing & Logistic (Electrical) | 98 | 02-Sep-18 | 09-Dec-18 | 23-May-18 | 28-Aug-18 | -102 | -102 | | | | | | |
| EM3955 | CMS Preparation, Submission & Approval (Building Services) | 368 | 30-Aug-17 A | 02-Sep-18 | 30-Aug-17 | 22-May-18 | 0 | -102 | | | | | | |
| EM3965 | Manufacturing & Logistic (Building Services) | 98 | 02-Sep-18 | 09-Dec-18 | 23-May-18 | 28-Aug-18 | -102 | -102 | | | | | | |
| Deodorization Facilities No. 1 & 2 (DO 1 & DO 2) | | 758 | 10-Jan-17 A | 07-Feb-19 | 10-Jan-17 | 06-Feb-19 | 0 | 0 | | | | | | |
| EM3165 | CMS Preparation, Submission & Approval (Major Equipment) | 613 | 10-Jan-17 A | 14-Sep-18 | 10-Jan-17 | 14-May-18 | 0 | -123 | | | | | | |
| EM3170 | Manufacturing & Logistic (Major Equipment) | 32 | 15-Sep-18 | 17-Oct-18 | 15-May-18 | 16-Jun-18 | -123 | -123 | | | | | | |
| EM3172 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 371 | 30-Aug-17 A | 04-Sep-18 | 30-Aug-17 | 06-Jul-18 | 0 | -61 | | | | | | |
| EM3173 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 126 | 04-Sep-18 | 08-Jan-19 | 06-Jul-18 | 09-Nov-18 | -61 | -61 | | | | | | |
| EM3975 | CMS Preparation, Submission & Approval (Electrical) | 387 | 30-Aug-17 A | 21-Sep-18 | 30-Aug-17 | 21-Sep-18 | 0 | 0 | | | | | | |
| EM3985 | Manufacturing & Logistic (Electrical) | 98 | 21-Sep-18 | 28-Dec-18 | 21-Sep-18 | 28-Dec-18 | 0 | 0 | | | | | | |
| EM3995 | CMS Preparation, Submission & Approval (Building Services) | 526 | 30-Aug-17 A | 07-Feb-19 | 30-Aug-17 | 06-Feb-19 | 0 | 0 | | | | | | |
| Chemical Building (CB) | | 476 | 08-Nov-17 A | 26-Feb-19 | 08-Nov-17 | 26-Feb-19 | 0 | 0 | | | | | | |
| EM3230 | Manufacturing & Logistic (Major Equipment) | 168 | 17-Mar-18 A | 01-Sep-18 | 17-Mar-18 | 31-Aug-18 | 0 | 0 | | | | | | |
| EM4015 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 410 | 08-Nov-17 A | 22-Dec-18 | 08-Nov-17 | 23-Dec-18 | 0 | 0 | | | | | | |
| EM4035 | CMS Preparation, Submission & Approval (Electrical) | 301 | 08-Nov-17 A | 04-Sep-18 | 08-Nov-17 | 22-Aug-18 | 0 | -13 | | | | | | |

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|---|--|--|-------------|-----------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----------------------------------|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| EM4045 | Manufacturing & Logistic (Electrical) | 98 | 04-Sep-18 | 11-Dec-18 | 22-Aug-18 | 28-Nov-18 | -13 | -13 | | | | | | Man |
| EM4055 | CMS Preparation, Submission & Approval (Building Services) | 356 | 08-Nov-17 A | 29-Oct-18 | 08-Nov-17 | 29-Oct-18 | 0 | 0 | | | | | | CMS Preparation, |
| EM4065 | Manufacturing & Logistic (Building Services) | 120 | 30-Oct-18 | 26-Feb-19 | 29-Oct-18 | 26-Feb-19 | 0 | 0 | | | | | | |
| Street Fire Hydrant Pump Room & GENSET Room (FH) | | 676 | 23-Mar-17 A | 28-Jan-19 | 23-Mar-17 | 28-Jan-19 | 0 | 0 | | | | | | |
| EM3275 | CMS Preparation, Submission & Approval (Major Equipment) | 530 | 23-Mar-17 A | 04-Sep-18 | 23-Mar-17 | 21-Aug-18 | 0 | -14 | | | | | | CMS Preparation, Submission & App |
| EM3280 | Manufacturing & Logistic (Major Equipment) | 84 | 04-Sep-18 | 27-Nov-18 | 21-Aug-18 | 13-Nov-18 | -14 | -14 | | | | | | Manufac |
| EM4075 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 432 | 01-Oct-17 A | 07-Dec-18 | 01-Oct-17 | 06-Dec-18 | 0 | 0 | | | | | | CMS |
| EM4095 | CMS Preparation, Submission & Approval (Electrical) | 386 | 01-Oct-17 A | 22-Oct-18 | 01-Oct-17 | 22-Oct-18 | 0 | 0 | | | | | | CMS Preparation, Su |
| EM4105 | Manufacturing & Logistic (Electrical) | 98 | 22-Oct-18 | 28-Jan-19 | 22-Oct-18 | 28-Jan-19 | 0 | 0 | | | | | | |
| EM4115 | CMS Preparation, Submission & Approval (Building Services) | 439 | 01-Oct-17 A | 14-Dec-18 | 01-Oct-17 | 14-Dec-18 | 0 | 0 | | | | | | CM |
| Electrical Buildings (EB1, EB2, EB3 & EB4) | | 722 | 23-Feb-17 A | 15-Feb-19 | 23-Feb-17 | 16-Dec-18 | 0 | -61 | | | | | | |
| EM3235 | CMS Preparation, Submission & Approval (Major Equipment) | 567 | 23-Feb-17 A | 03-Sep-18 | 23-Feb-17 | 14-May-18 | 0 | -112 | | | | | | CMS Preparation, Submission & App |
| EM3240 | Manufacturing & Logistic (Major Equipment) | 84 | 05-Sep-18 | 28-Nov-18 | 16-May-18 | 08-Aug-18 | -112 | -112 | | | | | | Manufac |
| EM3245 | Witness FAT - LV Switchboards (8 nos. for EB's and 4 nos. for SDB) | 131 | 07-Oct-18 | 15-Feb-19 | 30-Jun-18 | 21-Jul-18 | -99 | -209 | | | | | | |
| EM3300 | CMS Preparation, Submission & Approval (Electrical) | 357 | 11-Sep-17 A | 03-Sep-18 | 11-Sep-17 | 16-May-18 | 0 | -110 | | | | | | CMS Preparation, Submission & App |
| EM3305 | Manufacturing & Logistic (Electrical) | 93 | 03-Sep-18 | 05-Dec-18 | 16-May-18 | 17-Aug-18 | -110 | -110 | | | | | | Manuf |
| EM3310 | CMS Preparation, Submission & Approval (Control & Instrument) | 363 | 11-Sep-17 A | 08-Sep-18 | 11-Sep-17 | 09-Sep-18 | 0 | 0 | | | | | | CMS Preparation, Submission & App |
| EM3315 | Manufacturing & Logistic (Control & Instrument) | 98 | 08-Sep-18 | 15-Dec-18 | 09-Sep-18 | 16-Dec-18 | 0 | 0 | | | | | | Ma |
| EM3320 | CMS Preparation, Submission & Approval (Building Services) | 392 | 09-Aug-17 A | 04-Sep-18 | 09-Aug-17 | 04-May-18 | 0 | -123 | | | | | | CMS Preparation, Submission & App |
| EM3325 | Manufacturing & Logistic (Building Services) | 112 | 04-Sep-18 | 25-Dec-18 | 04-May-18 | 24-Aug-18 | -123 | -123 | | | | | | |
| Re-use Water Building (RW) | | 399 | 19-Nov-17 A | 22-Dec-18 | 19-Nov-17 | 09-Dec-18 | 0 | -14 | | | | | | |
| EM3200 | Manufacturing & Logistic (Major Equipment) | 154 | 28-Jun-18 A | 29-Nov-18 | 28-Jun-18 | 14-Nov-18 | 0 | -14 | | | | | | Manufac |
| EM4135 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 290 | 19-Nov-17 A | 04-Sep-18 | 19-Nov-17 | 06-Aug-18 | 0 | -30 | | | | | | CMS Preparation, Submission & App |
| EM4145 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 35 | 05-Sep-18 | 10-Oct-18 | 06-Aug-18 | 10-Sep-18 | -31 | -31 | | | | | | Manufacturing & Logistic |
| EM4155 | CMS Preparation, Submission & Approval (Electrical) | 288 | 19-Nov-17 A | 02-Sep-18 | 19-Nov-17 | 04-Jun-18 | 0 | -91 | | | | | | CMS Preparation, Submission & App |
| EM4165 | Manufacturing & Logistic (Electrical) | 98 | 03-Sep-18 | 10-Dec-18 | 04-Jun-18 | 10-Sep-18 | -92 | -92 | | | | | | Man |
| EM4175 | CMS Preparation, Submission & Approval (Building Services) | 287 | 19-Nov-17 A | 01-Sep-18 | 19-Nov-17 | 19-Aug-18 | 0 | -14 | | | | | | CMS Preparation, Submission & App |
| EM4185 | Manufacturing & Logistic (Building Services) | 112 | 01-Sep-18 | 22-Dec-18 | 19-Aug-18 | 09-Dec-18 | -14 | -14 | | | | | | |
| DG Store & Chemical Waste Storage Building (DG) and Irrigation & Cleansing Water Pump Room (ICW) | | 584 | 24-May-17 A | 29-Dec-18 | 24-May-17 | 14-Dec-18 | 0 | -15 | | | | | | |
| EM3255 | CMS Preparation, Submission & Approval (Major Equipment) | 474 | 24-May-17 A | 09-Sep-18 | 24-May-17 | 09-May-18 | 0 | -123 | | | | | | CMS Preparation, Submission & App |
| EM3260 | Manufacturing & Logistic (Major Equipment) | 98 | 10-Sep-18 | 16-Dec-18 | 10-May-18 | 15-Aug-18 | -123 | -123 | | | | | | Ma |
| EM4195 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 334 | 10-Dec-17 A | 09-Nov-18 | 10-Dec-17 | 09-Nov-18 | 0 | 0 | | | | | | CMS Preparation |
| EM4205 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 35 | 09-Nov-18 | 14-Dec-18 | 09-Nov-18 | 14-Dec-18 | 0 | 0 | | | | | | Man |
| EM4215 | CMS Preparation, Submission & Approval (Electrical) | 342 | 30-Sep-17 A | 07-Sep-18 | 30-Sep-17 | 19-May-18 | 0 | -111 | | | | | | CMS Preparation, Submission & App |
| EM4225 | Manufacturing & Logistic (Electrical) | 70 | 11-Sep-18 | 20-Nov-18 | 23-May-18 | 01-Aug-18 | -111 | -111 | | | | | | Manufactur |
| EM4235 | CMS Preparation, Submission & Approval (Building Services) | 343 | 30-Sep-17 A | 08-Sep-18 | 30-Sep-17 | 25-Jul-18 | 0 | -45 | | | | | | CMS Preparation, Submission & App |
| EM4245 | Manufacturing & Logistic (Building Services) | 112 | 08-Sep-18 | 29-Dec-18 | 25-Jul-18 | 14-Nov-18 | -45 | -45 | | | | | | |
| Gatehouse (GH) | | 609 | 24-Apr-17 A | 23-Dec-18 | 24-Apr-17 | 23-Dec-18 | 0 | 0 | | | | | | |
| EM3285 | CMS Preparation, Submission & Approval (Building Services) | 509 | 24-Apr-17 A | 14-Sep-18 | 24-Apr-17 | 16-Sep-18 | 0 | 2 | | | | | | CMS Preparation, Submission & App |
| EM3290 | Manufacturing & Logistic (Building Services) | 98 | 16-Sep-18 | 23-Dec-18 | 16-Sep-18 | 23-Dec-18 | 0 | 0 | | | | | | |
| Payment Flowmeter Chamber (PF) | | 780 | 25-Jan-17 A | 16-Mar-19 | 25-Jan-17 | 16-Feb-19 | 0 | -27 | | | | | | |
| EM3205 | CMS Preparation, Submission & Approval (Major Equipment) | 589 | 25-Jan-17 A | 06-Sep-18 | 25-Jan-17 | 10-Jul-18 | 0 | -57 | | | | | | CMS Preparation, Submission & App |
| EM3210 | Manufacturing & Logistic (Major Equipment) | 185 | 12-Sep-18 | 16-Mar-19 | 17-Jul-18 | 17-Jan-19 | -57 | -57 | | | | | | |
| EM4255 | CMS Preparation, Submission & Approval (Penstock, Pipe & Valve) | 368 | 01-Sep-17 A | 04-Sep-18 | 01-Sep-17 | 04-May-18 | 0 | -123 | | | | | | CMS Preparation, Submission & App |
| EM4265 | Manufacturing & Logistic (Penstock, Pipe & Valve) | 98 | 05-Sep-18 | 12-Dec-18 | 05-May-18 | 11-Aug-18 | -123 | -123 | | | | | | Man |
| EM4275 | CMS Preparation, Submission & Approval (Electrical) | 394 | 20-Nov-17 A | 19-Dec-18 | 20-Nov-17 | 18-Dec-18 | 0 | 0 | | | | | | C |
| EM4295 | CMS Preparation, Submission & Approval (Building Services) | 454 | 20-Nov-17 A | 17-Feb-19 | 20-Nov-17 | 16-Feb-19 | 0 | 0 | | | | | | |

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|--|--|---|-------------|-------------|----------------|-----------------|---------------------|----------------------|----------------------------------|------|-----|-----|-----|-----|
| Activity ID | Activity Name | At Completion Duration | Start | Finish | Rev 9 BL Start | Rev 9 BL Finish | Slippage Start Date | Slippage Finish Date | Slippage Finish Date 71 Days EOT | 2018 | | | | |
| | | | | | | | | | | Aug | Sep | Oct | Nov | Dec |
| SCADA and CMMS Systems | | | 548 | 01-Jul-17 A | 30-Dec-18 | 01-Jul-17 | 29-Aug-18 | 0 | -123 | | | | | |
| EM3330 | CMS Preparation, Submission & Approval | 434 | 01-Jul-17 A | 07-Sep-18 | 01-Jul-17 | 07-May-18 | 0 | -123 | | | | | | |
| EM3335 | Manufacturing & Logistic (SCADA) | 112 | 09-Sep-18 | 30-Dec-18 | 09-May-18 | 29-Aug-18 | -123 | -123 | | | | | | |
| EM3345 | Manufacturing & Logistic (CMMS) | 112 | 09-Sep-18 | 30-Dec-18 | 09-May-18 | 29-Aug-18 | -123 | -123 | | | | | | |
| Cast - In Items | | | 704 | 01-Feb-17 A | 05-Jan-19 | 01-Feb-17 | 17-Dec-18 | 0 | -19 | | | | | |
| EM3520 | CMS Preparation, Submission & Approval | 582 | 01-Feb-17 A | 06-Sep-18 | 01-Feb-17 | 07-Aug-18 | 0 | -30 | | | | | | |
| EM3525 | Delivery of Cast-in Items for CEPT and SF | 339 | 30-Sep-17 A | 03-Sep-18 | 30-Sep-17 | 28-Jul-18 | 0 | -37 | | | | | | |
| EM3530 | Delivery of Cast-in Items for PTW and IPS | 336 | 30-Sep-17 A | 31-Aug-18 | 30-Sep-17 | 18-Jun-18 | 0 | -75 | | | | | | |
| EM3535 | Delivery of Cast-in Items for SHB | 48 | 01-Oct-18 | 17-Nov-18 | 01-Oct-18 | 17-Nov-18 | 0 | 0 | | | | | | |
| EM3540 | Delivery of Cast-in Items for UV | 125 | 30-Apr-18 A | 02-Sep-18 | 30-Apr-18 | 16-Jun-18 | 0 | -77 | | | | | | |
| EM3545 | Delivery of Cast-in Items for SDB | 190 | 26-Feb-18 A | 04-Sep-18 | 26-Feb-18 | 09-Jun-18 | 0 | -86 | | | | | | |
| EM3555 | Delivery of Cast-in Items for Admin. Building | 105 | 23-May-18 A | 04-Sep-18 | 23-May-18 | 10-Jul-18 | 0 | -57 | | | | | | |
| EM3560 | Delivery of Cast-in Items for DO No. 1 | 48 | 07-Oct-18 | 23-Nov-18 | 07-Oct-18 | 23-Nov-18 | 0 | 0 | | | | | | |
| EM3565 | Delivery of Cast-in Items for DO No. 2 | 48 | 31-Aug-18 | 17-Oct-18 | 27-Aug-18 | 14-Oct-18 | -4 | -4 | | | | | | |
| EM3570 | Delivery of Cast-in Items for CB | 48 | 09-Sep-18 | 27-Oct-18 | 09-Sep-18 | 26-Oct-18 | 0 | 0 | | | | | | |
| EM3575 | Delivery of Cast-in Items for FH | 48 | 22-Sep-18 | 08-Nov-18 | 23-Aug-18 | 09-Oct-18 | -30 | -30 | | | | | | |
| EM3585 | Delivery of Cast-in Items for EB1 | 48 | 31-Oct-18 | 17-Dec-18 | 31-Oct-18 | 17-Dec-18 | 0 | 0 | | | | | | |
| EM3590 | Delivery of Cast-in Items for EB2 | 48 | 19-Nov-18 | 05-Jan-19 | 20-Oct-18 | 06-Dec-18 | -30 | -30 | | | | | | |
| EM3595 | Delivery of Cast-in Items for EB3 | 48 | 19-Nov-18 | 05-Jan-19 | 20-Oct-18 | 06-Dec-18 | -30 | -30 | | | | | | |
| EM3600 | Delivery of Cast-in Items for EB4 | 48 | 30-Sep-18 | 16-Nov-18 | 01-Sep-18 | 18-Oct-18 | -29 | -29 | | | | | | |
| EM3605 | Delivery of Cast-in Items for RW | 48 | 03-Oct-18 | 19-Nov-18 | 03-Sep-18 | 20-Oct-18 | -30 | -30 | | | | | | |
| EM3610 | Delivery of Cast-in Items for DG and ICW | 48 | 26-Sep-18 | 13-Nov-18 | 26-Sep-18 | 12-Nov-18 | 0 | 0 | | | | | | |
| EM3625 | Delivery of Cast-in Items for PF | 48 | 12-Sep-18 | 30-Oct-18 | 13-Aug-18 | 30-Sep-18 | -30 | -30 | | | | | | |
| Installation | | | 223 | 31-Aug-18 | 11-Apr-19 | 27-Aug-18 | 12-Mar-19 | -3 | -29 | | | | | |
| Administration Building & Maintenance Workshop (AB & WS) | | | 223 | 31-Aug-18 | 11-Apr-19 | 27-Aug-18 | 12-Mar-19 | -3 | -29 | | | | | |
| EM1100 | SCADA System | 180 | 31-Aug-18 | 26-Feb-19 | 29-Aug-18 | 25-Feb-19 | -2 | -2 | | | | | | |
| EM1105 | Plant Installation (WS) | 180 | 25-Sep-18 | 24-Mar-19 | 27-Aug-18 | 23-Feb-19 | -29 | -29 | | | | | | |
| EM1110 | ELV System | 180 | 13-Oct-18 | 11-Apr-19 | 14-Sep-18 | 12-Mar-19 | -29 | -29 | | | | | | |
| EM1120 | BS - MVAC Installation | 180 | 13-Oct-18 | 11-Apr-19 | 14-Sep-18 | 12-Mar-19 | -29 | -29 | | | | | | |
| Testing & Commissioning | | | 200 | 03-Jun-18 A | 19-Dec-18 | 03-Jun-18 | 10-Dec-18 | 1 | -10 | | | | | |
| TC030 | Operation Plan - Preparation for Submission | 121 | 03-Jun-18 A | 01-Oct-18 | 03-Jun-18 | 01-Oct-18 | 1 | 0 | | | | | | |
| TC035 | Operation Plan - Submission to SO for Review and Approval | 70 | 11-Oct-18 | 19-Dec-18 | 01-Oct-18 | 10-Dec-18 | -10 | -10 | | | | | | |
| TC040 | Asset Management Plan - Preparation for Submission | 121 | 03-Jun-18 A | 01-Oct-18 | 03-Jun-18 | 01-Oct-18 | 1 | 0 | | | | | | |
| TC045 | Asset Management Plan - Submission to SO for Review and Approval | 70 | 01-Oct-18 | 10-Dec-18 | 01-Oct-18 | 10-Dec-18 | 0 | 0 | | | | | | |

Appendix D1

Calibration Certificates for Impact Air Quality Monitoring Equipment

Certificate of Calibration

Calibration Certification Information

Cal. Date: March 21, 2018

Rootsmeter S/N: 438320

Ta: 293

°K
Operator: Jim Tisch

Pa: 756.9

mm Hg
Calibration Model #: TE-5025A

Calibrator S/N: 3480

| Run | Vol. Init (m3) | Vol. Final (m3) | ΔVol. (m3) | ΔTime (min) | ΔP (mm Hg) | ΔH (in H2O) |
|-----|----------------|-----------------|------------|-------------|------------|-------------|
| 1 | 1 | 2 | 1 | 1.4200 | 3.2 | 2.00 |
| 2 | 3 | 4 | 1 | 1.0000 | 6.4 | 4.00 |
| 3 | 5 | 6 | 1 | 0.8950 | 7.9 | 5.00 |
| 4 | 7 | 8 | 1 | 0.8570 | 8.8 | 5.50 |
| 5 | 9 | 10 | 1 | 0.7070 | 12.7 | 8.00 |

Data Tabulation

| Vstd (m3) | Qstd (x-axis) | $\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis) | Va | Qa (x-axis) | $\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)}$ (y-axis) |
|-------------|---------------|--|-----------|-------------|---|
| 1.0087 | 0.7103 | 1.4233 | 0.9958 | 0.7012 | 0.8799 |
| 1.0044 | 1.0044 | 2.0129 | 0.9915 | 0.9915 | 1.2443 |
| 1.0024 | 1.1200 | 2.2505 | 0.9896 | 1.1057 | 1.3912 |
| 1.0012 | 1.1682 | 2.3603 | 0.9884 | 1.1533 | 1.4591 |
| 0.9959 | 1.4087 | 2.8467 | 0.9832 | 1.3907 | 1.7598 |
| QSTD | m= | 2.04113 | QA | m= | 1.27812 |
| | b= | -0.03040 | | b= | -0.01879 |
| | r= | 0.99994 | | r= | 0.99994 |

Calculations

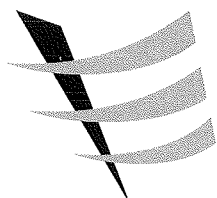
| | | | |
|--|---|---|--------------------------------|
| Vstd= | $\Delta Vol((Pa-\Delta P)/Pstd)(Tstd/Ta)$ | Va= | $\Delta Vol((Pa-\Delta P)/Pa)$ |
| Qstd= | $Vstd/\Delta Time$ | Qa= | $Va/\Delta Time$ |
| For subsequent flow rate calculations: | | | |
| Qstd= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)} \right) - b \right)$ | | Qa= $1/m \left(\left(\sqrt{\Delta H \left(\frac{Ta}{Pa} \right)} \right) - b \right)$ | |

Standard Conditions

| | |
|---|-----------|
| Tstd: | 298.15 °K |
| Pstd: | 760 mm Hg |
| Key | |
| ΔH: calibrator manometer reading (in H2O) | |
| ΔP: rootsmeter manometer reading (mm Hg) | |
| Ta: actual absolute temperature (°K) | |
| Pa: actual barometric pressure (mm Hg) | |
| b: intercept | |
| m: slope | |

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

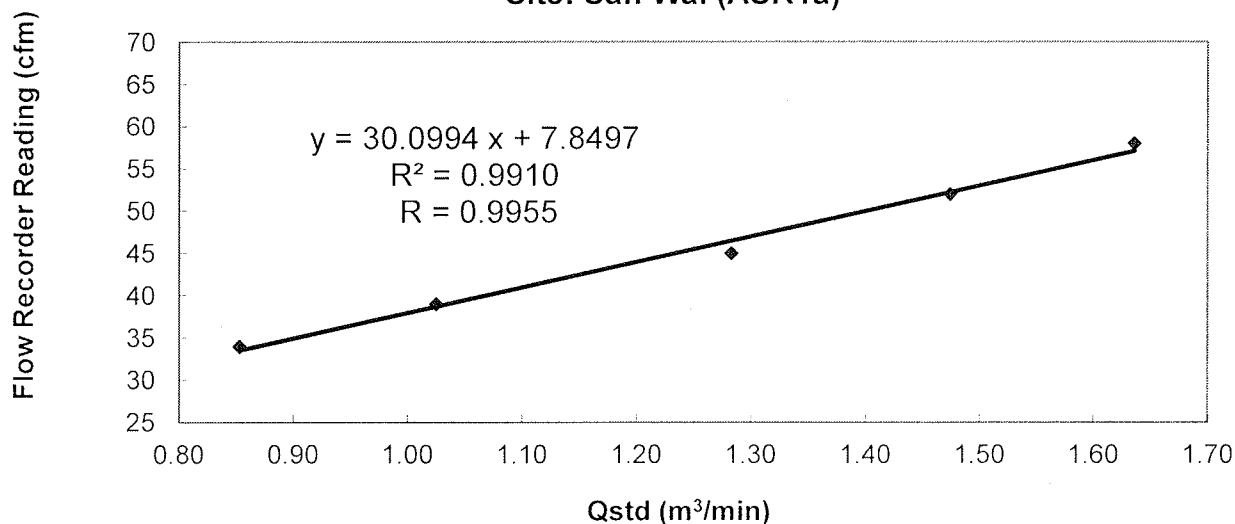


Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 08 May 2018
Serial No. : 1934 (ET / EA / 003 / 25) **Calibration Due Date** : 07 July 2018
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

| | | | | | | |
|----------------|--|---------------|------|------|------|------|
| Results | Flow recorder reading (cfm) | 58 | 52 | 45 | 39 | 34 |
| | Qstd (Actual flow rate, m ³ /min) | 1.64 | 1.47 | 1.28 | 1.02 | 0.85 |
| | Pressure : 759.06 mm Hg | Temp. : 298 K | | | | |

Sampler 1934 Calibration Curve
Site: San Wai (ASR1a)



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

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

Calibrated by : MAK, Kei Wai
(Assistant Supervisor)

Approved by : LAU, Chi Leung
(Environmental Team Leader)

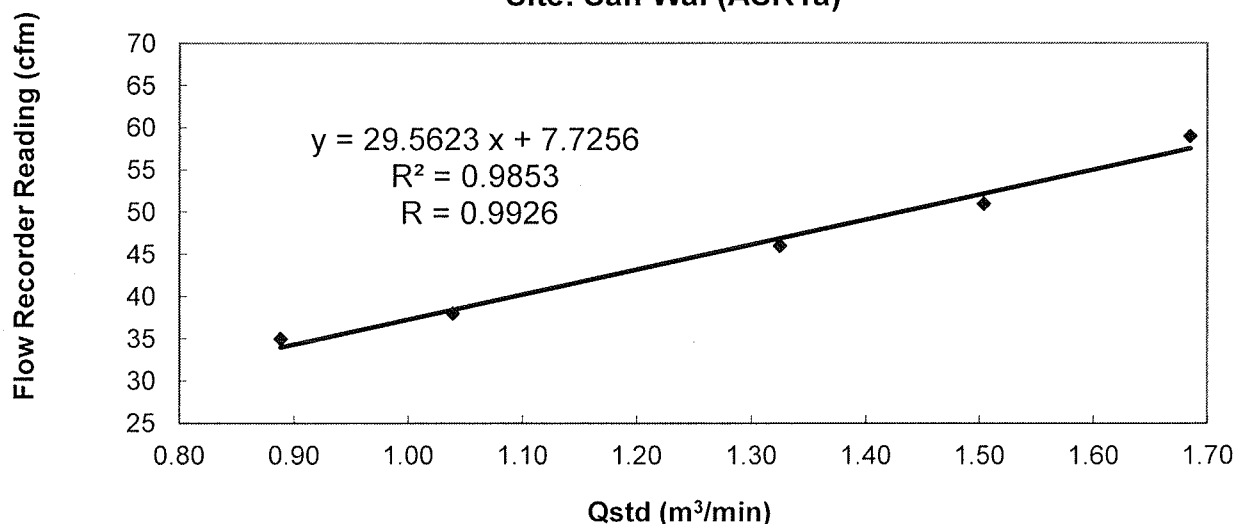


Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby GMW **Date of Calibration** : 31 August 2018
Serial No. : 1934 (ET / EA / 003 / 25) **Calibration Due Date** : 30 October 2018
Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

| | | | | | | |
|------------------|--|--------------|------|---------|-------|------|
| Results : | Flow recorder reading (cfm) | 59 | 51 | 46 | 38 | 35 |
| | Qstd (Actual flow rate, m ³ /min) | 1.68 | 1.50 | 1.32 | 1.04 | 0.89 |
| | Pressure : | 759.06 mm Hg | | Temp. : | 300 K | |

Sampler 1934 Calibration Curve
Site: San Wai (ASR1a)



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

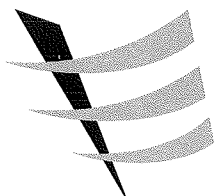
The high volume sampler complies* / ~~does not comply~~* with the specified requirements and is deemed acceptable* / unacceptable* for use.

Calibrated by :

TANG, Chung Hang
(Supervisor)

Approved by :

LAU, Chi Leung
(Environmental Team Leader)



Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby (Model No. GS2310) **Date of Calibration** : 08 May 2018

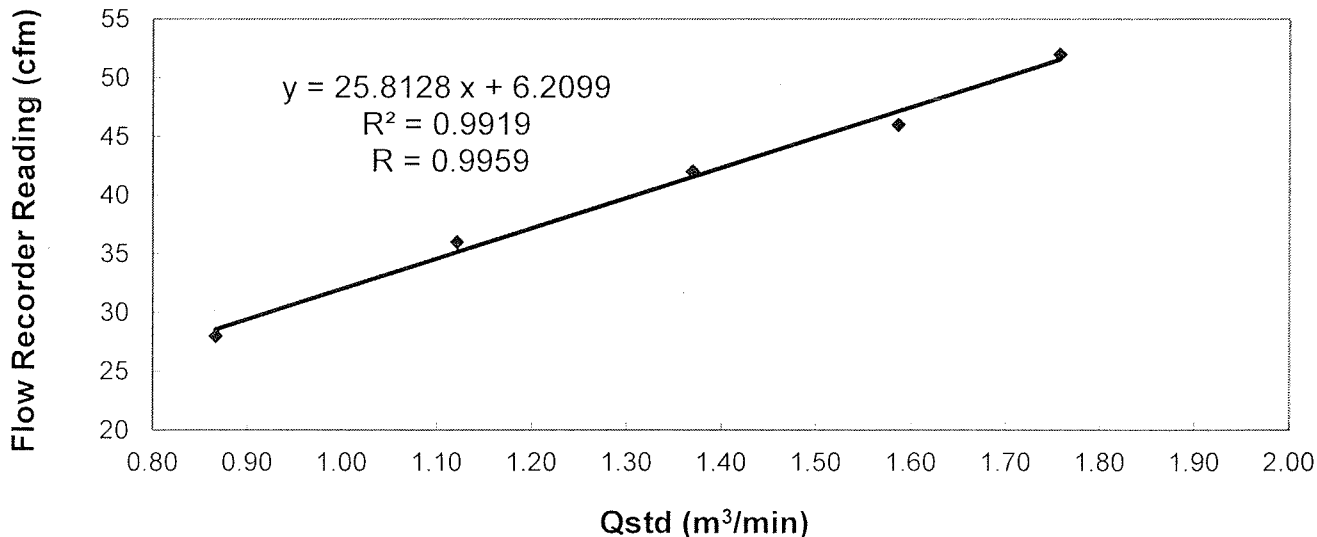
Serial No. : 9998 (ET / EA / 003 / 12) **Calibration Due Date** : 07 July 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results

| | | | | | |
|--|------|------|---------------|------|------|
| Flow recorder reading (cfm) | 52 | 46 | 42 | 36 | 28 |
| Qstd (Actual flow rate, m ³ /min) | 1.76 | 1.59 | 1.37 | 1.12 | 0.87 |
| Pressure : 759.06 mm Hg | | | Temp. : 298 K | | |

Sampler 9998 Calibration Curve
Site: San Wai (ASR2a)

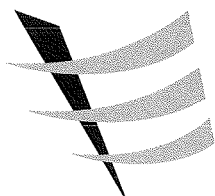


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

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

Calibrated by : MAK, Kei Wai
(Assistant Supervisor)

Checked by : LAU, Chi Leung
(Environmental Team Leader)



Calibration Report
of
High Volume Air Sampler

Manufacturer : Graseby (Model No. GS2310) **Date of Calibration** : 31 August 2018

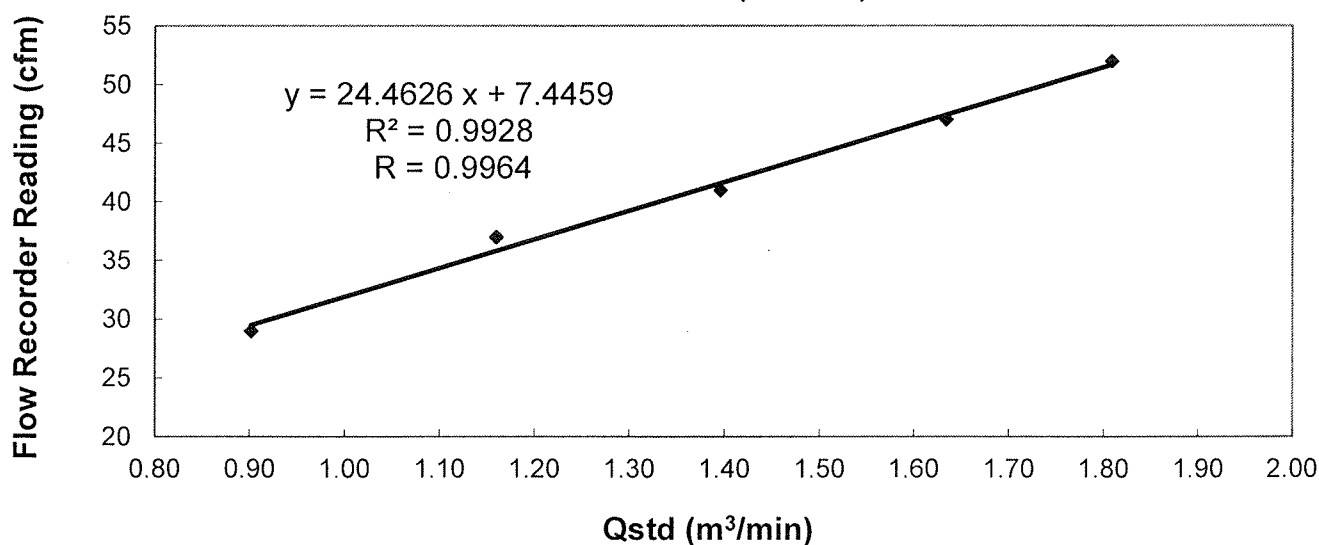
Serial No. : 9998 (ET / EA / 003 / 12) **Calibration Due Date** : 30 October 2018

Method : Five-point calibration by using standard calibration kit Tisch TE-5025A refer to the Operations Manual

Results :


| | | | | | |
|--|------|------|---------------|------|------|
| Flow recorder reading (cfm) | 52 | 47 | 41 | 37 | 29 |
| Qstd (Actual flow rate, m ³ /min) | 1.81 | 1.63 | 1.40 | 1.16 | 0.90 |
| Pressure : 759.06 mm Hg | | | Temp. : 300 K | | |

Sampler 9998 Calibration Curve
Site: San Wai (ASR2a)



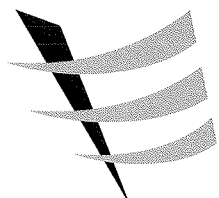
Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a 5-point calibration.

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

Calibrated by : 
TANG, Chung Hang
(Supervisor)

Checked by : 
LAU, Chi Leung
(Environmental Team Leader)

- END OF REPORT -



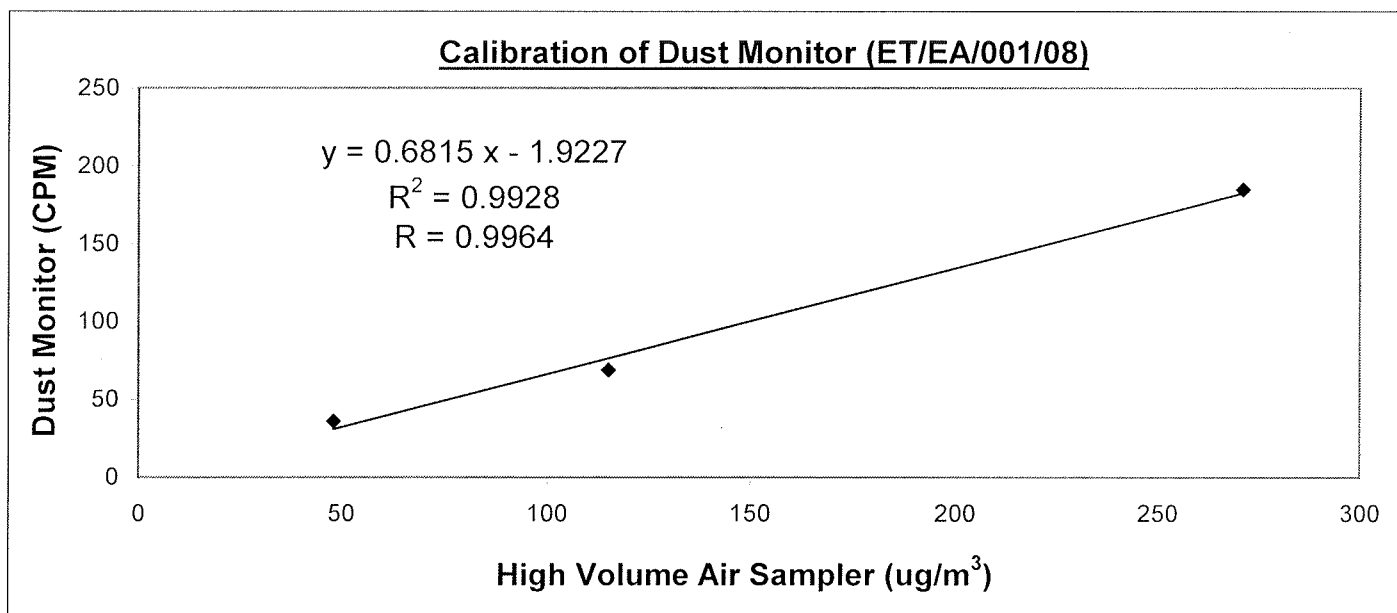
Internal Calibration Report
of
Dust Monitor

Manufacturer : SIBATA (LD-3B) **Date of Calibration** : 27 March 2018

Serial No. : 135261 (ET/EA/001/08) **Calibration Due Date** : 26 September 2018

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Sampler together under the same environmental condition


| | | | | |
|------------------|--|----|------------------------------------|-----|
| Results : | Dust Monitor (CPM) | 36 | 69 | 185 |
| | High Volume Air Sampler (ug/m ³) | 48 | 115 | 271 |
| | High Volume Air Sampler Serial No.: 1177 | | Calibration Due Date: 8 April 2018 | |




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

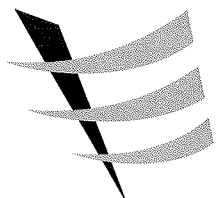
The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by :


Chung Ka Ho
(Technician)

Checked by :


LAU, Chi Leung
(Environmental Team Leader)



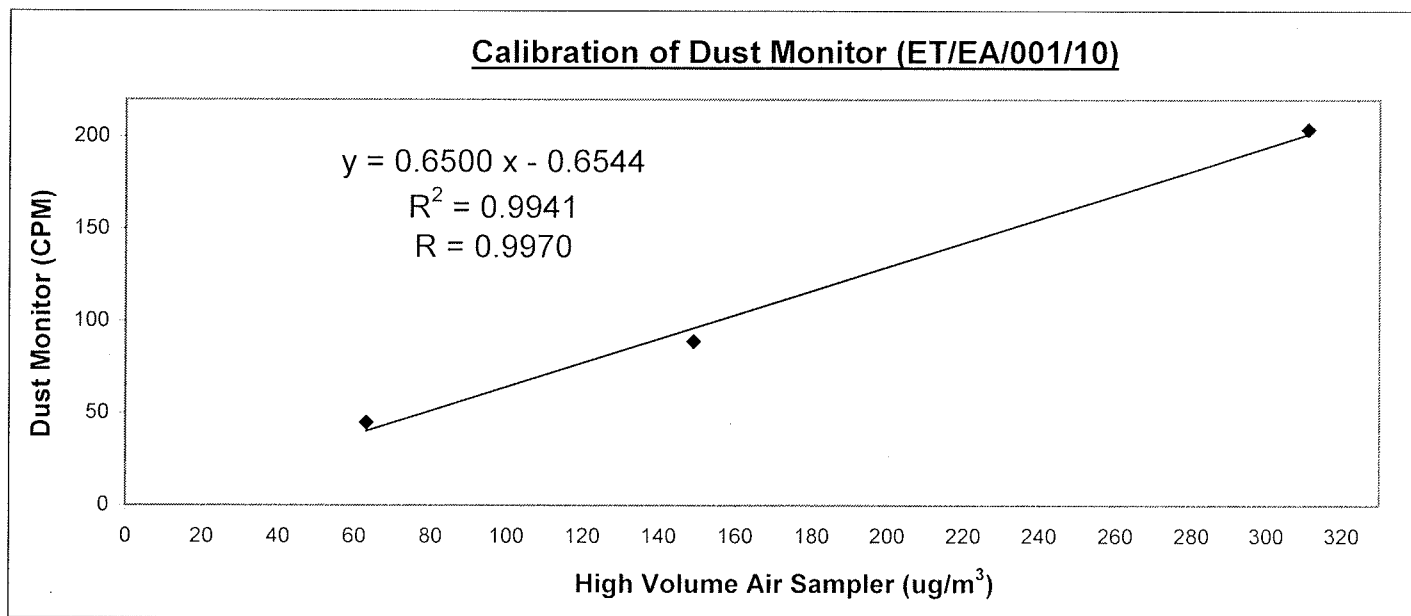
Internal Calibration Report
of
Dust Monitor

Manufacturer : SIBATA (LD-3B) Date of Calibration : 19 April 2018

Serial No. : 1Z5635 (ET/EA/001/10) Calibration Due Date : 18 October 2018


Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Sampler together under the same environmental condition


| | | | | |
|------------------|--|----|-----|-----|
| Results : | Dust Monitor (CPM) | 45 | 89 | 204 |
| | High Volume Air Sampler (ug/m ³) | 63 | 149 | 311 |
| | High Volume Air Sampler Serial No.: 1177 Calibration Due Date: 5 June 2018 | | | |

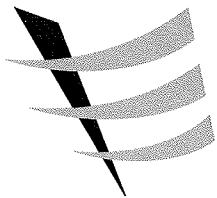


Acceptance Criteria : Correlation coefficient (r) of the calibration curve greater than 0.990 after a three-point calibration

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / unacceptable * for use.

Calibrated by : 
CHUNG, Ka Ho
(Technician)

Checked by : 
LAU, Chi Leung
(Environmental Team Leader)



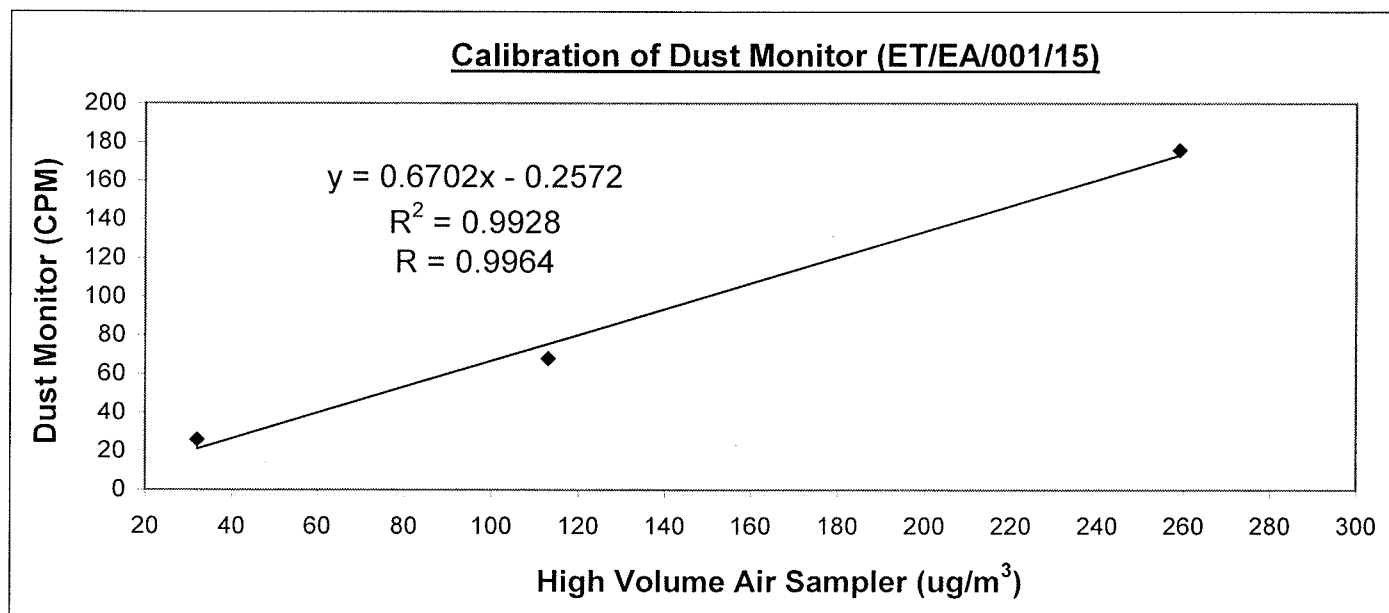
Internal Calibration Report
of
Dust Monitor

Manufacturer : SIBATA (LD-3B) **Date of Calibration** : 19 July 2018

Serial No. : 597227 (ET/EA/001/15) **Calibration Due Date** : 18 Jan 2019

Method : Parallel measurement (Three-point calibration) by placing the Dust Monitor and High Volume Air Sampler together under the same environmental condition

| | | | | |
|----------------|--|----|-------------------------------------|-----|
| Results | Dust Monitor (CPM) | 26 | 68 | 176 |
| | High Volume Air Sampler (ug/m ³) | 32 | 113 | 259 |
| | High Volume Air Sampler Serial No.: 1177 | | Calibration Due Date: 3 August 2018 | |



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

The Dust Trak Monitor complies * / ~~does not comply~~ * with the internal calibration procedures and is deemed acceptable * / ~~unacceptable~~ * for use.

Calibrated by : CHUNG, Ka Ho
(Technician)

Checked by : LAU, Chi Leung
(Environmental Team Leader)

Appendix D2

Impact Air Quality Monitoring Results

Summary of Impact 1-hour TSP Monitoring Results

Air Quality Monitoring Station : ASR1a

| Date | Weather | Temperature (°C) | Monitoring Period | | 1-hr TSP ($\mu\text{g}/\text{m}^3$) |
|------------|---------|------------------|-------------------|--------|--|
| | | | Start | Finish | |
| 02/08/2018 | Cloudy | 27 | 08:54 | 09:54 | 35 |
| 02/08/2018 | Cloudy | 27 | 09:54 | 10:54 | 38 |
| 02/08/2018 | Cloudy | 27 | 10:54 | 11:54 | 35 |
| 08/08/2018 | Cloudy | 28 | 08:47 | 09:47 | 49 |
| 08/08/2018 | Cloudy | 28 | 09:47 | 10:47 | 50 |
| 08/08/2018 | Cloudy | 28 | 10:47 | 11:47 | 49 |
| 14/08/2018 | Cloudy | 27 | 09:00 | 10:00 | 55 |
| 14/08/2018 | Cloudy | 27 | 10:00 | 11:00 | 58 |
| 14/08/2018 | Cloudy | 27 | 11:00 | 12:00 | 56 |
| 20/08/2018 | Cloudy | 27 | 08:18 | 09:18 | 98 |
| 20/08/2018 | Cloudy | 27 | 09:18 | 10:18 | 69 |
| 20/08/2018 | Cloudy | 27 | 10:18 | 11:18 | 67 |
| 25/08/2018 | Cloudy | 27 | 08:55 | 09:55 | 35 |
| 25/08/2018 | Cloudy | 27 | 09:55 | 10:55 | 38 |
| 25/08/2018 | Cloudy | 27 | 10:55 | 11:55 | 35 |
| 31/08/2018 | Cloudy | 28 | 13:00 | 14:00 | 52 |
| 31/08/2018 | Cloudy | 28 | 14:00 | 15:00 | 49 |
| 31/08/2018 | Cloudy | 29 | 15:00 | 16:00 | 50 |
| Min | | | | | 35 |
| Max | | | | | 98 |
| Average | | | | | 51 |

Air Quality Monitoring Station : ASR2a

| Date | Weather | Temperature (°C) | Monitoring Period | | 1-hr TSP ($\mu\text{g}/\text{m}^3$) |
|------------|---------|------------------|-------------------|--------|--|
| | | | Start | Finish | |
| 02/08/2018 | Cloudy | 27 | 13:06 | 14:06 | 41 |
| 02/08/2018 | Cloudy | 27 | 14:06 | 15:06 | 39 |
| 02/08/2018 | Cloudy | 27 | 15:06 | 16:06 | 39 |
| 08/08/2018 | Cloudy | 28 | 13:10 | 14:10 | 43 |
| 08/08/2018 | Cloudy | 28 | 14:10 | 15:10 | 43 |
| 08/08/2018 | Cloudy | 28 | 15:10 | 16:10 | 41 |
| 14/08/2018 | Cloudy | 27 | 13:04 | 14:04 | 47 |
| 14/08/2018 | Cloudy | 27 | 14:04 | 15:04 | 49 |
| 14/08/2018 | Cloudy | 27 | 15:04 | 16:04 | 49 |
| 20/08/2018 | Cloudy | 27 | 08:25 | 09:25 | 88 |
| 20/08/2018 | Cloudy | 27 | 09:25 | 10:25 | 73 |
| 20/08/2018 | Cloudy | 27 | 10:25 | 11:25 | 66 |
| 25/08/2018 | Cloudy | 27 | 13:09 | 14:09 | 41 |
| 25/08/2018 | Cloudy | 27 | 14:09 | 15:09 | 41 |
| 25/08/2018 | Cloudy | 27 | 15:09 | 16:09 | 39 |
| 31/08/2018 | Cloudy | 28 | 13:11 | 14:11 | 44 |
| 31/08/2018 | Cloudy | 28 | 14:11 | 15:11 | 44 |
| 31/08/2018 | Cloudy | 28 | 15:11 | 16:11 | 46 |
| Min | | | | | 39 |
| Max | | | | | 88 |
| Average | | | | | 49 |

Summary of Impact 24-hour TSP Monitoring Results

Air Quality Monitoring Station : ASR1a

| Start | | Finish | | Elapse Time | | Sampling Time (hrs) | Flow Rate (m ³ /min.) | | Average (m ³ /min.) | Filter Paper Weight (g) | | Conc. (µg/m ³) | Weather Condition |
|------------|-------|------------|-------|-------------|----------|---------------------|----------------------------------|--------|--------------------------------|-------------------------|---------|----------------------------|-------------------|
| Date | Time | Date | Time | Initial | Final | | Initial | Final | | Initial | Final | | |
| 02/08/2018 | 08:54 | 03/08/2018 | 08:54 | 24677.64 | 24701.64 | 24 | 0.9319 | 0.9319 | 0.9319 | 2.5423 | 2.7021 | 119 | Fine |
| 08/08/2018 | 08:47 | 09/08/2018 | 08:47 | 24701.64 | 24725.64 | 24 | 0.9641 | 0.9641 | 0.9641 | 2.7440 | 2.9104 | 120 | Fine |
| 14/08/2018 | 09:00 | 15/08/2018 | 09:00 | 24725.64 | 24749.64 | 24 | 0.8677 | 0.8677 | 0.8677 | 2.7185 | 2.8540 | 108 | Cloudy |
| 20/08/2018 | 08:18 | 21/08/2018 | 08:18 | 24749.64 | 24773.64 | 24 | 0.9962 | 0.9962 | 0.9962 | 2.5055 | 2.6527 | 103 | Cloudy |
| 25/08/2018 | 08:55 | 26/08/2018 | 08:55 | 24773.64 | 24797.64 | 24 | 0.8998 | 0.8998 | 0.8998 | 2.5693 | 2.7389 | 131 | Fine |
| 31/08/2018 | 13:00 | 01/09/2018 | 13:00 | 24797.64 | 24821.64 | 24 | 1.0283 | 1.0283 | 1.0283 | 2.6088 | 2.7640 | 105 | Cloudy |
| | | | | | | | | | | | Min | 103 | |
| | | | | | | | | | | | Max | 131 | |
| | | | | | | | | | | | Average | 114 | |

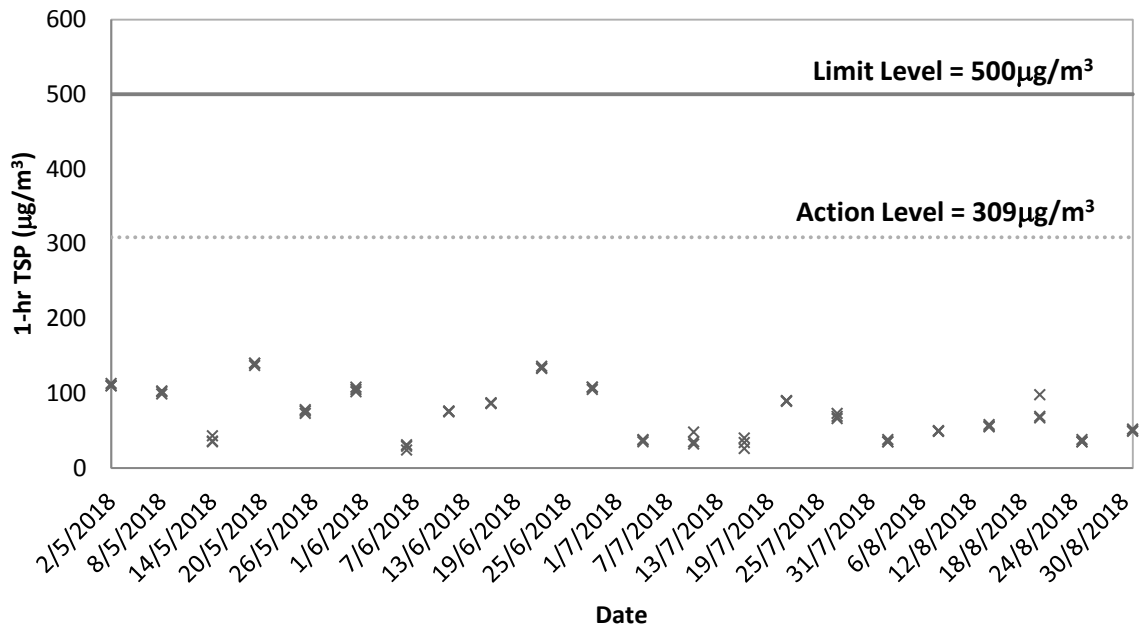
Air Quality Monitoring Station : ASR2a

| Start | | Finish | | Elapse Time | | Sampling Time (hrs) | Flow Rate (m ³ /min.) | | Average (m ³ /min.) | Filter Paper Weight (g) | | Conc. (µg/m ³) | Weather Condition |
|------------|-------|------------|-------|-------------|----------|---------------------|----------------------------------|--------|--------------------------------|-------------------------|---------|----------------------------|-------------------|
| Date | Time | Date | Time | Initial | Final | | Initial | Final | | Initial | Final | | |
| 02/08/2018 | 13:06 | 03/08/2018 | 13:06 | 21638.45 | 21662.45 | 24 | 1.0068 | 1.0068 | 1.0068 | 2.7746 | 2.9525 | 123 | Fine |
| 08/08/2018 | 13:10 | 09/08/2018 | 13:10 | 21662.45 | 21686.45 | 24 | 1.0845 | 1.0845 | 1.0845 | 2.6598 | 2.8128 | 98 | Fine |
| 14/08/2018 | 13:04 | 15/08/2018 | 13:04 | 21686.45 | 21710.45 | 24 | 1.1234 | 1.1234 | 1.1234 | 2.6399 | 2.7820 | 88 | Cloudy |
| 20/08/2018 | 08:25 | 21/08/2018 | 08:25 | 21710.45 | 21734.45 | 24 | 1.1622 | 1.1622 | 1.1622 | 2.6117 | 2.7511 | 83 | Cloudy |
| 25/08/2018 | 13:09 | 26/08/2018 | 13:09 | 21734.45 | 21758.45 | 24 | 1.0457 | 1.0457 | 1.0457 | 2.7032 | 2.8752 | 114 | Fine |
| 31/08/2018 | 13:11 | 01/09/2018 | 13:11 | 21758.45 | 21782.45 | 24 | 1.2011 | 1.2011 | 1.2011 | 2.6546 | 2.8195 | 98 | Cloudy |
| | | | | | | | | | | | Min | 83 | |
| | | | | | | | | | | | Max | 123 | |
| | | | | | | | | | | | Average | 101 | |

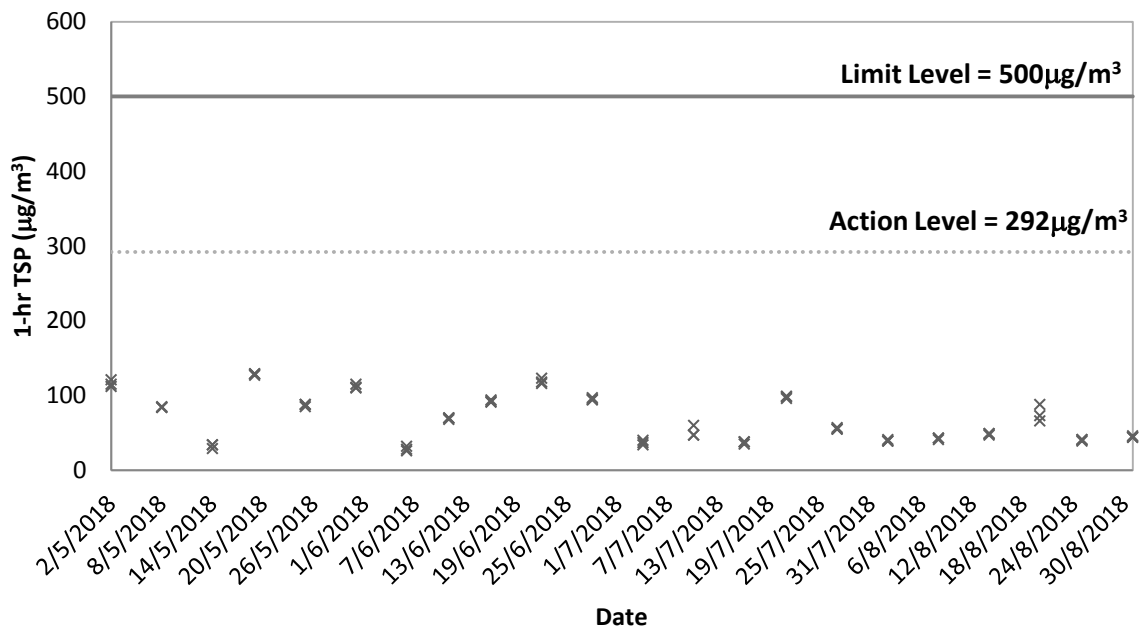
Appendix D3

Graphical Plots of Impact Air Quality Monitoring Results

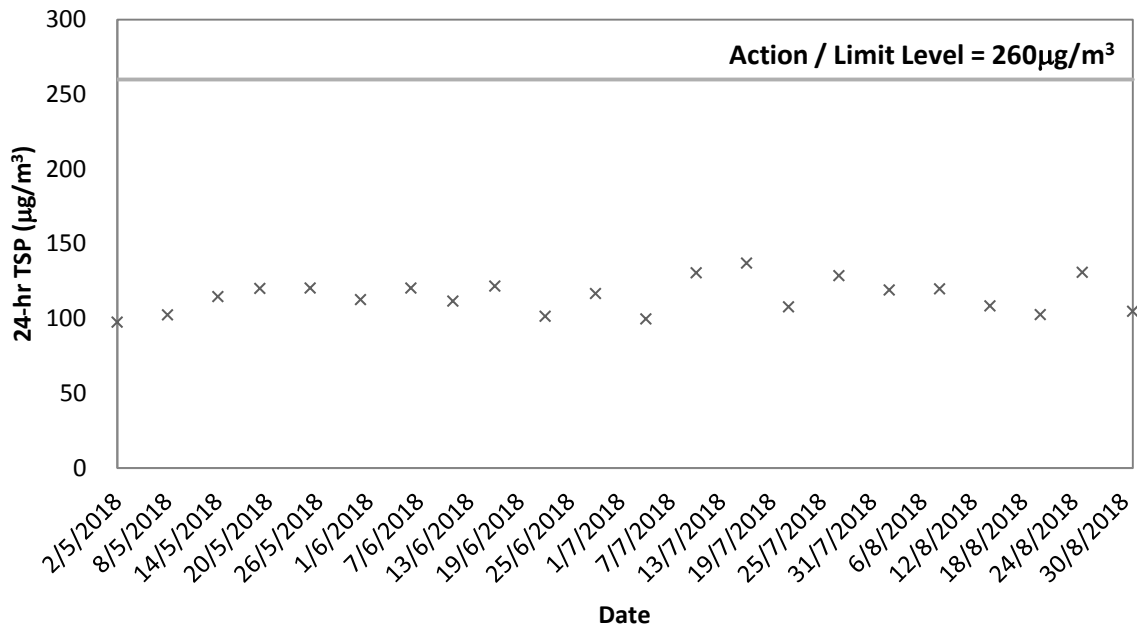
1-hr TSP at ASR1a



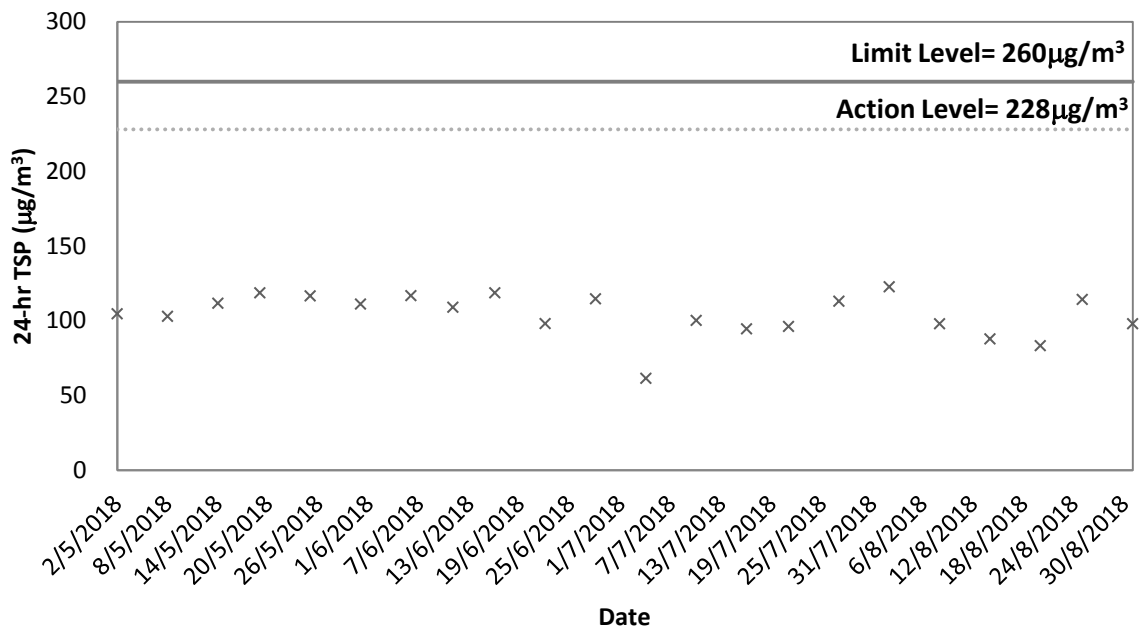
1-hr TSP at ASR2a



24-hr TSP at ASR1a



24-hr TSP at ASR2a



Appendix E1

Calibration Certificates for Impact Noise Monitoring Equipment



Calibration Certificate

Certificate No. **801750**

Page **1** of **2** Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80695

Date of receipt : 13-Feb-18

Item Tested

Description : Thermo-Anemometer

Manufacturer : AZ Instrument

Model : AZ 8908

I.D. : ET/EN/001/05

Serial No. : 1064869

Test Conditions

Date of Test : 7-Mar-18

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Supply Voltage : --

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Calibration procedure : T03, Z04.

Test Results

A correction factor of $\times 1.1$ is required to bring the meter reading to within the manufacturer's specification.
The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------|------------------|---------------------|
| S155 | Std. Anemometer | 711600 | NIM-PRC |
| S223C | Std. Thermometer | 705236 | NIM-PRC |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : 

W M Ng

Approved by : 

Steve Kwan

Date: 7-Mar-18

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 801750

Page 2 of 2 Pages

Results :

1. Velocity

| Applied Value (m/s) | UUT Reading (m/s) | Corrected Reading (UUT Rdg. \times 1.1) | Mfr's Spec. |
|---------------------|-------------------|---|---------------------------------|
| 0.00 | 0.0 | 0.0 | \pm (3% of reading + 0.2 m/s) |
| 2.50 | 2.3 | 2.5 | |
| 5.00 | 4.7 | 5.2 | |
| 10.00 | *9.1 | 10.0 | |
| 15.00 | *13.7 | 15.1 | |
| 19.00 | *17.3 | 19.0 | |

2. Temperature

| Applied Value (°C) | UUT Reading (°C) | Mfr's Spec. |
|--------------------|------------------|-------------|
| 22.50 | 22.2 | \pm 1 °C |

Remark : 1. UUT : Unit-Under-Test

2. Uncertainty : \pm (0.9% + 0.16 m/s) for Velocity, \pm 0.1 °C for Temperature, for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 022 hPa

4. *Out of Specification

----- END -----



Calibration Certificate

Certificate No. 709571

Page 1 of 2 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q73909

Date of receipt : 6-Oct-17

Item Tested

Description : Sound Level Calibrator

Manufacturer : Rion

I.D. : ET/EN/002/01

Model : NC-73

Serial No. : 10196943

Test Conditions

Date of Test : 16-Oct-17

Supply Voltage : --

Ambient Temperature : (23 ± 3)°C

Relative Humidity : (50 ± 25) %

Test Specifications

Calibration check.

Ref. Document/Procedure : F21, Z02.

Test Results

All results were within the manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|------------------------|------------------|---------------------|
| S014 | Spectrum Analyzer | 707126 | NIM-PRC & SCL-HKSAR |
| S240 | Sound Level Calibrator | 703741 | NIM-PRC & SCL-HKSAR |
| S041 | Universal Counter | 707135 | SCL-HKSAR |
| S206 | Sound Level Meter | 707129 | SCL-HKSAR |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by :

Elva Chong

Approved by :

Alan Chu

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 16-Oct-17



Calibration Certificate

Certificate No. 709571

Page 2 of 2 Pages

Results :

1. Level Accuracy (at 1 kHz)

| UUT Nominal Value | Measured Value | Mfr's Spec. |
|-------------------|----------------|-------------|
| 94 dB | 94.0 dB | ± 1 dB |

Uncertainty : ± 0.2 dB

2. Frequency Accuracy

| UUT Nominal Value | Measured Value | Mfr's Spec. |
|-------------------|----------------|-------------|
| 1 kHz | 0.987 kHz | ± 2 % |

Uncertainty : ± 0.1 %

3. Level Stability : 0.0 dB

Uncertainty : ± 0.01 dB

4. Total Harmonic Distortion : < 0.5 %

Mfr's Spec. : < 3 %

Uncertainty : ± 2.3 % of reading

Remarks: 1. UUT : Unit-Under-Test
2. The uncertainty claimed is for a confidence probability of not less than 95%.
3. Atmospheric Pressure : 1 025 hPa

----- END -----



Calibration Certificate

Certificate No. **801836**

Page 1 of 3 Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80729

Date of receipt : 23-Feb-18

Item Tested

Description : Sound Level Meter

Manufacturer : Rion

I.D. : --

Model : NL-52

Serial No. : 00264519

Test Conditions

Date of Test : 6-Mar-18

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type 1 or manufacturer's specification.

The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|---------------------|
| S017 | Multi-Function Generator | C170120 | SCL-HKSAR |
| S240 | Sound Level Calibrator | 703741 | NIM-PRC & SCL-HKSAR |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by :

Elva Chong

Approved by :

Kin Wong

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646

Date: 6-Mar-18



Calibration Certificate

Certificate No. 801836

Page 2 of 3 Pages

Results :

1. Self-generated noise: 14.6 dBA (Mfr's Spec \leq 17 dBA)

2. Acoustical signal test

| UUT Setting | | | | Applied Value (dB) | UUT Reading (dB) |
|-------------|---------------------|----------------|---------------|--------------------|------------------|
| Range (dB) | Frequency Weighting | Time Weighting | Octave Filter | | |
| 20 ~ 130 | A | F | OFF | 94.0 | 94.0 |
| | | S | OFF | | 94.0 |
| | C | F | OFF | | 94.0 |
| | Z | F | OFF | | 94.1 |
| | A | F | OFF | 114.0 | 114.1 |
| | | S | OFF | | 114.1 |
| | C | F | OFF | | 114.1 |
| | Z | F | OFF | | 114.1 |

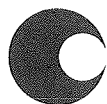
IEC 61672 Type 1 Spec. : ± 1.1 dB

Uncertainty : ± 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

| Frequency | Attenuation (dB) | IEC 61672 Type 1 Spec. |
|-----------|------------------|--------------------------------|
| 31.5 Hz | -39.8 | - 39.4 dB, ± 2 dB |
| 63 Hz | -26.3 | - 26.2 dB, ± 1.5 dB |
| 125 Hz | -16.2 | - 16.1 dB, ± 1.5 dB |
| 250 Hz | -8.7 | - 8.6 dB, ± 1 dB |
| 500 Hz | -3.3 | - 3.2 dB, ± 1.4 dB |
| 1 kHz | 0.0 (Ref) | 0 dB, ± 1.1 dB |
| 2 kHz | +1.2 | + 1.2 dB, ± 1.6 dB |
| 4 kHz | +0.9 | + 1.0 dB, ± 1.6 dB |
| 8 kHz | -1.1 | - 1.1 dB, + 2.1 dB ~ -3.1 dB |
| 16 kHz | -7.1 | - 6.6 dB, + 3.5 dB ~ - 17.0 dB |

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 801836

Page 3 of 3 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

| UUT Setting | Applied Value (dB) | UUT Reading (dB) | Difference (dB) | IEC 61672 Type 1 Spec. |
|-------------|--------------------|------------------|-----------------|------------------------|
| A | 94.0 | 94.0 (Ref.) | - - | ± 0.4 dB |
| C | 94.0 | 94.0 | 0.0 | |
| Z | 94.0 | 94.0 | 0.0 | |

4.2 Time Weighting (A-weighted)

| UUT Setting | Applied Value (dB) | UUT Reading (dB) | Difference (dB) | IEC 61672 Type 1 Spec. |
|----------------|--------------------|------------------|-----------------|------------------------|
| Fast | 94.0 | 94.0 (Ref.) | - - | ± 0.3 dB |
| Slow | 94.0 | 94.0 | 0.0 | |
| Time-averaging | 94.0 | 94.0 | 0.0 | |

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 027 hPa.

4. Preamplifier model : NH-25 , S/N : 64644

5. Firmware Version: 1.7

6. Power Supply Check: OK

7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----



Calibration Certificate

Certificate No. **801918**

Page **1** of **3** Pages

Customer : ETS-Testconsult Limited

Address : 8/F., Block B, Veristrong Industrial Centre, 34-36 Au Pui Wan St., Fotan, Hong Kong.

Order No. : Q80767

Date of receipt : 27-Feb-18

Item Tested

Description : Sound Level Meter

Manufacturer : Rion

I.D. : ET/EN/003/18

Model : NL-52

Serial No. : 00264520

Test Conditions

Date of Test : 7-Mar-18

Supply Voltage : --

Ambient Temperature : $(23 \pm 3)^{\circ}\text{C}$

Relative Humidity : $(50 \pm 25) \%$

Test Specifications

Calibration check.

Ref. Document/Procedure: Z01, IEC 61672.

Test Results

All results were within the IEC 61672 Type 1 or manufacturer's specification.

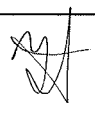
The results are shown in the attached page(s).

Main Test equipment used:

| <u>Equipment No.</u> | <u>Description</u> | <u>Cert. No.</u> | <u>Traceable to</u> |
|----------------------|--------------------------|------------------|---------------------|
| S017 | Multi-Function Generator | C170120 | SCL-HKSAR |
| S240 | Sound Level Calibrator | 703741 | NIM-PRC & SCL-HKSAR |

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI), or by reference to a natural constant.
The test results apply to the above Unit-Under-Test only

Calibrated by : 

Elva Chong

Approved by : 

Kin Wong

Date: 7-Mar-18

This Certificate is issued by:

Hong Kong Calibration Ltd.

Unit 8B, 24/F., Well Fung Industrial Centre, No. 58-76, Ta Chuen Ping Street, Kwai Chung, NT, Hong Kong.

Tel: 2425 8801 Fax: 2425 8646



Calibration Certificate

Certificate No. 801918

Page 2 of 3 Pages

Results :

1. Self-generated noise: 14.8 dBA (Mfr's Spec ≤ 17 dBA)

2. Acoustical signal test

| UUT Setting | | | | Applied Value (dB) | UUT Reading (dB) |
|-------------|---------------------|----------------|---------------|--------------------|------------------|
| Range (dB) | Frequency Weighting | Time Weighting | Octave Filter | | |
| 30-130 | A | F | OFF | 94.0 | 94.0 |
| | | S | OFF | | 94.0 |
| | C | F | OFF | | 94.0 |
| | Z | F | OFF | | 94.0 |
| | A | F | OFF | 114.0 | 114.1 |
| | | S | OFF | | 114.1 |
| | C | F | OFF | | 114.1 |
| | Z | F | OFF | | 114.1 |

IEC 61672 Type 1 Spec. : ± 1.1 dB

Uncertainty : ± 0.1 dB

3 Electrical signal tests of frequency weightings (A weighting)

| Frequency | Attenuation (dB) | IEC 61672 Type 1 Spec. |
|-----------|------------------|-------------------------------------|
| 31.5 Hz | -39.6 | - 39.4 dB, ± 2 dB |
| 63 Hz | -26.3 | - 26.2 dB, ± 1.5 dB |
| 125 Hz | -16.2 | - 16.1 dB, ± 1.5 dB |
| 250 Hz | -8.7 | - 8.6 dB, ± 1 dB |
| 500 Hz | -3.3 | - 3.2 dB, ± 1.4 dB |
| 1 kHz | 0.0 (Ref) | 0 dB, ± 1.1 dB |
| 2 kHz | +1.2 | + 1.2 dB, ± 1.6 dB |
| 4 kHz | +0.9 | + 1.0 dB, ± 1.6 dB |
| 8 kHz | -1.1 | - 1.1 dB, + 2.1 dB \sim -3.1 dB |
| 16 kHz | -8.1 | - 6.6 dB, + 3.5 dB \sim - 17.0 dB |

Uncertainty : ± 0.1 dB



Calibration Certificate

Certificate No. 801918

Page 3 of 3 Pages

4. Frequency & Time weightings at 1 kHz

4.1 Frequency Weighting (Fast)

| UUT Setting | Applied Value (dB) | UUT Reading (dB) | Difference (dB) | IEC 61672 Type 1 Spec. |
|-------------|--------------------|------------------|-----------------|------------------------|
| A | 94.0 | 94.0 (Ref.) | - - | ± 0.4 dB |
| C | 94. | 94.0 | 0.0 | |
| Z | 94.0 | 94.0 | 0.0 | |

4.2 Time Weighting (A-weighted)

| UUT Setting | Applied Value (dB) | UUT Reading (dB) | Difference (dB) | IEC 61672 Type 1 Spec. |
|----------------|--------------------|------------------|-----------------|------------------------|
| Fast | 94.0 | 94.0 (Ref.) | - - | ± 0.3 dB |
| Slow | 94.0 | 94.0 | 0.0 | |
| Time-averaging | 94.0 | 94.0 | 0.0 | |

Uncertainty : ± 0.1 dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 1 022 hPa.

4. Preamplifier model : NH-25 , S/N : 64645

5. Firmware Version: 1.7

6. Power Supply Check: OK

7. The UUT was adjusted with the laboratory's sound calibrator at the reference sound pressure level before the calibration.

----- END -----

Appendix E2

Impact Noise Monitoring Results

Day-time Noise Monitoring

Monitoring Station: NSR1a

| Date | Weather | Temperature (°C) | Start Time (hh:mm) | End Time (hh:mm) | Noise Level at NSR1a, dB (A) | | | Wind Speed (m/s) |
|---|---------|------------------|--------------------|------------------|------------------------------|-------------|-------------|------------------|
| | | | | | Leq (30min) | L10 (30min) | L90 (30min) | |
| 02/08/18 | Cloudy | 27 | 09:05 | 09:35 | 69.5 | 73.2 | 67.1 | 0.3 |
| 08/08/18 | Cloudy | 28 | 09:09 | 09:39 | 68.0 | 71.7 | 65.4 | 0.3 |
| 14/08/18 | Cloudy | 27 | 09:10 | 09:40 | 70.0 | 72.5 | 67.4 | 0.3 |
| 20/08/18 | Cloudy | 27 | 09:03 | 09:33 | 67.7 | 68.2 | 61.9 | 0.2 |
| 25/08/18 | Cloudy | 27 | 09:15 | 09:45 | 66.5 | 69.7 | 63.2 | 0.3 |
| 31/08/18 | Cloudy | 28 | 13:04 | 13:34 | 70.0 | 72.4 | 67.3 | 0.3 |
| Min | | | | | 66.5 | 68.2 | 61.9 | |
| Max | | | | | 70.0 | 73.2 | 67.4 | |
| Logarithmic Average for normal weekdays | | | | | 68.8 | 72.0 | 66.4 | |

Monitoring Station: NSR2a(*)

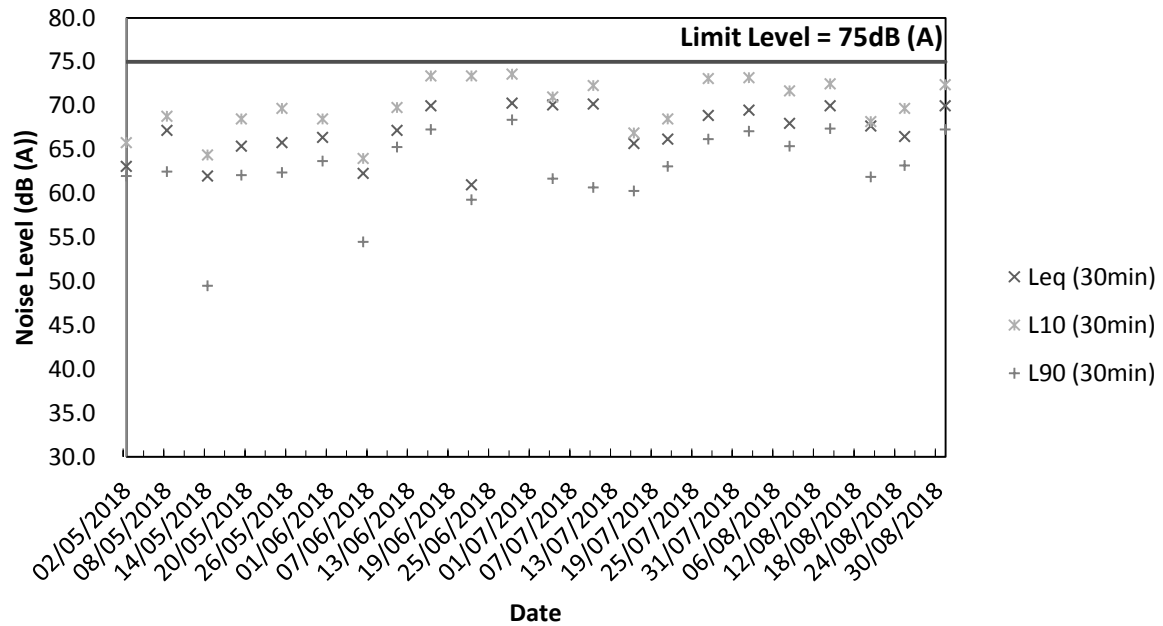
| Date | Weather | Temperature (°C) | Start Time (hh:mm) | End Time (hh:mm) | Noise Level at NSR2a, dB (A) | | | Wind Speed (m/s) |
|---|---------|------------------|--------------------|------------------|------------------------------|-------------|-------------|------------------|
| | | | | | Leq (30min) | L10 (30min) | L90 (30min) | |
| 02/08/18 | Cloudy | 27 | 13:10 | 13:40 | 68.1 | 70.8 | 66.7 | 0.2 |
| 08/08/18 | Cloudy | 28 | 13:04 | 13:34 | 69.3 | 72.6 | 66.1 | 0.4 |
| 14/08/18 | Cloudy | 27 | 13:12 | 13:42 | 71.1 | 73.8 | 68.5 | 0.4 |
| 20/08/18 | Cloudy | 27 | 08:25 | 08:55 | 67.3 | 70.1 | 63.3 | 0.2 |
| 25/08/18 | Cloudy | 27 | 13:02 | 13:32 | 67.2 | 70.4 | 65.0 | 0.4 |
| 31/08/18 | Cloudy | 28 | 14:09 | 14:39 | 69.9 | 73.8 | 68.2 | 0.5 |
| Min | | | | | 67.2 | 70.1 | 63.3 | |
| Max | | | | | 71.1 | 73.8 | 68.5 | |
| Logarithmic Average for normal weekdays | | | | | 69.1 | 72.7 | 66.6 | |

(*) : 3dB(A) correction was added to the results during the free-field noise measurements

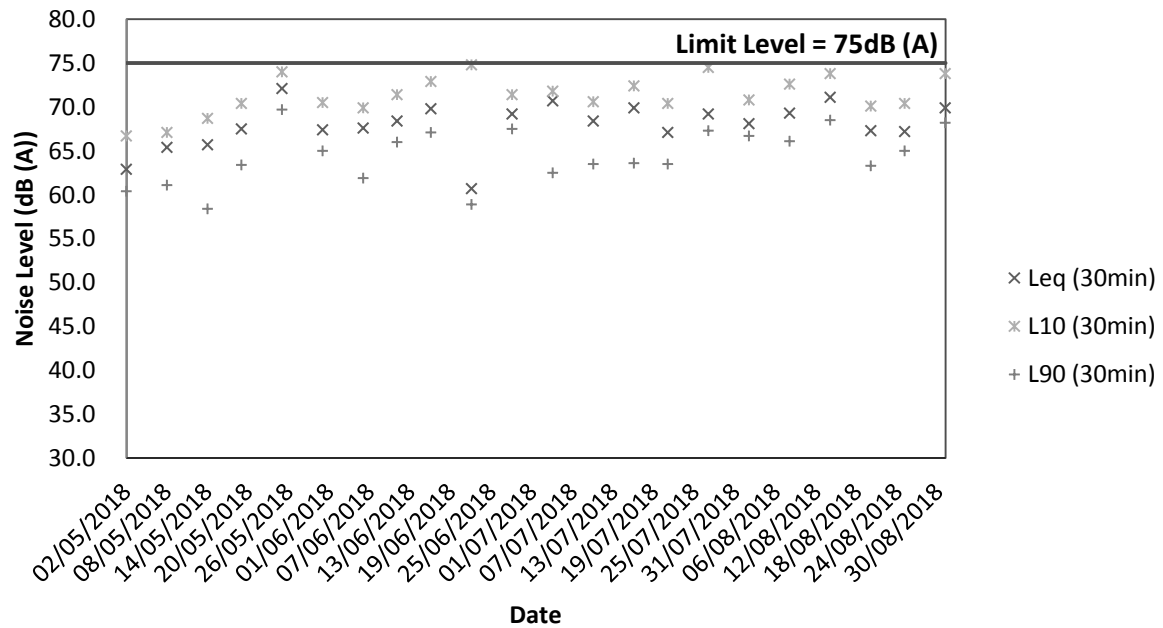
Appendix E3

Graphical Plots of Impact Noise Monitoring Data

Noise Level at NSR1a



Noise Level at NSR2a



Appendix F1

Calibration Certificates for Impact Water Quality Monitoring Equipments



Performance Check of Turbidity Meter

Equipment Ref. No. : ET/0505/015 Manufacturer : HACH
Model No. : 2100Q Serial No. : 14110C036534
Date of Calibration : 25/7/18 Due Date : 24/10/18

| Theoretical Value of Turbidity Standard (NTU) | Measured Value (NTU) | Difference % * |
|---|----------------------|----------------|
| 20 | 20.3 | 1.5% |
| 100 | 101 | 1.0% |
| 800 | 784 | -2.0% |

(*) Difference = (Measured Value – Theoretical Value) / Theoretical Value x 100

Acceptance Criteria

Difference : -5 % to 5 %

The turbidity meter complies * / ~~does not comply~~ * with the specified requirements and is deemed acceptable * / ~~unacceptable~~ * for use. Measurements are traceable to national standards.

Prepared by : 22

Checked by : 



Calibration Report of Dissolved Oxygen Meter (*In situ* Measurement)

Equipment Ref. No. : ET/EW/008/009
Model No. : Pro 2030
Calibration Date : 1/6/2018

Manufacturer : YSI
Serial No. : 16LL100372
Calibration Due Date : 1/9/2018

Temperature Verification by Reference Thermometer (ET/0521/028)

| | Temperature Reading (°C) | Correction (°C) | Corrected Temperature (°C) | Difference (°C) |
|-----------------------|--------------------------|-----------------|----------------------------|-----------------|
| Reference Thermometer | 20.5 | 0.0 | 20.5 | 0.4 |
| DO Meter | 20.1 | 0.0 | 20.1 | |

Criteria: Difference between corrected temperature from DO meter and reference thermometer : $< \pm 0.5^{\circ}\text{C}$

Zero Point Checking

| | |
|-------------------------|------|
| DO meter reading (mg/L) | 0.02 |
|-------------------------|------|

Criteria: Zero checking: 0.0 mg/L

Linearity Checking of Dissolved Oxygen Content by APHA 19ed 4500-O G

| Purging time, min | Expected DO value (mg/L) (ET/0510/012) | DO meter reading (mg/L) | Difference of DO Content (mg/L) |
|-------------------|---|-------------------------|------------------------------------|
| 2 | 1.86 | 1.66 | 0.20 |
| 5 | 4.42 | 4.16 | 0.26 |
| 10 | 6.56 | 6.29 | 0.27 |

Criteria: Difference between DO meter reading and expected DO value: $< \pm 0.30 \text{ mg/L}$

Salinity Checking by APHA 19ed 2520 B


| | Expected Salinity (ppt) | DO meter reading (ppt) |
|--|-------------------------|------------------------|
| Reagent No. of NaCl (10 ppt): CPE/012/4.7/24 | 10 | 9.3 |
| Reagent No. of NaCl (30 ppt): CPE/012/4.8/24 | 30 | 28.2 |

Criteria: Difference between DO meter reading and expected Salinity: $\pm 10.0 \%$

The equipment complies [#] / ~~does not comply~~ [#] with the specified requirements and is deemed acceptable [#] / unacceptable [#] for use.

[#] Delete as appropriate

Calibrated by : 

Approved by : 

Appendix F2

Impact Water Quality Monitoring Results

Impact Water Quality Monitoring

Monitoring Station: R1b

| Date | Sampling Duration | Weather Condition | Sampling Level | Turbidity (NTU) | | | Dissolved Oxygen (DO) (mg/L) | | | Suspended Solid (SS) (mg/L) | | |
|----------|-------------------|-------------------|----------------|-----------------|------|------|------------------------------|------|------|-----------------------------|----|------|
| | | | | 1 | 2 | Ave. | 1 | 2 | Ave. | 1 | 2 | Ave. |
| 02/08/18 | 11:55-12:10 | Fine | Mid-Depth | 14.1 | 14.2 | 14.2 | 2.47 | 2.44 | 2.46 | 8 | 8 | 8 |
| 04/08/18 | 09:00-09:12 | Cloudy | Mid-Depth | 14.8 | 14.9 | 14.9 | 2.08 | 2.04 | 2.06 | 6 | 6 | 6 |
| 07/08/18 | 15:18-15:28 | Cloudy | Mid-Depth | 13.8 | 13.7 | 13.8 | 2.11 | 2.08 | 2.10 | 80 | 43 | 62 |
| 09/08/18 | 14:00-14:05 | Fine | Mid-Depth | 11.1 | 10.9 | 11.0 | 2.32 | 2.29 | 2.31 | 6 | 6 | 6 |
| 11/08/18 | 08:00-08:05 | Drizzle | Mid-Depth | 11.1 | 10.9 | 11.0 | 2.82 | 2.84 | 2.83 | 7 | 6 | 7 |
| 14/08/18 | 13:30-13:42 | Cloudy | Mid-Depth | 17.8 | 17.7 | 17.8 | 2.01 | 1.98 | 2.00 | 5 | 5 | 5 |
| 16/08/18 | 12:30-12:45 | Cloudy | Mid-Depth | 8.2 | 8.2 | 8.2 | 2.91 | 2.89 | 2.90 | <5 | <5 | <5 |
| 18/08/18 | 09:20-09:35 | Cloudy | Mid-Depth | 13.1 | 13.2 | 13.2 | 2.83 | 2.85 | 2.84 | <5 | <5 | <5 |
| 21/08/18 | 10:30-10:35 | Cloudy | Mid-Depth | 8.5 | 8.4 | 8.4 | 2.46 | 2.43 | 2.45 | <5 | <5 | <5 |
| 23/08/18 | 11:40-11:55 | Cloudy | Mid-Depth | 10.3 | 10.2 | 10.3 | 2.85 | 2.88 | 2.87 | <5 | <5 | <5 |
| 25/08/18 | 07:30-07:35 | Cloudy | Mid-Depth | 6.2 | 6.2 | 6.2 | 2.30 | 2.26 | 2.28 | <5 | <5 | <5 |
| 28/08/18 | 13:05-13:18 | Cloudy | Mid-Depth | 14.4 | 14.3 | 14.4 | 2.69 | 2.66 | 2.68 | <5 | <5 | <5 |
| 30/08/18 | 10:18-10:27 | Cloudy | Mid-Depth | 15.9 | 15.8 | 15.9 | 2.19 | 2.15 | 2.17 | 6 | 6 | 6 |
| | | | | Min | | 6.2 | Min | | 1.98 | Min | | 5 |
| | | | | Max | | 17.8 | Max | | 2.91 | Max | | 80 |
| | | | | Average | | 12.2 | Average | | 2.46 | Average | | 14 |

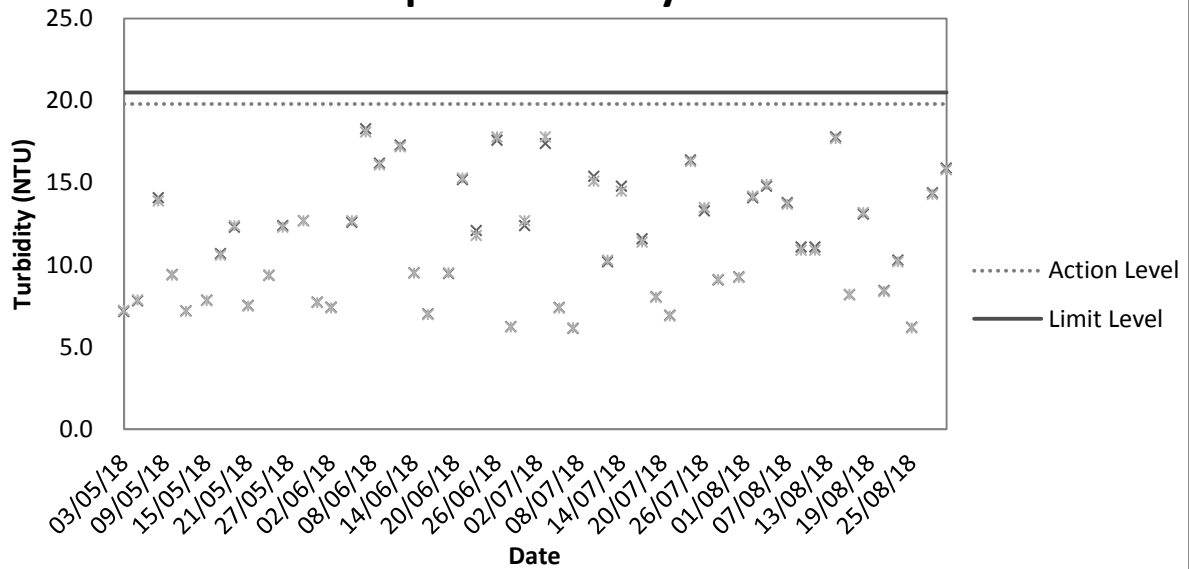
Remark(s):

- (#) 200ml sample was used for Suspended Solids analysis. Practical Quantitation Limit of Suspended Solids reported less than 5 mg/L. The results reported as <5 would be counted as zero for average measurement.

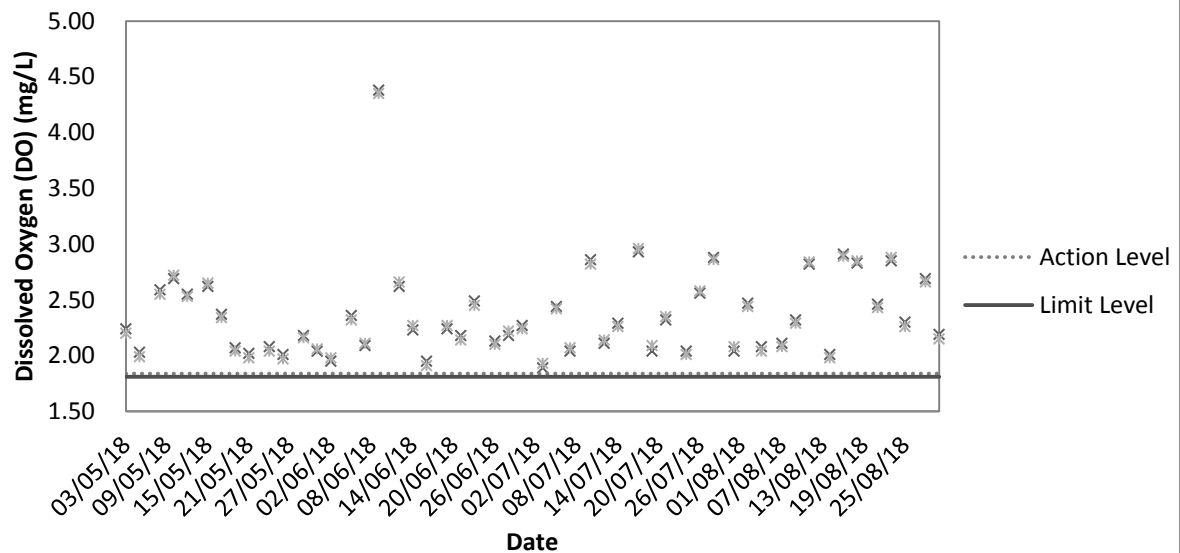
Appendix F3

Graphical Plots of Impact Water Quality Monitoring Data

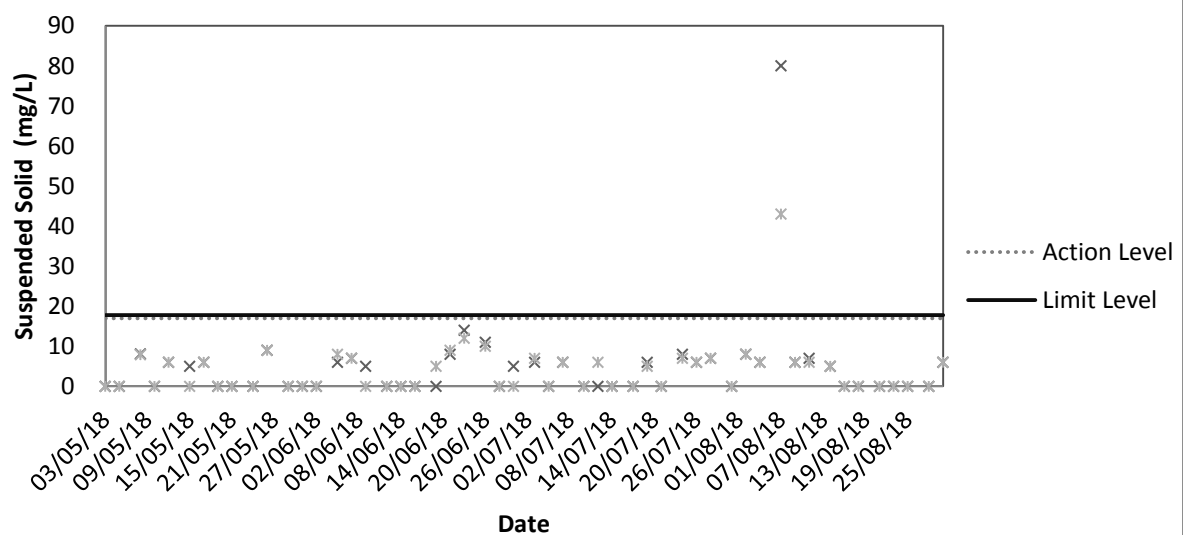
Impact Turbidity Result



Impact DO Result



Impact Suspended Solid (SS) Result



Appendix G

Weather Condition

Daily Extract of Meteorological Observations, August 2018 – Wetland Park

| Day | Mean Pressure (hPa) | Air Temperature | | | Mean Dew Point (deg. C) | Mean Relative Humidity (%) | Total Rainfall (mm) | Prevailing Wind Direction (degrees) | Mean Wind Speed (km/h) |
|-----|---------------------|-----------------------------|---------------|-----------------------------|-------------------------|----------------------------|---------------------|-------------------------------------|------------------------|
| | | Absolute Daily Max (deg. C) | Mean (deg. C) | Absolute Daily Min (deg. C) | | | | | |
| 01 | 1004.3 | 33.7 | 29.7 | 26.0 | 25.5 | 79 | 10.0 | 160 | 4.8 |
| 02 | 1003.5 | 33.3 | 30.1 | 27.0 | 25.2 | 76 | 0.0 | 200 | 6.3 |
| 03 | 1003.1 | 32.6 | 29.4 | 26.8 | 25.5 | 81 | 7.0 | 190 | 4.8 |
| 04 | 1004.4 | 33.6 | 29.3 | 26.6 | 25.8 | 83 | 9.5 | 160 | 5.3 |
| 05 | 1005.6 | 33.3 | 29.6 | 26.6 | 26.0 | 82 | 0.0 | 150 | 4.3 |
| 06 | 1005.2 | 33.9 | 29.2 | 26.7 | 26.0 | 84 | 0.5 | 170 | 3.9 |
| 07 | 1004.3 | 34.7 | 28.6 | 26.5 | 25.8 | 86 | 0.0 | 060 | 2.8 |
| 08 | 1004.1 | 34.1 | 29.4 | 24.5 | 25.2 | 79 | 17.5 | 100 | 6.5 |
| 09 | 1003.2 | 33.7 | 29.8 | 26.9 | 24.7 | 75 | 0.0 | 090 | 10.8 |
| 10 | 1001.4 | 31.6 | 27.3 | 25.3 | 25.7 | 91 | 52.5 | 080 | 6.8 |
| 11 | 998.6 | 27.8# | 26.5 | 24.6# | 25.5 | 94 | 64.5 | 090 | 6.3 |
| 12 | 996.4 | 28.3 | 26.5 | 25.4 | 25.4 | 94 | 72.0 | 090 | 4.6 |
| 13 | 996.1 | 33.7 | 28.9 | 25.9 | 25.5 | 83 | 0.0 | 090 | 8.0 |
| 14 | 996.2 | 31.7 | 27.5 | 26.1 | 25.9 | 91 | 21.0 | 070 | 7.5 |
| 15 | 998.9 | 30.8 | 27.6 | 25.8 | 25.6 | 90 | 5.0 | 090 | 4.9 |
| 16 | 999.9 | 30.8 | 27.3 | 25.9 | 25.9 | 92 | 2.5 | 070 | 4.3 |
| 17 | 1000.1 | 30.2 | 26.9 | 24.9 | 25.2 | 91 | 9.0 | 170 | 4.8 |
| 18 | 1001.2 | 32.9 | 28.2 | 25.6 | 25.5 | 86 | 34.0 | 160 | 4.3 |
| 19 | 1002.4 | 32.4# | 28.2 | 26.0# | 25.2 | 85 | 0.0 | 310 | 3.6 |
| 20 | 1002.1 | 32.4 | 27.9 | 24.6 | 26.1 | 91 | 75.5 | 180 | 3.5 |
| 21 | 1000.0 | 33.3# | 27.8 | 24.8# | 26.1 | 91 | 18.0 | 170 | 3.8 |
| 22 | 1000.0 | 33.0 | 28.2 | 24.1 | 25.2 | 85 | 24.0 | 190 | 4.3 |
| 23 | 1001.6 | 32.0 | 27.9 | 24.2 | 25.1 | 86 | 17.0 | 170 | 4.3 |
| 24 | 1001.5 | 33.6 | 29.1 | 24.8 | 26.0 | 84 | 0.5 | 300 | 2.8 |
| 25 | 999.7 | 34.8# | 31.0 | 27.4# | 24.3 | 69 | 0.0 | 330 | 4.3 |
| 26 | 999.3 | 33.3 | 28.9 | 26.2 | 24.9 | 80 | 5.0 | 170 | 3.9 |
| 27 | 1001.1 | 30.0 | 26.7 | 24.8 | 25.0 | 90 | 31.0 | 160 | 4.6 |
| 28 | 1001.9 | 31.2# | 26.2 | 24.7# | 24.9 | 93 | 32.0 | 160 | 3.8 |
| 29 | 1002.4 | 28.6 | 26.0 | 24.4 | 25.1 | 95 | 96.0 | 340 | 4.1 |
| 30 | 1005.2 | 27.5 | 26.6 | 25.5 | 25.8 | 95 | 31.0 | 160 | 4.6 |
| 31 | 1009.1 | 29.9 | 26.8 | 25.5 | 25.7 | 94 | 19.5 | 160 | 4.9 |

data incomplete

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

Appendix H

Environmental Site Inspection Checklist

Environmental Site Inspection Checklist – San Wai

Inspection Date: 3-8-18 Inspected By: Ennie Tung
Time: 14:00 Weather Condition: Fine
Participants: Patrick Lam, Tessa Yuen, Jimmy So, Theresa Hilly Shum,

| | | N/A | Yes | No | Remarks |
|----------|---|--------------------------|-------------------------------------|--------------------------|---------|
| 1 | Permits/Licenses | | | | |
| 1.1 | Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.2 | Are Construction Noise Permits available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Is wastewater discharge license available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Are trip tickets for chemical waste and construction waste disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are relevant license/permits for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2 | Air Quality | | | | |
| 2.1 | Is open burning avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Are speed controlled at 10 km/h on unpaved site areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Are plant and equipment well maintained (i.e. without black smoke from powered plant)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>not observed</u> | | | | |
| 2.5 | Are the work sites wetted with water twice a day? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.8 | Are wheel washing facilities with high pressure water jet provided at all site exits if practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.9 | Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.11 | Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.12 | Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.13 | Are all vehicles and plant cleaned before they leave the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.14 | Are loaded dump trucks covered by impervious sheeting appropriately | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|--|-------------------------------------|-------------------------------------|--------------------------|--|
| | before leaving the site? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.15 | Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.16 | Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.17 | Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.18 | Are unpaved areas / designated roads watered regularly to avoid dust generation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.19 | Are dusty materials covered entirely by impervious sheeting or sprayed with water? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.20 | Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.21 | Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 3 | Noise | N/A | Yes | No | Remarks |
|------|--|-------------------------------------|-------------------------------------|--------------------------|---------|
| 3.1 | Are idle plant/equipments turned off or throttled down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Are silenced equipments or quiet plants utilized? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Are the silencers or mufflers properly fitted on construction equipments and maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Are noise barriers (typically density @14kg/m ²) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Do air compressors have valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are compressor operated with doors closed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | QPME used with valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> Others: | | | | |

| 4 | Water Quality | N/A | Yes | No | Remarks |
|-----|---|-------------------------------------|--------------------------|--------------------------|---------|
| | <u>Construction Activities</u> | | | | |
| 4.1 | Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Are stockpiles of materials placed in the locations away from the drainage channel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|----------|---|-------------------------------------|-------------------------------------|--------------------------|----------------|
| 4.3 | Are site drainage systems and treatment facilities provided to minimize the water pollution? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Is the treated effluent quality met the requirements specified in the discharge license? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Is the sewage generated from toilets collected using a temporary storage system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.8 | Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.9 | Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Is a wheel washing bay provided at every site exit? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5 | Waste / Chemical Management | N/A | Yes | No | Remarks |
| | <u>General Waste</u> | | | | |
| 5.1 | Are sufficient waste disposal points provided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Is waste disposed regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.4 | Are separated labeled containers/ areas provided for facilitating recycling and waste segregation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <u>Construction Waste</u> | | | | |
| 5.5 | Are the temporary stockpiles maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are the C&D materials sorted and recycled on-site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Is the segregation and storage of C&D wastes undertaken in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|--|---|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5.9 | Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Are surplus inert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical / Fuel Storage Area</u> | | | | | |
| 5.11 | Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Are the storage areas labeled and separated (if needed)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.13 | Do the storage areas have adequate ventilation and be covered to prevent rainfall entering? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical Waste / Waste Oil</u> | | | | | |
| 5.16 | Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.17 | Are chemicals and waste oil collected and stored for recycling or proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Records</u> | | | | | |
| 5.18 | Is a licensed waste hauler used for waste collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.19 | Are the records of quantities of wastes generated, recycled and disposed properly kept? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.20 | For the demolition material/ waste, is the number of loads for each day recorded as appropriate? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6 | Landscape and Visual Impacts | N/A | Yes | No | Remarks |
| 6.1 | Is the work site confined within site boundaries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Is damage to surrounding areas avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7 | Environmental Complaint | N/A | Yes | No | Remarks |
| 7.1 | Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8 | General Housekeeping | N/A | Yes | No | Remarks |
| 8.1 | Are potential stagnant pools cleared and mosquito breeding prevented? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 8.2 | Are the defined boundaries of working areas identified to prevent loss of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 9 | Others | N/A | Yes | No | Remarks |
| 9.1 | Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

Follow up actions for pervious Site Audit: NA

Observations Ith2: Stagnant water was observed near Portion SDB.

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

Ith1: To clean the stagnant water properly

Signature:

ET's representative



Name: Frankie Tung

Date: 3.8.18

Signature:

Contractor's representative



Name: Man Guanglong

Date:

Signature:

ET Leader

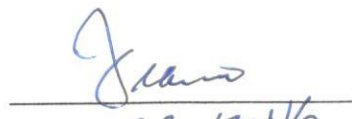


Name: C.L. Lau

Date: 4.8.18

Signature:



SO's representative





Name: C.F. Leong

Date: 3.8.2018

Summary of the Weekly Environmental Site Inspection

| Item | Details of observations | Follow Up Action | Photo Ref. | Further Action Required (Yes/No) | Proposed Follow up Date |
|------|--|------------------|------------|----------------------------------|-------------------------|
| -- |  <p>Follow up action to Item 1 on 27/07/2018, general refuse was collected at Portion AB.</p> | -- | 180803_001 | No | -- |
| -- |  <p>Follow up action to Item 1 on 27/07/2018, stagnant water was cleared at Portion AB.</p> | -- | 180803_002 | No | -- |

| | | | | | |
|----|---|----------------------------|------------|-----|------------|
| -- |  <p>Follow up action to Item 1 on 27/07/2018, stagnant water was cleared near Portion SDB.</p> | -- | 180803_003 | No | -- |
| 1 |  <p>Stagnant water was observed near Portion SDB.</p> | To clear the stagnant pool | 180803_004 | Yes | 10/08/2018 |



Environmental Site Inspection Checklist – San Wai

Inspection Date: 10 August 2018 Inspected By: Ivy Lo
 Time: 09:30 Weather Condition: Cloudy
 Participants: Patrick Lenny, Johnny So, Abby Sham

| 1 | Permits/Licenses | N/A | Yes | No | Remarks |
|------|---|--------------------------|-------------------------------------|--------------------------|---------|
| 1.1 | Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.2 | Are Construction Noise Permits available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Is wastewater discharge license available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Are trip tickets for chemical waste and construction waste disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are relevant license/permits for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2 | Air Quality | N/A | Yes | No | Remarks |
| 2.1 | Is open burning avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Are speed controlled at 10 km/h on unpaved site areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Are plant and equipment well maintained (i.e. without black smoke from powered plant)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>Not observed</u> | | | | |
| 2.5 | Are the work sites wetted with water twice a day? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.8 | Are wheel washing facilities with high pressure water jet provided at all site exits if practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.9 | Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Are hoarding \geq 2.4m tall provided beside roads or area with public access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.11 | Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.12 | Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.13 | Are all vehicles and plant cleaned before they leave the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.14 | Are loaded dump trucks covered by impervious sheeting appropriately | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|--|-------------------------------------|-------------------------------------|--------------------------|--|
| | before leaving the site? | | | | |
| 2.15 | Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.16 | Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.17 | Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.18 | Are unpaved areas / designated roads watered regularly to avoid dust generation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.19 | Are dusty materials covered entirely by impervious sheeting or sprayed with water? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.20 | Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.21 | Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 3 | Noise | N/A | Yes | No | Remarks |
|------|--|-------------------------------------|-------------------------------------|--------------------------|---------|
| 3.1 | Are idle plant/equipments turned off or throttled down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Are silenced equipments or quiet plants utilized? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Are the silencers or mufflers properly fitted on construction equipments and maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Are noise barriers (typically density @14kg/m ²) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Do air compressors have valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are compressor operated with doors closed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | QPME used with valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> Others: | | | | |

| 4 | Water Quality | N/A | Yes | No | Remarks |
|-----|---|-------------------------------------|--------------------------|--------------------------|---------|
| | <u>Construction Activities</u> | | | | |
| 4.1 | Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Are stockpiles of materials placed in the locations away from the drainage channel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|----------|---|-------------------------------------|-------------------------------------|--------------------------|----------------|
| 4.3 | Are site drainage systems and treatment facilities provided to minimize the water pollution? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Is the treated effluent quality met the requirements specified in the discharge license? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Is the sewage generated from toilets collected using a temporary storage system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.8 | Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.9 | Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Is a wheel washing bay provided at every site exit? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5 | Waste / Chemical Management | N/A | Yes | No | Remarks |
| | <u>General Waste</u> | | | | |
| 5.1 | Are sufficient waste disposal points provided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Is waste disposed regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.4 | Are separated labeled containers/ areas provided for facilitating recycling and waste segregation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <u>Construction Waste</u> | | | | |
| 5.5 | Are the temporary stockpiles maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are the C&D materials sorted and recycled on-site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Is the segregation and storage of C&D wastes undertaken in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|--|---|-------------------------------------|-------------------------------------|--------------------------|----------------|
| 5.9 | Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Are surplus inert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical / Fuel Storage Area</u> | | | | | |
| 5.11 | Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Are the storage areas labeled and separated (if needed)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.13 | Do the storage areas have adequate ventilation and be covered to prevent rainfall entering? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical Waste / Waste Oil</u> | | | | | |
| 5.16 | Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.17 | Are chemicals and waste oil collected and stored for recycling or proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Records</u> | | | | | |
| 5.18 | Is a licensed waste hauler used for waste collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.19 | Are the records of quantities of wastes generated, recycled and disposed properly kept? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.20 | For the demolition material/ waste, is the number of loads for each day recorded as appropriate? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6 | Landscape and Visual Impacts | N/A | Yes | No | Remarks |
| 6.1 | Is the work site confined within site boundaries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Is damage to surrounding areas avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7 | Environmental Complaint | N/A | Yes | No | Remarks |
| 7.1 | Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8 | General Housekeeping | N/A | Yes | No | Remarks |
| 8.1 | Are potential stagnant pools cleared and mosquito breeding prevented? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 8.2 | Are the defined boundaries of working areas identified to prevent loss of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 9 | Others | N/A | Yes | No | Remarks |
| 9.1 | Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



Follow up actions for pervious Site Audit:

Follow-up action to item on 2/8/2018,
all item was improved

Observations

NA

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

NA

Signature:

ET's representative

Name: Ivy Lo

Date: 10/8/2018

Signature:

Contractor's representative

Name: Man Guohua

Date:

Signature:

ET Leader

Name: C. L. Chan

Date: 11/8/2018


Signature:

SO's representative

Name: CF 18054

Date: 10.8.2018

Summary of the Weekly Environmental Site Inspection

| Item | Details of observations | Follow Up Action | Photo Ref. | Further Action Required (Yes/No) | Proposed Follow up Date |
|------|---|------------------|------------|----------------------------------|-------------------------|
| -- |  <p>Follow up action to Item 1 on 03/08/2018, stagnant water was cleared at Portion SDB.</p> | -- | 180810_001 | No | -- |


Environmental Site Inspection Checklist – San Wai

Inspection Date: 17.8.18 Inspected By: Frankie Tang
 Time: 14:00 Weather Condition: Cloudy
 Participants: Teddy Tuen, Daisy So, Chee Abby Shing, Tashen Leung

| 1 | Permits/Licenses | N/A | Yes | No | Remarks |
|-----|--|--------------------------|-------------------------------------|--------------------------|---------|
| 1.1 | Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.2 | Are Construction Noise Permits available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Is wastewater discharge license available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Are trip tickets for chemical waste and construction waste disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are relevant license/permits for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 2 | Air Quality | N/A | Yes | No | Remarks |
|------|---|--------------------------|-------------------------------------|--------------------------|---------|
| 2.1 | Is open burning avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Are speed controlled at 10 km/h on unpaved site areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Are plant and equipment well maintained (i.e. without black smoke from powered plant)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>Not observed</u> | | | | |
| 2.5 | Are the work sites wetted with water twice a day? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.8 | Are wheel washing facilities with high pressure water jet provided at all site exits if practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.9 | Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.11 | Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.12 | Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.13 | Are all vehicles and plant cleaned before they leave the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.14 | Are loaded dump trucks covered by impervious sheeting appropriately | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|--|-------------------------------------|-------------------------------------|--------------------------|--|
| | before leaving the site? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.15 | Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.16 | Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.17 | Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.18 | Are unpaved areas / designated roads watered regularly to avoid dust generation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.19 | Are dusty materials covered entirely by impervious sheeting or sprayed with water? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.20 | Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.21 | Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 3 | Noise | N/A | Yes | No | Remarks |
|------|--|-------------------------------------|-------------------------------------|--------------------------|---------|
| 3.1 | Are idle plant/equipments turned off or throttled down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Are silenced equipments or quiet plants utilized? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Are the silencers or mufflers properly fitted on construction equipments and maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Are noise barriers (typically density @14kg/m ²) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Do air compressors have valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are compressor operated with doors closed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | QPME used with valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> Others: | | | | |

| 4 | Water Quality | N/A | Yes | No | Remarks |
|-----|---|-------------------------------------|--------------------------|--------------------------|---------|
| | <u>Construction Activities</u> | | | | |
| 4.1 | Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Are stockpiles of materials placed in the locations away from the drainage channel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|---|-------------------------------------|-------------------------------------|--------------------------|--|
| 4.3 | Are site drainage systems and treatment facilities provided to minimize the water pollution? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Is the treated effluent quality met the requirements specified in the discharge license? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Is the sewage generated from toilets collected using a temporary storage system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.8 | Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.9 | Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Is a wheel washing bay provided at every site exit? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 5 | Waste / Chemical Management | N/A | Yes | No | Remarks |
|-----|--|--------------------------|-------------------------------------|--------------------------|---------|
| | <u>General Waste</u> | | | | |
| 5.1 | Are sufficient waste disposal points provided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Is waste disposed regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.4 | Are separated labeled containers/ areas provided for facilitating recycling and waste segregation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <u>Construction Waste</u> | | | | |
| 5.5 | Are the temporary stockpiles maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are the C&D materials sorted and recycled on-site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Is the segregation and storage of C&D wastes undertaken in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|--|---|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5.9 | Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Are surplus inert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical / Fuel Storage Area</u> | | | | | |
| 5.11 | Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Are the storage areas labeled and separated (if needed)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.13 | Do the storage areas have adequate ventilation and be covered to prevent rainfall entering? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical Waste / Waste Oil</u> | | | | | |
| 5.16 | Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.17 | Are chemicals and waste oil collected and stored for recycling or proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Records</u> | | | | | |
| 5.18 | Is a licensed waste hauler used for waste collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.19 | Are the records of quantities of wastes generated, recycled and disposed properly kept? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.20 | For the demolition material/ waste, is the number of loads for each day recorded as appropriate? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6 | Landscape and Visual Impacts | N/A | Yes | No | Remarks |
| 6.1 | Is the work site confined within site boundaries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Is damage to surrounding areas avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7 | Environmental Complaint | N/A | Yes | No | Remarks |
| 7.1 | Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8 | General Housekeeping | N/A | Yes | No | Remarks |
| 8.1 | Are potential stagnant pools cleared and mosquito breeding prevented? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | it's 2 |
| 8.2 | Are the defined boundaries of working areas identified to prevent loss of vegetation? | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 9 | Others | N/A | Yes | No | Remarks |
| 9.1 | Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



Follow up actions for pervious Site Audit: Follow up action to item on 10.8.17. all item was improved

Observations Item 1: Stagnant water was observed at Portion SDB, CEPT, UV.

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

To clear the stagnant water properly.

Signature:

ET's representative

Name: Frankie Tung

Date: 17.8.18

Signature:

Contractor's representative

Name: Man Kwong Ching

Date:

Signature:

ET Leader

Name: C. H. Lam

Date: 18.8.18



Signature:

SO's representative

Name: CF Leung

Date: 17.8.2018

Summary of the Weekly Environmental Site Inspection

| Item | Details of observations | Follow Up Action | Photo Ref. | Further Action Required (Yes/No) | Proposed Follow up Date |
|------|--|----------------------------|------------|----------------------------------|-------------------------|
| 1 |   | To clear the stagnant pool | 180817_001 | Yes | 23/08/2018 |

| | | | | | |
|--|--|--|--|--|--|
| |  <p>Stagnant water was observed at Portion SDB, CEPT & UV.</p> | | | | |
|--|--|--|--|--|--|

Environmental Site Inspection Checklist – San Wai

Inspection Date: 23 August 2018 Inspected By: Ivy Lo
Time: 14:30 Weather Condition: Fine
Participants: Patrick Leung, Jack Woy, Abby Sham, Jason Leung

| 1 | Permits/Licenses | N/A | Yes | No | Remarks |
|------|---|--------------------------|-------------------------------------|--------------------------|---------|
| 1.1 | Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.2 | Are Construction Noise Permits available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Is wastewater discharge license available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Are trip tickets for chemical waste and construction waste disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are relevant license/permits for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2 | Air Quality | N/A | Yes | No | Remarks |
| 2.1 | Is open burning avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Are speed controlled at 10 km/h on unpaved site areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Are plant and equipment well maintained (i.e. without black smoke from powered plant)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>not observed</u> | | | | |
| 2.5 | Are the work sites wetted with water twice a day? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.8 | Are wheel washing facilities with high pressure water jet provided at all site exits if practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.9 | Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.11 | Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.12 | Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.13 | Are all vehicles and plant cleaned before they leave the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.14 | Are loaded dump trucks covered by impervious sheeting appropriately | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|----------|--|-------------------------------------|-------------------------------------|--------------------------|----------------|
| | before leaving the site? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.15 | Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.16 | Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.17 | Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.18 | Are unpaved areas / designated roads watered regularly to avoid dust generation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.19 | Are dusty materials covered entirely by impervious sheeting or sprayed with water? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.20 | Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.21 | Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3 | Noise | N/A | Yes | No | Remarks |
| 3.1 | Are idle plant/equipments turned off or throttled down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Are silenced equipments or quiet plants utilized? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Are the silencers or mufflers properly fitted on construction equipments and maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Are noise barriers (typically density @14kg/m ²) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Do air compressors have valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are compressor operated with doors closed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | QPME used with valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> Others: | | | | |
| 4 | Water Quality | N/A | Yes | No | Remarks |
| | <u>Construction Activities</u> | | | | |
| 4.1 | Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Are stockpiles of materials placed in the locations away from the drainage channel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



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| 4.3 | Are site drainage systems and treatment facilities provided to minimize the water pollution? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Is the treated effluent quality met the requirements specified in the discharge license? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Is the sewage generated from toilets collected using a temporary storage system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.8 | Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.9 | Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Is a wheel washing bay provided at every site exit? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| | | | | | |
|----------|--|--------------------------|-------------------------------------|-------------------------------------|------------------|
| 5 | Waste / Chemical Management | N/A | Yes | No | Remarks |
| | <u>General Waste</u> | | | | |
| 5.1 | Are sufficient waste disposal points provided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Is waste disposed regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.3 | Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | |
| 5.4 | Are separated labeled containers/ areas provided for facilitating recycling and waste segregation? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | Item 1 Item 1 |
| | <u>Construction Waste</u> | | | | |
| 5.5 | Are the temporary stockpiles maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are the C&D materials sorted and recycled on-site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Is the segregation and storage of C&D wastes undertaken in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|--|--|-------------------------------------|-------------------------------------|--------------------------|----------------|
| 5.9 | Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Are surplus insert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical / Fuel Storage Area</u> | | | | | |
| 5.11 | Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Are the storage areas labeled and separated (if needed)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.13 | Do the storage areas have adequate ventilation and be covered to prevent rainfall entering? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical Waste / Waste Oil</u> | | | | | |
| 5.16 | Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.17 | Are chemicals and waste oil collected and stored for recycling or proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Records</u> | | | | | |
| 5.18 | Is a licensed waste hauler used for waste collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.19 | Are the records of quantities of wastes generated, recycled and disposed properly kept? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.20 | For the demolition material/ waste, is the number of loads for each day recorded as appropriate? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6 | Landscape and Visual Impacts | N/A | Yes | No | Remarks |
| 6.1 | Is the work site confined within site boundaries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Is damage to surrounding areas avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7 | Environmental Complaint | N/A | Yes | No | Remarks |
| 7.1 | Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8 | General Housekeeping | N/A | Yes | No | Remarks |
| 8.1 | Are potential stagnant pools cleared and mosquito breeding prevented? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 8.2 | Are the defined boundaries of working areas identified to prevent loss of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 9 | Others | N/A | Yes | No | Remarks |
| 9.1 | Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



Follow up actions for pervious Site Audit:

Follow-up action to item on 17/8/2018,
all item was improved.

Observations

1. Improper disposal of general refuse was observed

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

1. The contractor should collect the general refuse properly.

Signature:

ET's representative

Name: Ivy Lo

Date: 23/8/2018

Signature:

Contractor's representative

Name: Man Gung Kung

Date:

Signature:

ET Leader

Name: C. L. Lau

Date: 24/8/2018



Signature:



SO's representative

Name: C. F. Wong

Date: 23/8/2018

Summary of the Weekly Environmental Site Inspection

| Item | Details of observations | Follow Up Action | Photo Ref. | Further Action Required (Yes/No) | Proposed Follow up Date |
|------|--|------------------|------------|----------------------------------|-------------------------|
| -- |   | -- | 180823_001 | No | -- |

| | | | | | |
|---|--|--|------------|-----|------------|
| |  <p>Follow up action to Item 1 on 17/08/2018, stagnant water was cleared at Portion SDB, CEPT & UV.</p> | | | | |
| 1 |  <p>Improper disposal of general refuse was observed.</p> | To collect the general refuse properly | 180823_002 | Yes | 31/08/2018 |



Environmental Site Inspection Checklist – San Wai

Inspection Date: 31. 8. 18 Inspected By: Frankie Tang
Time: 9:00 Weather Condition: Fine
Participants: Patrick Lam, Telly Lou, Idmy Co, Ching Sun, Abby Sun

| 1 | Permits/Licenses | N/A | Yes | No | Remarks |
|-----|--|--------------------------|-------------------------------------|--------------------------|------------------|
| 1.1 | Are Environmental Permit, license/ other permit displayed at major site exit and vehicle access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <u>Justin Ng</u> |
| 1.2 | Are Construction Noise Permits available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Is wastewater discharge license available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.4 | Are trip tickets for chemical waste and construction waste disposal available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are relevant license/permits for disposal of construction waste or excavated materials available for inspection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 2 | Air Quality | N/A | Yes | No | Remarks |
|------|--|--------------------------|-------------------------------------|--------------------------|---------|
| 2.1 | Is open burning avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.2 | Are speed controlled at 10 km/h on unpaved site areas? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.3 | Are plant and equipment well maintained (i.e. without black smoke from powered plant)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.4 | Observed dust source(s): <input type="checkbox"/> Wind erosion <input type="checkbox"/> Vehicle/ Equipment Movements <input type="checkbox"/> Loading/ unloading of materials <input checked="" type="checkbox"/> Others: <u>Not observe</u> | | | | |
| 2.5 | Are the work sites wetted with water twice a day? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.6 | After removal of boulders, poles, pillars or temporary or permanent structures, are the entire surface sprayed with water or a dust suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.7 | Is the area involved demolished items covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.8 | Are wheel washing facilities with high pressure water jet provided at all site exits if practicable? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.9 | Are the areas of washing facilities and the road section between the washing facilities and the exit point paved with concrete, bituminous materials or hardcores? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.10 | Are hoarding $\geq 2.4\text{m}$ tall provided beside roads or area with public access? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.11 | Are main haul road paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.12 | Are construction site that is within 30m of a discernible or designated vehicle entrance or exit kept clear of dusty materials? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.13 | Are all vehicles and plant cleaned before they leave the construction site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.14 | Are loaded dump trucks covered by impervious sheeting appropriately | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|--|-------------------------------------|-------------------------------------|--------------------------|--|
| | before leaving the site? | | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.15 | Are working areas of any excavation or earth moving operation sprayed with water or a dusty suppression chemical immediately? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.16 | Is exposed earth properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, concrete or other suitable surface stabilizer within 6 months after the last construction activity? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.17 | Are stockpile of dusty material covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or dust suppression chemical? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.18 | Are unpaved areas / designated roads watered regularly to avoid dust generation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 2.19 | Are dusty materials covered entirely by impervious sheeting or sprayed with water? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.20 | Is every stock of more than 20 bags of cement or dry pulverized fuel ash (PFA) covered entirely by impervious sheeting or placed in an area sheltered on the top and 3 sides? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 2.21 | Are the approval or exempted NRMM labels painted or securely fixed on site machines or vehicles and displayed at a conspicuous position according to the Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |

| 3 | Noise | N/A | Yes | No | Remarks |
|------|--|-------------------------------------|-------------------------------------|--------------------------|---------|
| 3.1 | Are idle plant/equipments turned off or throttled down? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.2 | Are silenced equipments or quiet plants utilized? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.3 | Are the silencers or mufflers properly fitted on construction equipments and maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.4 | Is temporary hoarding installed located on the site boundaries between noisy construction activities and NSRs? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.5 | Are noise barriers (typically density @14kg/m ²) acoustic mat or full enclosure close to noise plants including air compressor, generators and saw etc. provided to protect NSRs? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 3.6 | Do air compressors have valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.7 | Are compressor operated with doors closed? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.8 | QPME used with valid noise labels? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.9 | Are construction activities planned so that parallel operation of several sets of equipment close to a given receiver is avoided? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 3.10 | Major noise source(s): <input type="checkbox"/> Traffic <input checked="" type="checkbox"/> Construction activities inside of site <input type="checkbox"/> Construction activities outside of site <input type="checkbox"/> Others: | | | | |

| 4 | Water Quality | N/A | Yes | No | Remarks |
|-----|---|-------------------------------------|--------------------------|--------------------------|---------|
| | <u>Construction Activities</u> | | | | |
| 4.1 | Before a rainstorm, are exposed stockpiles covered with tarpaulin or impervious sheets? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.2 | Are stockpiles of materials placed in the locations away from the drainage channel? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|------|---|-------------------------------------|-------------------------------------|-------------------------------------|---------|
| 4.3 | Are site drainage systems and treatment facilities provided to minimize the water pollution? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.4 | Is the treated effluent quality met the requirements specified in the discharge license? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.5 | Is the sewage generated from toilets collected using a temporary storage system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.6 | Are sewage effluent and discharges from on-site kitchen facilities directed to public foul sewers or collected in a temporary storage tank if connection to public foul sewers is not feasible? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.7 | Is a licensed waste collector employed to clean the chemical toilets and temporary storage tank on a regular basis? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.8 | Is the storm drainage directed to storm drains via adequately designed sand/ silt removal facilities e.g. sand traps, silt traps and sediment basins? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.9 | Are measures taken to prevent the washout of construction materials, soil, silt or debris into any drainage system? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.10 | Are manholes adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and prevent storm run-off getting into foul sewers? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.11 | Is a wheel washing bay provided at every site exit? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.12 | Is the wheel wash overflow directed to silt removal facilities before being discharged to the storm drain? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.13 | Is the section of construction road between the wheel washing bay and the public road surfaced with crushed stone or coarse gravel? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 4.14 | Does the surface runoff from bunded areas pass through oil/grease traps prior to discharge to the storm water system? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 4.15 | Are sedimentation tanks or package treatment systems provided to treat the large amount of sediment-laden wastewater generated from wheel washing, site runoff and construction works? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5 | Waste / Chemical Management | N/A | Yes | No | Remarks |
| | <u>General Waste</u> | | | | |
| 5.1 | Are sufficient waste disposal points provided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.2 | Is waste disposed regularly? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ifw 2 |
| 5.3 | Is the general waste generated on-site stored in enclosed bins or compaction units separately from the construction and chemical wastes? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | ifw 2 |
| 5.4 | Are separated labeled containers/ areas provided for facilitating recycling and waste segregation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| | <u>Construction Waste</u> | | | | |
| 5.5 | Are the temporary stockpiles maintained regularly? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.6 | Are the C&D materials sorted and recycled on-site? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.7 | Are the public fill and C&D waste segregated and stored in different containers or skips to enhance reuse or recycling of materials and their proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.8 | Is the segregation and storage of C&D wastes undertaken in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



| | | | | | |
|--|---|-------------------------------------|-------------------------------------|-------------------------------------|----------------|
| 5.9 | Are waste storage area properly cleaned and do not cause windblown litter and dust nuisance? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.10 | Are surplus inert C&D materials only consist of earth, building debris and broken rock and concrete and free from marine mud, household refuse, plastic, metals, industrial and chemical waste, animal and vegetable matter, and other material considered unsuitable by the public filling supervisor? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical / Fuel Storage Area</u> | | | | | |
| 5.11 | Are the fuel tanks and chemical storage areas provided with locks and sited on sealed areas? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 5.12 | Are the storage areas labeled and separated (if needed)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.13 | Do the storage areas have adequate ventilation and be covered to prevent rainfall entering? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.14 | Are the containers used for the storage of chemical wastes suitable for the substance that are holding, resist to corrosion, maintained in a good condition, and securely closed? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.15 | Are proper measures to control oil spillage during maintenance or to control other chemicals spillage? (e.g. provide drip trays) | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Chemical Waste / Waste Oil</u> | | | | | |
| 5.16 | Is chemical waste or waste oil stored and labeled in English and Chinese properly in designated area? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.17 | Are chemicals and waste oil collected and stored for recycling or proper disposal? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| <u>Records</u> | | | | | |
| 5.18 | Is a licensed waste hauler used for waste collection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.19 | Are the records of quantities of wastes generated, recycled and disposed properly kept? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 5.20 | For the demolition material/ waste, is the number of loads for each day recorded as appropriate? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6 | Landscape and Visual Impacts | N/A | Yes | No | Remarks |
| 6.1 | Is the work site confined within site boundaries? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 6.2 | Is damage to surrounding areas avoided? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 7 | Environmental Complaint | N/A | Yes | No | Remarks |
| 7.1 | Number of Environmental Complaint received from dd/mm/yyyy to dd/mm/yyyy? | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 8 | General Housekeeping | N/A | Yes | No | Remarks |
| 8.1 | Are potential stagnant pools cleared and mosquito breeding prevented? | <input type="checkbox"/> | <input type="checkbox"/> | <input checked="" type="checkbox"/> | itw 1 |
| 8.2 | Are the defined boundaries of working areas identified to prevent loss of vegetation? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |
| 9 | Others | N/A | Yes | No | Remarks |
| 9.1 | Are the portable toilets maintained in a state, which will not deter the workers from utilizing these portable toilets? | <input type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | |



Follow up actions for pervious Site Audit: Follow up action to item on 24.8.18, all item was improved.

Observations Item 1: Stagnant water was observed at CEPT

Item 2: Ground refuse was observed at CEPT

Corrective Actions – Mitigation Measures Implemented or Proposed (if any):

Item 1 & 2: To clear the stagnant water and ground refuse properly

Signature:

ET's representative

Name: Tang Chy Hing

Date: 27.8.2018

Signature:

Contractor's representative

Name: Man Guangshun

Date:

Signature:

ET Leader

Name: C. L. Lau

Date: 01.09.2018



Signature:


SO's representative

Name: C. F. Leung

Date: 7. 31/8/2018

Summary of the Weekly Environmental Site Inspection

| Item | Details of observations | Follow Up Action | Photo Ref. | Further Action Required (Yes/No) | Proposed Follow up Date |
|------|--|----------------------------|------------|----------------------------------|-------------------------|
| -- |  <p>Follow up action to Item 1 on 23/08/2018, general refuse was collected.</p> | -- | 180831_001 | No | -- |
| 1 |  <p>Stagnant water was observed at CEPT.</p> | To clear the stagnant pool | 180831_002 | Yes | 06/09/2018 |

| | | | | | |
|---|---|--|------------|-----|------------|
| 2 |  <p>General refuse was observed at CEPT.</p> | To collect the general refuse properly | 180831_003 | Yes | 06/09/2018 |
|---|---|--|------------|-----|------------|

Appendix I

Landscape and Visual Impact Assessment Checklist

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 10 August 2018 **Weather:** Sunny/ Fine/ Cloudy/ Rainy
Time: 10:00 a.m. **Wind:** Strong/ Breeze/ Light/ Calm

| Item | Description | YES | NO | N/A | Actions/ Remarks |
|----------|---|----------------------------|----------------------------|-----|--|
| 1 | Construction Phase | | | | |
| 1.1 | Is the detailed tree survey completed prior to construction work? | ✓ <input type="checkbox"/> | | | |
| 1.2 | Are trees to be transplanted removed to their final positions? | | ✓ <input type="checkbox"/> | | |
| 1.3 | Are the transplants and existing trees to be retained properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect? | ✓ <input type="checkbox"/> | | | Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot. |
| 1.4 | Is regular inspection of the retained and transplanted trees made to ensure the effectiveness of the hoarding? | ✓ <input type="checkbox"/> | | | |
| 1.5 | Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities? | ✓ <input type="checkbox"/> | | | Except trees far beyond the extent of construction activities, strong protective fence is noted. Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot. |
| 1.6 | Are warning signs and notices installed at the fences denoting the “tree protection zone” to prohibit the entry of equipment or construction activities? | ✓ <input type="checkbox"/> | | | |
| 1.7 | Are tree labels with clear indication of tree no. and status (e.g. “R”, “T” or “F”) provided for all the trees on site? | ✓ <input type="checkbox"/> | | | |
| 1.8 | If protective fencings are not practicable, are the tree root systems adequately protected from soil compaction due to passage of vehicles, equipment or machinery? | ✓ <input type="checkbox"/> | | | |

| | | | | | |
|------|--|----------------------------|----------------------------|----------------------------|---|
| 1.9 | Are vehicular/foot paths and storage areas designated away from TPZ? | ✓ <input type="checkbox"/> | | | |
| 1.10 | Are the trees properly irrigated and sprayed with water to remove the accumulated construction dust during dry season in order to lessen the chances of decline and to maintain the vigour of trees? | | | ✓ <input type="checkbox"/> | |
| 1.11 | Are the trees free from any sign of distress, such as dieback, leaf loss, or general decline in tree health or appearance or tree damage with symptoms of construction injury? | | | ✓ <input type="checkbox"/> | Trees in eastern boundary is going to be removed. 1) Some of the trees was removed 2) Others will be removed shortly and thus no more horticultural works is required. |
| 1.12 | Are the trees free from wire or nail and prohibited to be used as anchor for any site activities? | | ✓ <input type="checkbox"/> | | 1) Weeds climbers was found clinging on trees at south west corner. 2) A lot of weeds are noted in the site including planting area. |
| 1.13 | Are cutting, trenching, excavating or raising of soil level within the TPZ prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.14 | Is improper pruning of the tree branches/roots prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.15 | Are the trees free from any tree root damage? | ✓ <input type="checkbox"/> | | | |
| 1.16 | Are construction works or operation of machines within the TPZ prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.17 | Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage? | ✓ <input type="checkbox"/> | | | |
| 1.18 | Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works? | | | ✓ <input type="checkbox"/> | The site has previously been reclaimed from ponds. Most of the excavated topsoil is not desirable for reuse due to its inferior quality. Contractor's submitted referencing documents are attached in the |

| | | | | | |
|----------|---|----------------------------|--|----------------------------|--|
| | | | | | checklist dated 4 May, 2018 for information. |
| 1.19 | Is the progress of the above activities reported in the monthly EM&A report? | ✓ <input type="checkbox"/> | | | |
| 2 | Operational Phase (12 months period from commissioning of the expanded and upgraded works) | | | | |
| 2.1 | Is a planting reserve, where locates around the site perimeter of approximately 5m wide, provided to allow a continuous belt of trees to be planted as a visual screen? | | | ✓ <input type="checkbox"/> | |
| 2.2 | Is the planting reserve complemented the boundary planting to the existing San Wai STW? | | | ✓ <input type="checkbox"/> | |
| 2.3 | Is all new planting maintained for 12 months to ensure proper establishment? | | | ✓ <input type="checkbox"/> | |
| 2.4 | Are the trees free from sign of deterioration of tree health and/or structure? | | | ✓ <input type="checkbox"/> | |
| 2.5 | Are the trees free from insect pests and disease pathogens? | | | ✓ <input type="checkbox"/> | |
| 2.6 | Are the irrigation systems functioning properly and well maintained? | | | ✓ <input type="checkbox"/> | |
| 2.7 | Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery? | | | ✓ <input type="checkbox"/> | |

Summary/ Remarks:

Follow up actions taken by Contractor for previous comments:

1. Trees at eastern boundary – as approved by government that to be felled. The contractor is reminded to remove these trees in accordance with proper accepted methodology. .
2. Weeding within the site – Since weeds are rapidly in the hot seasons, contractor is required to carry out weeding accordingly.

The contractor was reminded to rectify the following:

1. Generally, contractor was reminded to keep on the tree protection and maintenance.
2. Weeds climbers was found clinging on the trees at south west corner. Contractor is required to remove it immediately.
3. Weeding within the site



New Observation:





1. Grade change and construction activities are noted on site. Contractor was reminded not to disturb the TPZ.

Reminders:


1. Contractor was reminded to provide TPZ with robust fence, whenever possible, at the drip line of all retained trees unless the trees are well beyond the extend of construction activities.

Photo Record:

| Figure 1 | Figure 2 |
|---|--|
|  |  |
| General condition of the trees at south west corner of the site | Weeds climbers found on the trees at south west corner of the site |

| | |
|---|--|
| <p>Figure 3</p>  | <p>Figure 4</p>  |
| <p>Trees inside robust TPZ</p> | <p>Condition of trees at the entrance of the existing treatment plant</p> |
| <p>Figure 5</p>  | <p>Figure 6</p>  |
| <p>General condition of the existing trees at eastern boundary</p> | <p>Proper protective fence (outside works extent) is noted</p> |

Signature:

| | | Signature | Date |
|-------------------------|--------------------------------------|--|------|
| Inspected & Recorded by | Registered Landscape Architect |  | |
| | | Xylem Leung | |
| Checked by | Environmental Team Leader | | |
| | | | |
| Follow up by | Contractor's Representative | | |
| | | | |
| Witnessed by | Supervising Officer's Representative | | |

Landscape and Visual Impact Assessment Checklist for Site Audit

Inspection Date: 23 August 2018 **Weather:** Sunny/ Fine/ Cloudy/ Rainy
Time: 3:30 a.m. **Wind:** Strong/ Breeze/ Light/ Calm

| Item | Description | YES | NO | N/A | Actions/ Remarks |
|----------|---|----------------------------|----------------------------|--------------------------|--|
| 1 | Construction Phase | | | | |
| 1.1 | Is the detailed tree survey completed prior to construction work? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.2 | Are trees to be transplanted removed to their final positions? | <input type="checkbox"/> | ✓ <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.3 | Are the transplants and existing trees to be retained properly protected from damage by stout hoarding positioned as directed by a qualified Landscape Architect? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot. |
| 1.4 | Is regular inspection of the retained and transplanted trees made to ensure the effectiveness of the hoarding? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.5 | Are the TPZ clearly demarcated on site and surrounded by strong fences sturdy enough to withstand impacts from the construction activities? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | Except trees far beyond the extent of construction activities, strong protective fence is noted. Eastern side trees: Protective fence has been provided at lot. Northern side trees: They are protected outside lot. |
| 1.6 | Are warning signs and notices installed at the fences denoting the “tree protection zone” to prohibit the entry of equipment or construction activities? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.7 | Are tree labels with clear indication of tree no. and status (e.g. “R”, “T” or “F”) provided for all the trees on site? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| 1.8 | If protective fencings are not practicable, are the tree root systems adequately protected from soil compaction due to passage of vehicles, equipment or machinery? | ✓ <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |

| | | | | | |
|------|--|----------------------------|----------------------------|----------------------------|---|
| 1.9 | Are vehicular/foot paths and storage areas designated away from TPZ? | ✓ <input type="checkbox"/> | | | |
| 1.10 | Are the trees properly irrigated and sprayed with water to remove the accumulated construction dust during dry season in order to lessen the chances of decline and to maintain the vigour of trees? | | | ✓ <input type="checkbox"/> | |
| 1.11 | Are the trees free from any sign of distress, such as dieback, leaf loss, or general decline in tree health or appearance or tree damage with symptoms of construction injury? | | | ✓ <input type="checkbox"/> | Trees in eastern boundary is going to be removed. 1) Some of the trees were removed 2) Others will be removed shortly and thus no more horticultural works is required. |
| 1.12 | Are the trees free from wire or nail and prohibited to be used as anchor for any site activities? | | ✓ <input type="checkbox"/> | | 1) Weeds climbers was found clinging on trees at south west corner. 2) A lot of weeds are noted in the site. |
| 1.13 | Are cutting, trenching, excavating or raising of soil level within the TPZ prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.14 | Is improper pruning of the tree branches/roots prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.15 | Are the trees free from any tree root damage? | ✓ <input type="checkbox"/> | | | |
| 1.16 | Are construction works or operation of machines within the TPZ prohibited? | ✓ <input type="checkbox"/> | | | |
| 1.17 | Is the TPZ free from pollution from effluent water, machine petroleum or chemical spillage? | ✓ <input type="checkbox"/> | | | |
| 1.18 | Is the excavated topsoil stored and protected on site for reuse for restoration of screen planting works? | | | ✓ <input type="checkbox"/> | The site has previously been reclaimed from ponds. Most of the excavated topsoil is not desirable for reuse due to its inferior quality. Contractor's submitted referencing documents are attached in the |

| | | | | | |
|----------|---|----------------------------|--|----------------------------|--|
| | | | | | checklist dated 4 May, 2018 for information. |
| 1.19 | Is the progress of the above activities reported in the monthly EM&A report? | ✓ <input type="checkbox"/> | | | |
| 2 | Operational Phase (12 months period from commissioning of the expanded and upgraded works) | | | | |
| 2.1 | Is a planting reserve, where locates around the site perimeter of approximately 5m wide, provided to allow a continuous belt of trees to be planted as a visual screen? | | | ✓ <input type="checkbox"/> | |
| 2.2 | Is the planting reserve complemented the boundary planting to the existing San Wai STW? | | | ✓ <input type="checkbox"/> | |
| 2.3 | Is all new planting maintained for 12 months to ensure proper establishment? | | | ✓ <input type="checkbox"/> | |
| 2.4 | Are the trees free from sign of deterioration of tree health and/or structure? | | | ✓ <input type="checkbox"/> | |
| 2.5 | Are the trees free from insect pests and disease pathogens? | | | ✓ <input type="checkbox"/> | |
| 2.6 | Are the irrigation systems functioning properly and well maintained? | | | ✓ <input type="checkbox"/> | |
| 2.7 | Are the tree root systems adequately protected from soil compaction due to storage of materials or operation of machinery? | | | ✓ <input type="checkbox"/> | |

Summary/ Remarks:

Follow up actions taken by Contractor for previous comments:

1. Trees at eastern boundary – as approved by government that to be felled. The contractor is reminded to remove these trees in accordance with proper accepted methodology. .
2. Weeding within the site – Since weeds are rapidly in the hot seasons, contractor is required to carry out weeding accordingly.

The contractor was reminded to rectify the following:

1. Generally, contractor was reminded to keep on the tree protection and maintenance.
2. Some of the protective fence at the existing fence of the treatment plant required to fix.
3. Weeds climbers was found clinging on the trees at south west corner. Contractor is required to remove it immediately.
4. Weeding within the site



New Observation:





1. Grade change and construction activities are noted on site. Contractor was reminded not to disturb the TPZ.

Reminders:

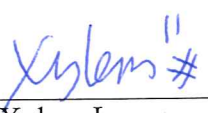
1. Contractor was reminded to provide TPZ with robust fence, whenever possible, at the drip line of all retained trees unless the trees are well beyond the extend of construction activities.

Photo Record:

| Figure 1 | Figure 2 |
|---|--|
|  |  |
| General condition of the trees at south west corner of the site | Weeds climbers found on the trees at south west corner of the site |

| | |
|---|--|
| <p>Figure 3</p>  | <p>Figure 4</p>  |
| <p>Trees inside robust TPZ</p> | <p>Condition of trees at the entrance of the existing treatment plant</p> |
| <p>Figure 5</p>  | <p>Figure 6</p>  |
| <p>General condition of the existing trees at eastern boundary</p> | <p>Proper protective fence (outside works extent) is required to fix</p> |

Signature:

| | | Signature | Date |
|----------------------------|--|--|------|
| Inspected & Recorded by | Registered Landscape Architect |  | |
| | | Xylem Leung | |
| Checked by | Environmental Team Leader | | |
| | | | |
| Follow up by | Contractor's Representative | | |
| | | | |
| Witnessed by | Supervising Officer's Representative | | |
| | | | |

Appendix J

Waste Flow Table

DSD Contract: DC/2013/10
Design, Build Operate



Name of Department: DSD

Year: 2018

Project: Design, Build and Operate San Wai Sewage Treatment Works - Phase 1

Contract No.: DC/2013/10

Waste Flow Table

| Month | Actual Quantities of Inert C&D Materials Generated Monthly | | | | | | Actual Quantities of C&D Wastes Generated Monthly | | | | |
|-------|--|---|-----------------------------------|--------------------------|--|--------------------------|---|----------------------------|-----------------------------------|----------------|-----------------------------|
| | Total Quantity Generated | Broken Broken Concrete (see Note ³) | Reused in the Contract (see Note) | Reused in other Projects | Disposed as Public Fill (see Note ⁴) | Imported Fill | Metals | Paper/ cardboard packaging | Plastics (see Note ²) | Chemical Waste | Others, e.g. general refuse |
| | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000m ³) | (in '000 kg) | (in '000kg) | (in '000kg) | (in '000kg) | (in '000 kg) |
| Jan | 8.809 | 0.000 | 0.000 | 0.000 | 8.809 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 18.480 |
| Feb | 3.231 | 0.000 | 0.000 | 0.000 | 3.231 | 0.000 | 0.000 | 0.200 | 0.000 | 0.000 | 2.700 |
| Mar | 2.246 | 0.000 | 0.000 | 0.000 | 2.246 | 0.752 | 0.000 | 0.000 | 0.000 | 0.000 | 9.210 |
| Apr | 2.035 | 0.000 | 0.000 | 0.000 | 2.035 | 2.068 | 0.005 | 0.150 | 0.000 | 0.000 | 16.970 |
| May | 0.343 | 0.000 | 0.000 | 0.000 | 0.343 | 0.567 | 0.000 | 0.000 | 0.000 | 0.000 | 34.590 |
| Jun | 0.794 | 0.000 | 0.000 | 0.000 | 0.794 | 0.074 | 0.000 | 0.000 | 0.000 | 0.000 | 53.050 |
| Jul | 1.929 | 0.000 | 0.000 | 0.000 | 1.929 | 0.000 | 0.000 | 0.300 | 0.000 | 0.000 | 68.095 |
| Aug | 1.605 | 0.000 | 0.000 | 0.000 | 1.605 | 0.082 | 0.000 | 0.000 | 0.000 | 0.000 | 33.520 |
| Sep | | | | | | | | | | | |
| Oct | | | | | | | | | | | |
| Nov | | | | | | | | | | | |
| Dec | | | | | | | | | | | |
| Total | 20.992 | 0.000 | 0.000 | 0.000 | 20.992 | 3.543 | 0.005 | 0.650 | 0.000 | 0.000 | 236.615 |

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

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

(3) Broken concrete for recycling into aggregates.

(4) Assumption: The densities of subbase, Rockfill, Soil, Mix Rock and Soil, Reclaimed Asphalt Pave, Slurry are 2.0 ton/m³; the densities of Building debris is 2.1 ton/m³; the densities of Broken Concrete is 2.4 ton/m³.

Appendix K

Environmental Licenses and Permits

| Item No. | Nature of Permit / License / Notification | Permit / License/ Notification No. | Date of Issue / Effective of Permit / License | Date of Expiry of Permit / License | Remark (Validity for reporting period only) |
|----------|--|------------------------------------|---|------------------------------------|---|
| 1 | Environmental Permit | EP-464/2013 | 18/10/2013 | NA | Valid |
| 2 | Billing Account for Disposal of Construction Waste | 7025330 | 07/07/2016 | NA | Valid |
| 3 | Form NA notification (for APCO) | 405489 | 26/07/2016 | 25/09/2020 | Valid |
| 4 | Chemical Waste Producer Registration (for Site) | 5218-511-A2823-01 | 23/01/2017 | NA | Valid |
| 5 | Wastewater Discharge Licence (for WPCO) | WT00026754-2017 | 28/04/2017 | 31/01/2022 | Valid |
| 6 | Construction Noise Permit (for Site) | GW-RN0271-18 | 13/06/2018 | 12/12/2018 | Valid |

Appendix L

Implementation Schedule for Environmental Mitigation Measures (EMIS)

| Environmental Mitigation Measures | Location | Implementation Status | | | |
|---|------------------------|-----------------------|-----------------------|-----------------|----------------|
| | | Implemented | Partially implemented | Not implemented | Not Applicable |
| Air Quality | | | | | |
| <ul style="list-style-type: none">The working area for the uprooting of trees, shrubs, or vegetation or for the removal of boulders, poles, pillars or temporary or permanent structures should be sprayed with water or a dust suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet; | Site Area | √ | | | |
| <ul style="list-style-type: none">All demolished items (including trees, shrubs, vegetation, boulders, poles, pillars, structures, debris, rubbish and other items arising from site clearance) that may dislodge dust particles should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides within a day of demolition; | Site Area | √ | | | |
| <ul style="list-style-type: none">Vehicle washing facilities including a high pressure water jet should be provided at every discernible or designated vehicle exit point; | Site Entrance | √ | | | |
| <ul style="list-style-type: none">The area where vehicle washing takes place and the section of the road between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores; | Site Exit | √ | | | |
| <ul style="list-style-type: none">Where a site boundary adjoins a road, street, service and or other area accessible to the public, hoarding of not less than 2.4m from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit; | Site Area | √ | | | |
| <ul style="list-style-type: none">Every main haul road (i.e. any course inside a construction site having a vehicle passing rate of higher than 4 in any 30 minutes) should be paved with concrete, bituminous materials, hardcores or metal plates, and kept clear of dusty materials; or sprayed with water or a dust suppression chemical so as to maintain the entire road surface wet; | Main Haul Road | √ | | | |
| <ul style="list-style-type: none">The portion of any road leading only to a construction site that is within 30m of a discernible or designated vehicle entrance or exit should be kept clear of dusty materials; | Site Entrance and Exit | √ | | | |
| <ul style="list-style-type: none">Immediately before leaving a construction site, every vehicle should be washed to remove any dusty materials from its body and wheels; | Site Exit | √ | | | |
| <ul style="list-style-type: none">Where a vehicle leaving a construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; | -- | √ | | | |
| <ul style="list-style-type: none">The working area of any excavation or earth moving operation should be sprayed with water or a dusty suppression chemical immediately before, during and immediately after the operation so as to maintain the entire surface wet; | Site Area | √ | | | |
| <ul style="list-style-type: none">Exposed earth shall be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shotcrete or other suitable | Site Area | √ | | | |

| | | | | | |
|--|-----------------|---|--|--|--|
| surface stabilizer within 6 months after the last construction activity on the construction site or part of the construction site where the exposed earth lies; | | | | | |
| • Any stockpile of dusty material should be either covered entirely by impervious sheeting; placed in an area sheltered on the top and the 3 sides; or sprayed with water or a dust suppression chemical so as to maintain the entire surface wet. | Site Area | √ | | | |
| Noise | | | | | |
| • Quiet plants should be used in order to reduce the noise impacts to protect the nearby NSRs. | Site Area | √ | | | |
| • Temporary and Movable Noise Barriers should be used in order to reduce the noise impact to the surrounding sensitive receivers | Site Area | √ | | | |
| • Intermittent noisy activities should be scheduled to minimize exposure of nearby NSRs to high levels of construction noise. | Site Area | √ | | | |
| • Idle equipment should be turned off or throttled down. | Site Area | √ | | | |
| • Construction activities should be planned so that parallel operation of several sets of equipment close to a given receiver is avoided | Site Area | √ | | | |
| • Construction plant should be properly maintained and operated. | Site Area | √ | | | |
| Water Quality | | | | | |
| • Exposed stockpiles should be covered with tarpaulin or impervious sheets before a rainstorm occurs; | Site Area | √ | | | |
| • The exposed soil surfaces should also be properly protected to minimize dust emission; | Site Area | √ | | | |
| • The stockpiles of materials should be placed in the locations away from the drainage channel so as to avoid releasing materials into the channel; | Site Area | √ | | | |
| • Wheel washing facilities should be provided at site exits to ensure that earth, mud and debris would not be carried out of the works areas by vehicles; | Site Exit | √ | | | |
| • Provision of site drainage systems and treatment facilities would be required to minimize the water pollution; | Site Area | √ | | | |
| • A discharge license needs to be applied from EPD for discharging effluent from the construction site; | -- | √ | | | |
| • The treated effluent quality is required to meet the requirements specified in the discharge license; | -- | √ | | | |
| • Provision of chemical toilets is required to collect sewage from workforce. The chemical toilets should be cleaned on a regular basis; | Chemical Toilet | √ | | | |

| | | | | | |
|--|-----------|---|---|---|--|
| • A licensed waste collector should be employed to clean the chemical toilets and temporary storage tank on a regular basis; | -- | √ | | | |
| • Illegal disposal of chemicals should be strictly prohibited; | Site Area | √ | | | |
| • Registration as a chemical waste producer is required if chemical wastes are generated and need to be disposed of. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes; | Site Area | √ | | | |
| • Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes published under the Waste Disposal Ordinance should be used as a guideline for handling chemical wastes; | Site Area | √ | | | |
| • The impact from accidental spillage of chemicals can be effectively controlled through good management practices. | Site Area | √ | | | |
| Waste Management | | | | | |
| • Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; | Site Area | | √ | | |
| • To encourage collection of aluminium cans by individual collectors, separate bins should be provided to segregate this waste from other general refuse generated by the workforce; | Site Area | √ | | | |
| • Any unused chemicals or those with remaining functional capacity should be recycled; | Site Area | √ | | | |
| • Prior to disposal of C&D waste, it is recommended that wood, steel and other metals be separated for re-use and/or recycling and inert waste as fill material to minimize the quantity of waste to be disposed of to landfill; | Site Area | √ | | | |
| • Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and | Site Area | | √ | | |
| • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. | Site Area | √ | | | |
| Landscape and Visual | | | | | |
| • Detailed tree survey should have been completed | Site Area | √ | | | |
| • Trees should be transplanted to their final positions clear of the construction site | -- | | | √ | |
| • Erect site hoarding to protect adjacent vegetation from damage | Site Area | √ | | | |

| | | | | | |
|---|-----------|---|--|---|--|
| <ul style="list-style-type: none"> Regular inspections of the transplanted trees should be made to ensure the effectiveness of the hoarding | Site Area | √ | | | |
| <ul style="list-style-type: none"> Any topsoil excavated during the course of the works should be stored and protected on site for reuse for the restoration and screen planting works | Site Area | | | √ | |

Appendix M

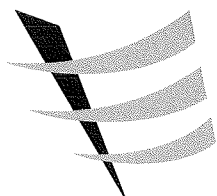
Environmental Site Inspection Schedule

Contract No. DC/2013/10 -
Design, Build and Operate San Wai Sewage Treatment Works – Stage 1
Schedule for Environmental Monitoring and Site Inspection
August 2018

| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|---|--|---|---|---|--|
| | | | 1 | 2 24hr-TSP 1hr-TSP x 3 NM WQM | 3 SI | 4 WQM |
| 5 | 6 | 7 Effluent Sampling WQM | 8 24hr-TSP 1hr-TSP x 3 NM WQM | 9 WQM | 10 SI | 11 WQM |
| 12 | 13 | 14 24hr-TSP 1hr-TSP x 3 NM WQM | 15 | 16 WQM | 17 SI | 18 WQM |
| 19 | 20 24hr-TSP 1hr-TSP x 3 NM | 21 Effluent Sampling WQM | 22 | 23 WQM | 24 SI | 25 24hr-TSP 1hr-TSP x 3 NM WQM |
| 26 | 27 | 28 WQM | 29 | 30 WQM | 31 24hr-TSP 1hr-TSP x 3 NM SI | |

Appendix N

Laboratory Report for Discharge Water



TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA85832
Date of Issue : 14 August 2018
Page No. : 1 of 1

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 07 August 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 07 August 2018
Date of Testing Period : 07 to 08 August 2018
Lab Ref. No. : W41918

Result

| Sample ID | Sample No. | Test | Method Used | Result | Unit |
|-----------|------------|------------------------|---------------------------|--------|---------------------|
| P8 | 01 | pH | In house method TPE/003/W | 8.1 | (at 25°C) |
| | | Total Suspended Solids | In house method TPE/006/W | <5* | mg/L |
| | 02 | Chemical Oxygen Demand | In house method TPE/002/W | <10 | mgO ₂ /L |

Remark(s):

- The results relate only to the tested sample as received.
- *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

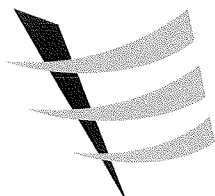
Approved Signatory :

LAU, Chi Leung

TPE/001/W

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- END OF REPORT -



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F: +852 2695 3944

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TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA86111
Date of Issue : 24 August 2018
Page No. : 1 of 1

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 21 August 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H_2SO_4 to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

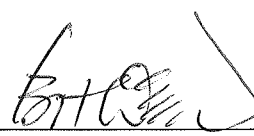
Date of Received : 21 August 2018
Date of Testing Period : 21 to 22 August 2018
Lab Ref. No. : W42031

Result

| Sample ID | Sample No. | Test | Method Used | Result | Unit |
|-----------|------------|------------------------|---------------------------|--------|---------------------|
| P8 | 01 | pH | In house method TPE/003/W | 8.2 | (at 25°C) |
| | | Total Suspended Solids | In house method TPE/006/W | 11 | mg/L |
| | 02 | Chemical Oxygen Demand | In house method TPE/002/W | <10 | mgO ₂ /L |

Remark(s):

1. The results relate only to the tested sample as received.

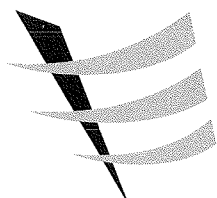
Approved Signatory : 

LIU, Kit Yuen Bithiah

TPE/001/W

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TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA86367
Date of Issue : 04 September 2018
Page No. : 1 of 1

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 21 August 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 23 August 2018
Date of Testing Period : 23 to 24 August 2018
Lab Ref. No. : W42067

Result

| Sample ID | Sample No. | Test | Method Used | Result | Unit |
|-----------|------------|------------------------|---------------------------|--------|---------------------|
| P1 | 01 | pH | In house method TPE/003/W | 8.1 | (at 25°C) |
| | | Total Suspended Solids | In house method TPE/006/W | <5* | mg/L |
| | 02 | Chemical Oxygen Demand | In house method TPE/002/W | <10 | mgO ₂ /L |

Remark(s):

- The results relate only to the tested sample as received.
- *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory :

LAU, Chi Leung

TPE/001/W

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Appendix O

Investigation Reports on Action Level or Limit Level Non-compliance

Report No. 002
Monitoring Date 07 August 2018

The Action and Limit Levels of suspended solids (SS) determined from baseline monitoring data are reproduced below:

| Monitoring Parameter | Action Level (AL) | Limit Level (LL) |
|------------------------|-------------------|------------------|
| Suspended Solid (mg/L) | 17.0 | 17.8 |

Suspended Solid (in mg/L)

| Monitoring Station | Monitoring Duration | Result | | | Level Exceedance |
|--------------------|---------------------|---------|---------|---------|------------------|
| | | Trial 1 | Trial 2 | Average | |
| R1b | 15:18 to 15:28 | 80 | 43 | 62 | Limit |

Investigation Results:

a) Causes of exceedances

Exceedance was not due to construction works under Contract No. DC/2013/10 because:

- The surface runoff and wastewater generated from the construction activities in different sections of the construction sites was collected and stored in the temporary storage pool and then transferred to the Wetsep for proper treatment prior to discharge. The effluent was thus brought into an acceptable minimum level and also complied with the requirements specified in the discharge license before discharge.
- Besides, effluent water sample was scheduled to be collected on 07 August 2018 at P8. As per the discharge license requirement, the results complied with the discharge license requirement. The effluent quality report was shown in **Appendix A**. Thus, the effluent discharged from the construction site was unlikely to deteriorate the water quality of Tin Shui Wai nullah and resulted in suspended solids exceedance at R1b.
- Thus, the exceedance of water samples taken from 15:18 to 15:28pm on 07 August 2018 was considered as non-Project related.

b) Action required under the action plan

Refer to Table 4.4 of the EM&A Manual.

c) Action taken under the action plan

- Not applicable as suspended solids was not measured in-situ;
- After considered the above mentioned investigation results, it appears that it was unlikely that the suspended solids exceedance was attributed to the work site of this Contract;



Investigation Report on Action Level or Limit Level Non-compliance

3. The exceedance was informed to IEC, Contractors and EPD;
4. Monitoring data, all plant, equipment and Contractor's working methods were checked;
5. Mitigation measures and recommendations were provided in item d).
6. The water quality monitoring results of 09 August 2018 was shown below:

| Test Parameters | Trial 1 | Trial 2 | Average | Action Level | Limit Level |
|-------------------------|---------|---------|---------|--------------|-------------|
| Turbidity (NTU) | 11.1 | 10.9 | 11.0 | 19.8 | 20.5 |
| Dissolved Oxygen (mg/L) | 2.32 | 2.29 | 2.31 | 1.84 | 1.81 |
| Suspended Solid (mg/L) | 6 | 6 | 6 | 17.0 | 17.8 |

The results of suspended solid of the water samples collected on 09 August 2018 were under the action limit.

d) ET's conclusions and recommendations for mitigation

- All relevant water quality mitigation measures were checked to be fully implemented including provision of site drainage systems and treatment facilities, maintaining the existing silt trap to ensure good efficiency of wheel wash facilities, transferring the runoffs and wastewater to the Wetsep for removal of the suspended solids and other pollutants in order to ensure the treated effluent complied with the requirements specified in the discharge license.



- The Contractor was reminded to ensure all construction activities that generate wastewater with high concentrations of suspended solids (SS) should be collected to sedimentation tanks or package treatment systems for proper treatment prior to discharge.



Investigation Report on Action Level or Limit Level Non-compliance

e) Contractor's actions to implement the mitigation

- All construction activities that generate wastewater with high concentrations of suspended solids (SS) like wheel washing etc. was collected to sedimentation tanks or package treatment systems for proper treatment prior to discharge.
- All silt removal facilities, channels and manholes was maintained and any deposited silt and grit was removed regularly.

Prepared by:

LO, Ting Yi

Certified by:

LAU, Chi Leung

Environmental Team Leader

Contract No. : DC/2013/10

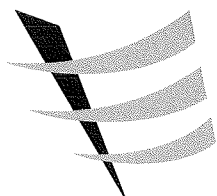
Design, Build and Operate San Wai Sewage Treatment Works – Phase I



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ETS-TESTCONSULT LIMITED

Investigation Report on Action Level or Limit Level Non-compliance

Appendix A



TEST REPORT

Form E/EN/R/01/Issue 6 (1/2) [02/18]

Testing of Water and Wastewater

Report No. : ENA85832
Date of Issue : 14 August 2018
Page No. : 1 of 1

Information Provided by Customer

Customer Name : ATAL-Degremont-China Harbour Joint Venture
Customer Address : 19/F, China Harbour Building, 370-374 King's Road, North Point, Hong Kong
Sample Source : Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works - Stage 1
Sample Type : Wastewater
Date of Sampling : 07 August 2018
Sample Description : Sample was stored in 1L plastic bottle (for pH and Total Suspended Solids).
Sample was stored in 500ml plastic bottle (for Chemical Oxygen Demand).
Sample for Chemical Oxygen Demand was preserved by adding conc. H₂SO₄ to pH <2.
Sample was collected by the customer and refrigerated after received.

Laboratory Information

Date of Received : 07 August 2018
Date of Testing Period : 07 to 08 August 2018
Lab Ref. No. : W41918

Result

| Sample ID | Sample No. | Test | Method Used | Result | Unit |
|-----------|------------|------------------------|---------------------------|--------|---------------------|
| P8 | 01 | pH | In house method TPE/003/W | 8.1 | (at 25°C) |
| | | Total Suspended Solids | In house method TPE/006/W | <5* | mg/L |
| | 02 | Chemical Oxygen Demand | In house method TPE/002/W | <10 | mgO ₂ /L |

Remark(s):

- The results relate only to the tested sample as received.
- *200ml sample was used for Total Suspended Solids analysis. PQL of Total Suspended Solids reported less than 5 mg/L.

Approved Signatory :

LAU, Chi Leung

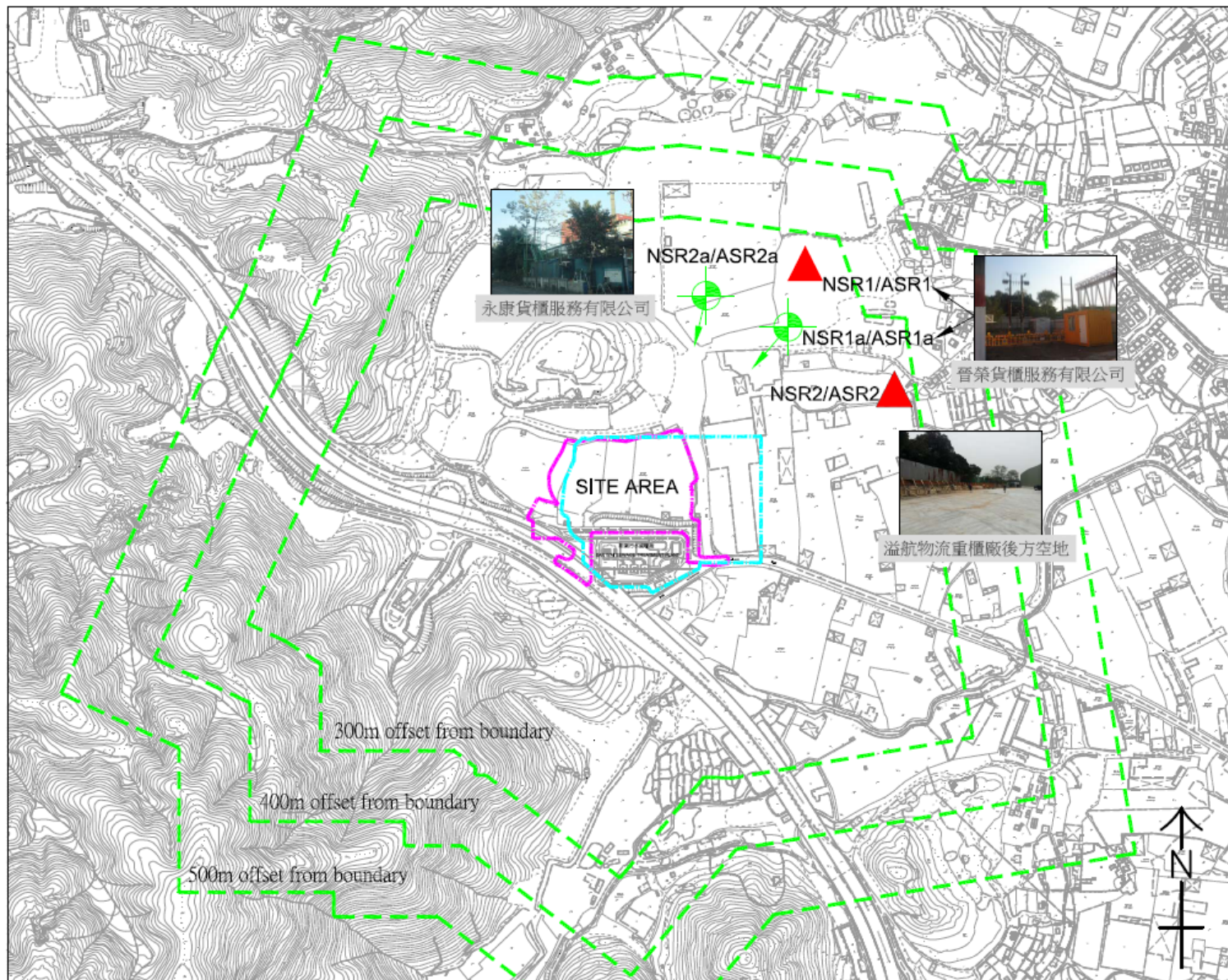
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Figure 1

Locations of Air Quality and Noise Monitoring Stations

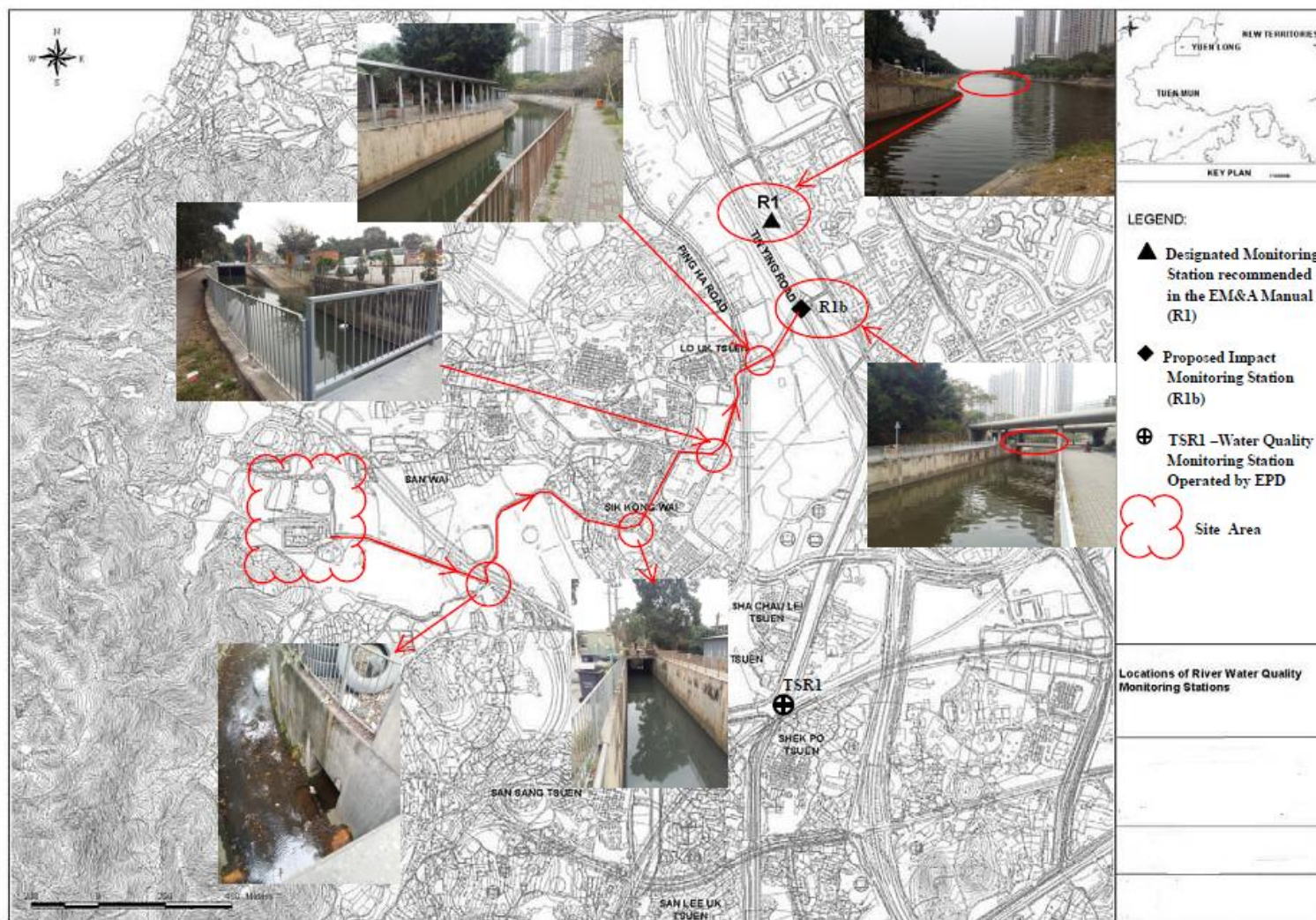


Project: Contract No. DC/2013/10 -Design, Build and Operate San Wai Sewage Treatment Works – Phase 1

Figure 1 Locations of Air Quality and Noise Monitoring Stations

Figure 2

Locations of Water Quality Monitoring Station



Project: Contract No. DC/2013/10 - Design, Build and Operate San Wai Sewage Treatment Works – Phase 1
Figure 2 Locations of Water Quality Monitoring Station