MOTT MACDONALD

Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

Monthly EM&A Report for February 2019

March 2019

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Proposed Comprehensive Development at Wo Shang Wai, Yuen Long

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Pursuant to Condition 4.5 of Environmental Permit No. EP-311/2008/E, this Monthly EM&A Report for February 2019 has been reviewed, certified by Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).

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Date 14 March 2019

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Executive summary

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by the Contractor, Heng Shung Construction Co. Ltd., to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit (EM&A) for both pre-construction and construction phases of the Proposed Comprehensive Development at Wo Shang Wai, Yuen Long. From August 2016, the Project Proponent, Profit Point Enterprises Limited, commissioned MMHK to continue the ET services.

This is the 106th EM&A report submitted under the Condition 4.5 of Environmental Permit No. EP-311/2008/E. This report summarises the findings on EM&A during the period from 1 to 28 February 2019.

Exceedance of Action and Limit Levels

There was no breach of Action or Limit levels for Air Quality (1-hr TSP and 24-hr TSP) and Noise level (as L_{eq}) in the reporting month.

During February 2019, a total of two Limit Level exceedances were observed. One Limit Level exceedance of turbidity and one Limit Level exceedance of SS were recorded at MP3.

The summary of measured water quality is presented in **Section 3.2.3**.

Investigations have been carried out to identify the causes of the exceedances. From investigation, the Contractor has implemented water quality mitigation measures as recommended in the EIA report. With external factors affecting the adjacent environments, such as pond fish culture activities, rainfall and natural variations, the recorded exceedances of Water Quality were considered not due to the project construction works.

Implementation of Mitigation Measures

Site audits were carried out on 4, 14, 21 and 28 February 2019 to confirm the implementation measures undertaken by the Contractor in the reporting month. The outcomes are presented in Section 6 and the status of implementation of mitigation measures in the site is shown in **Appendix L**.

Record of Complaints

There was no record of complaints received in the reporting month.

Future Key Issues

The major site works scheduled to be commissioned in the coming three months include site formation, foundation work and regular maintenance work for the Wetland Restoration Area including lowering of the water level and removal of unwanted species in the pond). Potential environmental impacts due to the construction activities, including air quality, noise, water quality, ecology and landscape and visual, will be monitored.

Environmental mitigation measures will be implemented on site as recommended and weekly site audits will be carried out to ensure that the environmental conditions are acceptable.

1 Introduction

1.1 Introduction

In March 2005, the Project Proponent, Profit Point Enterprises Limited, acquired the development site at Wo Shang Wai in Yuen Long. An Environmental Impact Assessment (EIA) was then carried out and approved under the EIA Ordinance (EIAO), and the Environmental Permit (EP-311/2008) for construction of the comprehensive development in Wo Shang Wai was first granted by EPD on 9 September 2008 and has been subsequently varied, with the current version (EP-311/2008/E) issued by EPD on 19 December 2017.

The Project involves the residential development and associated infrastructure and wetland restoration area and linear landscape area. The construction works under the Environmental Permit commenced on 12 May 2010. The site formation construction works of the Wetland Restoration Area (hereafter WRA) were completed on 15 November 2010 and the WRA was established by October 2012, within 30 months from the commencement of construction as stipulated in the EP. This indicated that planting works as scheduled in the approved Wetland Restoration and Creation Scheme (WRCS; Nov 2009) were complete, except along the western and southern boundary where the planting is affected by the existing site boundary and noise barrier, and for which a Variation to Environmental Permit (EP-311/2008/C) to defer planting at the location was approved. Consequently, EP (EP-311/2008/D) including specific mitigation measures to minimise certain identified noise impacts during the operation phase was approved. The current valid EP (EP-311/2008/E) comprises varied conditions for the implementation and maintenance of visual and landscape measures, and for the implementation of noise mitigation measures.

Mott MacDonald Hong Kong Ltd. ("MMHK") has been commissioned by the Contractor, Heng Shung Construction Co. Ltd., to undertake the Environmental Team (ET) services to carry out environmental monitoring and audit (EM&A) for both pre-construction and construction phases of the Proposed Comprehensive Development at Wo Shang Wai, Yuen Long. From August 2016, the Project Proponent, Profit Point Enterprises Limited, commissioned MMHK to continue the ET services.

According to the EP Condition 4.5, the monthly EM&A Report shall be submitted to the Director within two weeks after the end of the reporting month. This report summarises the findings during the period from 1 to 28 February 2019.

1.2 Project Organization

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix A**.

1.3 Environmental Status in the reporting period

During the reporting month, construction works of the Project undertaken include:

- General site maintenance work and removal of fill from site was in progress

- Regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond)
- Foundation Work (provision of temporary site drainage)

The Construction Works Programme of the Project is provided in **Appendix B**. The general layout plan of the Project site is shown in **Figure 1.1**.

1.4 Summary of EM&A Requirements

The EM&A programme requires environmental monitoring of air quality, noise, water quality, ecology and landscape and visual as specified in the approved EM&A Manual.

A summary of impact EM&A requirements is presented in **Table 1.1** below:

Table 1.1: Summary of Impact EM&A Requirements

Parameters	Descriptions	Locations	Frequencies
Air Quality	24-Hour TSP	ASR1, ASR2A, ASR3, ASR4	Once every 6 days
	1-Hour TSP	ASR1, ASR2A, ASR3, ASR4	3 times every 6 days
Noise	$L_{eq(30min)}$, L_{90}, L_{10} (dB(A))	NSR1, NSR3, NSR5, NSR7	Weekly
Water Quality	Dissolved Oxygen (DO), temperature, pH, suspended solids (SS) and Biochemical Oxygen Demand (BOD)	MP1 to MP6	3 days per week
Ecology	Birds	Within the Project Area and Assessment Area of 500m	Weekly
	Dragonflies and Butterflies	Within the Project Area and Assessment Area of 500m	Once per month during Mar and Sep to Nov, and twice per month during Apr to Aug
	Herpetofauna	Within the Project Area and Assessment Area of 500m	Day-time: Once per month during Apr to Nov Night-time: Once per month during Mar to Aug
	Water quality of Wetland Restoration Area (WRA)	WRA	After filling of WRA with water, monthly for in situ water quality and every six months (end of wet season and end of dry season) for laboratory testing
	Site Inspections	Within the Project Area and Assessment Area of 500m	Weekly
Landscape and Visual	Auditing of protection of existing trees, the transplanting of existing trees, the creation of new wetland, the planting of new trees and shrubs and other landscape and visual mitigation measures	CM1 to CM10 and OM1 to OM7 within the Project Area	Site inspections once every two weeks during construction phase; once every two months during operational phase

The Environmental Quality Performance Limits for air quality, noise and water quality are shown in **Appendix C**.

The Event and Action Plan for air quality, noise, water quality and Landscape & Visual are shown in **Appendix D**.

The monitoring schedule for the reporting month is shown in **Table 1.2** as follows.

Table 1.2: Environmental Monitoring and Audit Schedule for the Reporting Month

Environmental Monitoring and Audit Schedule for February 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Water **Bird**	2
3	4 Water **Bird** 24-hr TSP 1-hr TSP Noise Monitoring * **Landscape**	5 Lunar New Year's Day	6 The second day of Lunar New Year	7 The third day of Lunar New Year	8 Water	9 24-hr TSP 1-hr TSP
10	11 Water	12 **Bird**	13 Water	14 * @	15 Water **Bird** 24-hr TSP 1-hr TSP Noise Monitoring	16
17	18 Water	19	20 Water **Water Quality Monitoring**	21 * **Landscape** 24-hr TSP 1-hr TSP Noise Monitoring	22 Water **Bird** **Water Quality Monitoring (additional)**	23
24	25 Water	26	27 Water **Bird** 24-hr TSP 1-hr TSP Noise Monitoring	28 *		

* Site Audit by Mott MacDonald (MM)

@ Report Submission (Monthly EM&A Report)

Ecological Surveys & Landscape Audits indicated in **bold font**

2 Impact Monitoring Methodology

2.1 Introduction

For air quality, construction noise and water quality, ecology, landscape and visual monitoring methodology, including the monitoring locations, monitoring equipment used, monitoring parameters, and frequency and duration, etc., are detailed in this Chapter.

2.2 Air Quality

2.2.1 Monitoring Parameters, Frequency and Duration

In accordance with the EM&A Manual, 1-hour and 24-hour TSP levels monitoring are to be conducted during the construction phase. **Table 2.1** summarizes the monitoring parameters, frequency and duration of air quality monitoring.

Table 2.1: Air Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
ASR1, ASR2A, ASR3 & ASR4	24-hour TSP	At least once in every six-days
	1-hour TSP	3 times every six-days

2.2.2 Monitoring Locations

The four air quality monitoring stations were established in the EM&A manual and were slightly adjusted during the baseline monitoring phase. Locations of the agreed air quality monitoring stations are listed in **Table 2.2** and as shown in **Figure 2.1**.

Table 2.2: Air Monitoring Stations

Monitoring Stations	Locations
ASR1	Guard house outside House No. 1, Ventura Avenue, Royal Palms*
ASR2A	At the rooftop of refuse collection point, which is located at the southwest of the project area
ASR3	At the commercial centre at Palm Springs, which is located at the south of the project area
ASR4	Outside works site entrance*

*Note: Relocation of ASR1 and ASR4 were from 5 June 2018 as the previous locations will be subject to upcoming construction works. All monitoring data at ASR1 and ASR4 from June 2018 is measured at the new monitoring locations.

2.2.3 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring is conducted using High Volume Sampler (HVS) (Model: GMWS-2310 Accu-vol). The HVS meets all the requirements of the EM&A Manual. Portable direct reading dust meters were used to carry out the 1-hour TSP monitoring. **Table 2.3** summarizes the equipment used in the impact air quality monitoring.

Table 2.3: TSP Monitoring Equipment

Equipment	Model
24-hr TSP monitoring	
High Volume Sampler	GMWS 2310 Accu-vol
Calibrator	GMW 25
1-hr TSP monitoring	
Portable direct reading dust meter	AM510 SidePak Personal Aerosol Monitor

2.2.4 Monitoring Methodology

2.2.4.1 24-hour TSP Monitoring

Installation

The HVS was installed in the vicinity of the air sensitive receiver. The following criteria were considered in the installation of the HVS.

- A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
- The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
- A minimum of two metres separation from walls, parapets and penthouse was required for rooftop sampler.
- A minimum of two metres separation from any supporting structure, measured horizontally was required.
- No furnace or incinerator flues or building vent were nearby.
- Airflow around the sampler was unrestricted.
- The sampler has been more than 20 metres from any drip line.
- Permission was obtained to set up the samplers and to obtain access to the monitoring stations.
- A secured supply of electricity is needed to operate the samplers.

Preparation of Filter Papers

- Glass fibre filters were labelled and sufficient filters that were clean and without pinholes were selected.
- All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C with relative humidity (RH) < 50% and was not variable by more than ±5%. A convenient working RH was 40%.

Field Monitoring

- The power supply was checked to ensure the HVS works properly.
- The filter holder and the area surrounding the filter were cleaned.
- The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
- The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
- The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied should be sufficient to avoid air leakage at the edges.

- The shelter lid was closed and was secured with the aluminium strip.
- The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
- A new flow rate record sheet was set into the flow recorder.
- The flow rate of the HVS was checked and adjusted at around 1.1 m^3/min. The range specified in the EM&A Manual was between 0.6-1.7 m^3/min.
- The programmable timer was set for a sampling period of 24 hrs + 1 hr, and the starting time, weather condition and the filter number were recorded.
- The initial elapsed time was recorded.
- At the end of sampling, the sampled filter was removed carefully and folded in half-length so that only surfaces with collected particulate matter were in contact.
- It was then placed in a clean plastic envelope and sealed.
- All monitoring information was recorded on a standard data sheet.
- Filters were sent to a HOKLAS accredited laboratory for analysis.

Maintenance and Calibration

- The HVS and its accessories are maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
- HVSs were calibrated at two-month intervals.
- Calibration records for HVSs are shown in **Appendix E**.

2.2.4.2 1-hour TSP Monitoring

Field Monitoring

The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

- Set POWER to "ON", push BATTERY button, make sure that the meter's indicator is in the range with a red line and allow the instrument to stand for about 3 minutes (Then, the air sampling inlet has been capped).
- Push the knob at MEASURE position.
- Push "O-ADJ" button. (Then meter's indication is 0).
- Push the knob at SENSI ADJ position and set the meter's indication to S value described on the Test Report using the trimmer for SENSI ADJ.
- Pull out the knob and return it to MEASURE position.
- Push "START" button.

Maintenance and Calibration

- The 1-hour dust meter would be checked at 3-month intervals and calibrated at 1-year intervals throughout all stages of the air quality monitoring.
- Calibration records for direct dust meters are shown in **Appendix E**.

2.3 Construction Noise

2.3.1 Monitoring Parameters, Frequency and Duration

Following the requirements in the EM&A Manual for noise, noise monitoring has to be carried out during the construction phase. Continuous noise monitoring for the A-weighted levels $L_{eq(30\ min)}$, L_{10} and L_{90} is undertaken once per every week.

Table 2.4 summarizes the monitoring parameters, frequency and duration of air quality monitoring.

Table 2.4: Noise Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
NSR1, NSR3, NSR5, NSR7	$L_{eq(30min)}$, L_{90}, L_{10} (dB(A))	Once every week

2.3.2 Monitoring Locations

The four noise quality monitoring stations were established in the EM&A manual and were slightly adjusted during the baseline monitoring phase. Locations of the agreed noise quality monitoring stations are listed in **Table 2.5** and as shown in **Figure 2.2**.

Table 2.5: Noise Monitoring Stations

Monitoring Stations	Locations	Type of measurement
NSR1	Noise monitoring equipment was set up near the boundary wall at Palm Springs.	Free-field
NSR3	The monitoring station was located next to the guard house at Palm Springs.	Facade
NSR5	Outside House No. 1, Ventura Avenue, Royal Palms*	Facade
NSR7	The monitoring station was located near the boundary wall of the house of Mai Po San Tsuen.	Free-field

*Note: Relocation of NSR5 was from 5 June 2018 as the previous location will be subject to upcoming construction works. All monitoring data at NSR5 from June 2018 is measured at the new monitoring location.

2.3.3 Monitoring Equipment

Integrating Sound Level Meter will be used for noise monitoring. It is a Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x). They comply with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). **Table 2.6** summarizes the noise monitoring equipment model being used.

Table 2.6: Noise Monitoring Equipment

Equipment	Model
Integrating Sound Level Meter	Rion NL-52
Calibrator	Casella CEL-120/1

2.3.4 Monitoring Methodology

Field Monitoring

- The Sound Level Meter was set on a tripod at a height of at least 1.2 m above the ground.
- Façade and free-field measurements were made at the monitoring locations.
- 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 minutes intervals (between 07:00 and 19:00)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94 dB at 1 kHz. If the difference in the calibration level before and after measurement was more than 1 dB, the measurement would be considered invalid has to be repeated after re-calibration or repair of the equipment.
- During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, any site observations and noise sources were recorded on a standard record sheet.

Maintenance and Calibration

- The microphone head of the sound level meter and calibrator is cleaned with soft cloth at quarterly intervals.
- The meter and calibrator are sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.
- Calibration records are shown in **Appendix E**.

2.4 Water Quality

2.4.1 Monitoring Parameters, Frequency and Duration

In accordance with the requirements in the EM&A Manual for water quality, water quality parameters including Dissolved Oxygen (DO), temperature, pH, turbidity, suspended solids (SS) and Biochemical Oxygen Demand (BOD) have to be monitored at designated monitoring stations during construction of the Project. DO, temperature and pH were measured in-situ whereas SS and BOD were analysed in a laboratory. The measurements should be taken at all designated monitoring stations, three days per week. The interval between any two sets of monitoring was not less than 36 hours. **Table 2.7** summarizes the monitoring parameters, frequency and duration of water quality monitoring.

Table 2.7: Water Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter	Frequency and Duration
MP1, MP2, MP3, MP4, MP5 & MP6	DO, temperature, pH, SS, turbidity, BOD	Three days every week

2.4.2 Monitoring Locations

The six water quality monitoring stations were established in the EM&A manual. Locations of the agreed water quality monitoring stations are listed in **Table 2.8** and as shown in **Figure 2.3**.

Table 2.8: Water Quality Monitoring Stations

Monitoring Stations	Easting	Northing
MP1*	838 730.50	822 862.25
MP2*	838 933.26	823 247.41
MP3	839 107.17	823 596.84
MP4	839 286.14	823 638.55
MP5	839 134.35	823 722.99
MP6	839 063.02	823 842.25

*Note: The water quality impact monitoring at MP1 and MP2 have been terminated since July 2012 due to withdrawal of access right from land owner.

2.4.3 Monitoring Equipment

The Water Quality Monitoring Equipment and Analytical Methods applied to Water Quality Samples are given in **Table 2.9** and **Table 2.10** respectively. Details of which are discussed as follows.

Table 2.9: Water Quality Monitoring Equipment

Equipment	Model	Equipment/Serial Number
Conductivity, Dissolved oxygen, pH, Salinity and Temperature Measuring Meter, Turbidity	YSI ProDss	17E100747
Global Positioning System (GPS)	Garmin eTrex Vista	ENO 007

Table 2.10: Analytical Methods applied to Water Quality Samples

Determinant, unit	Standard Method
Total Suspended Solids, mg/L	In house method based on APHA 2540D; ALS Method Code: EA-025
Biochemical Oxygen Demand (BOD), mg/L	In house method based on APHA 5210B; ALS Method Code: EP-030

All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or any other international accreditation scheme before use.

Dissolved Oxygen (DO), Temperature, pH and Turbidity measuring equipment

A portable, weatherproof multiparameter instrument (YSI Professional Plus) was used in the monitoring. It can be capable for measuring dissolved oxygen (DO), temperature, pH and turbidity simultaneously with the following limits:

- a dissolved oxygen level in the range of 0-50 mg/L and 0-500 % saturation;
- a temperature of -5 to 70 degrees Celsius;
- pH value of 0-14 with 0.1 as the base unit; and
- turbidity between 0-4000 NTU

Global Positioning System (GPS)

A hand-held GPS navigator (Garmin eTrex Vista) was used to identify the designated monitoring stations prior to water sampling.

Suspended Solids and BOD Measurements (Sample Containers and Storage)

Water samples for SS analysis were stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4 ºC without being frozen), delivered to the laboratory, and analysed as soon as possible after collection. Analysis was carried out in a HOKLAS accredited laboratory.

2.4.4 Detection Limit

The limits of detection for the in-situ and laboratory measurements are shown in **Table 2.11**.

Table 2.11: Detection Limits for Water Quality Determinants

Determinant	Limit of Detection
Dissolved Oxygen	0.1 mg/L
Temperature	0.1 degree Celsius
pH	0.01 unit
Turbidity	0.1 NTU

Determinant	Limit of Detection
Suspended Solids	2 mg/L
BOD	2 mg/L

2.4.5 Monitoring Methodology

In situ Measurement

All pH meters, DO/temperature meters had been checked and calibrated prior to use. Standard buffer solution of at least two pH levels (either pH 4 and pH 7, or pH 7 and pH 10) had been used for calibration of the instrument before and after use.

DO meters had been calibrated by a laboratory accredited under HOKLAS or any other international accreditation scheme, and subsequently re-calibrated at three-monthly intervals throughout all stages of the water quality monitoring. Responses of sensors and electrodes had been checked with certified standard solutions before each use. Wet bulb calibrations for all DO meters had been carried out before measurement at each monitoring location. For the on-site calibration of field equipment, BS 127:1993, "Guide to field and on-site test methods for the analysis of waters" had been observed.

Measurements shall be at three water depths, namely, 1m below water surface, mid-depth and 1m above stream bed/pond bed, except where the water depth less that 6m, the mid-depth station maybe omitted. Should the water depth be less than 3 m, only the mid-depth station will be monitored.

Replicates in-situ measurements and samples collected from each independent monitoring event are required for all parameters to ensure a robust statistically interpretable dataset.

Water Samples Preparation and Analysis

For collection of water sampling within the water courses, a 500ml clean plastic beaker was used. After collection, the water samples were stored in high-density polythene bottles. The sample container 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 ºC. The water samples were then delivered to a local HOKLAS-accredited laboratory (ALS) on the same day for analysis.

The testing methods of testing parameters as recommended by EIA or required by EPD, with the QA/QC results are in accordance with the requirement of HOKLAS or international accredited scheme.

The calibration certificates for equipment used for in-situ monitoring of water quality are attached in **Appendix E**.

2.5 Ecology

2.5.1 Monitoring Parameters, Frequency and Duration

Target species and certain other fauna will be monitored within the Project Area and Assessment Area during the wetland and residential construction phase. This will be important to ensure that any unexpected events or impacts either on- or off-site are quickly identified so that remedial action can be taken. The groups to be monitored and frequency of monitoring are shown in **Table 2.12**.

Table 2.12: Summary of Construction Phase Ecological Monitoring for the Wo Shang Wai Wetland Restoration Area (WRA)

Species / Parameter	Construction Phase Ecological Monitoring
Birds	Weekly (including Assessment Area).
Dragonflies and Butterflies	Once per month during March and September to November; and twice per month during April to August.
Herpetofauna	Day-time: Once per month during April to November; and Night-time: Once per month during March to August
Water Quality	After filling of WRA with water, monthly for in situ water quality and every six months (end of the wet season and end of the dry season) for laboratory testing.
Site Inspections	Weekly.

2.5.2 Monitoring Locations and Methodology

Ecological monitoring locations during construction phase are shown in **Figure 4.1** and the methodology for ecological monitoring is detailed in Section 4.

2.6 Landscape and Visual

2.6.1 Monitoring Parameters, Frequency and Duration

All measures undertaken by both the Contractor and the specialist Landscape Sub-Contractor during the construction phase and first year of the operational phase shall be audited by a Registered Landscape Architect, as a member of the ET, on a regular basis to ensure compliance with the intended aims of the measures. Site inspections should be undertaken at least once every two weeks throughout the construction period and once every two months during the operational phase.

The broad scope of audit is detailed below but should also be undertaken with reference to the more specific checklist provided in **Table 2.13** below. Operational phase auditing will be restricted to the last 12 months of the establishment works of the landscaping proposals and thus only the items below concerning this period are relevant to the operational phase.

- The extent of the agreed works area should be regularly checked during the construction phase. Any trespass by the Contractor outside the limit of the works, including any damage to existing trees and woodland shall be noted;
- The progress of the engineering works should be regularly reviewed on site to identify the earliest practical opportunities for the landscape works to be undertaken;
- All existing vegetation, streams and other features within the study area which are not directly affected by the works are retained and protected;
- The methods of protecting existing vegetation proposed by the Contractor are acceptable and enforced;
- Preparation, lifting transport and re-planting operations for any transplanted trees;
- The layout, design and construction of buildings conforms to requirements specified in the EIA report;
- All landscaping works are carried out in accordance with the EIA recommendations and with specifications;
- The planting of new trees, shrubs, groundcover, climbers, grasses and other plans, together with the replanting of any transplanted trees are carried out properly and within the right season;

- All necessary horticultural operations and replacement planting are undertaken throughout the Establishment Period to ensure the healthy establishment and growth of both transplanted trees and all newly establishment plants.

Table 2.13: Construction and Operation Phase Audit Checklist

Area of Works	Items to be Monitored
Works Area	Check the extent of the Works to ensure that the Works Area is not exceeded
Protection of all trees and woodland blocks to be retained	Identification and demarcation of trees / vegetation to be retained, erection of physical protection (e.g. fencing), monitoring against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Streams	Ensure no run-off into existing streams
Clearance of existing vegetation	Identification and demarcation of trees / vegetation to be cleared, checking of extent of works to minimize damage, monitoring of adjacent areas against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Transplanting of trees	Identification and demarcation of trees / vegetation to be transplanted, monitoring of extent of pruning / lifting works to minimize damage, timing of operations implementation of all stages of preparatory and translocation works, and maintenance of transplanted vegetation, etc.
Topsoil stripping	Ensuring existing topsoil is stripped and stored under recognized good practice and is hydroseeded and regularly turned to prevent anaerobic conditions
New buildings	Ensure that building finishes accord with mitigation proposals with regard to colour and albedo.
Boundaries	Ensuring hoarding are erected as required
Noise Barrier	Ensure noise barrier design accords with the mitigation proposals with regard to location, materials and finishes.
Night-time lighting	Ensuring night-time lighting is directional, hooded and shielded away from VSRs
Plant supply	Monitoring of operations relating to the supply of specialist plant material (including the collecting, germination and growth of plants from seed) to ensure that plants will be available in time to be used within the construction works.
Landscape and wetland treatments generally	Check that wetland, and hard / soft landscape designs conform to intent of mitigation measures and agreed designs
Soiling, planting, etc.	Monitoring of implementation and maintenance of soiling and planting works against possible incursion, physical damage, fire, pollution, surface erosion, etc.
Establishment Works	Monitoring of implementation of maintenance operation during Establishment Period

2.6.2 Monitoring Locations

The monitoring locations should check against the mitigation measures proposed under the approved Environmental Impact Assessment, which are summarised as follows in **Table 2.14** and **Table 2.15**:

Table 2.14: Proposed Construction Phase Mitigation Measures

ID No.	Landscape and Visual Mitigation Measures
CM1	The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.
CM2	Screening of construction works by hoardings/noise barriers around Works area in visually unobtrusive colours, to screen Works.
CM3	Reduction of construction period to practical minimum.
CM4	Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate.
CM5	Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).
CM6	Advance screen planting to noise barriers.
CM7	Control night-time lighting and glare by hooding all lights.

ID No.	Landscape and Visual Mitigation Measures
CM8	Ensure no run-off into streams adjacent to Project Area.
CM9	Protection of existing trees on boundary of project area shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at S16 and Tree Removal Application stage).
CM10	Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their destinations and not held in a nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.

Table 2.15: Proposed Operation Phase Mitigation Measures

ID No.	Landscape Mitigation Measures
OM1	Compensatory Tree Planting for all felled trees shall be provided to the satisfaction of relevant Government departments. Required numbers and locations of compensatory trees shall be determined and agreed separately with Government during the Tree Felling Application process under ETWBTC 3/2006.
OM2	A continuous belt of screen planting along southern perimeter of project area with fast growing tree species. At least 450 trees capable of reaching a height > 10m within 10 years should be planted. Planting of the belt of trees shall be carried out as advance works ahead of other site formation and building works.
OM3	Maximise soft landscape and amenity water bodies in residential areas of the development. Approximately 750 trees (of Heavy Standard size) should be planted. Where space permits, roadside berms should be created. Street trees should be of species that reach a mature height of no less than 15m.
OM4	Maximise freshwater habitat wetland creation consistent with achieving other parameters. Minimum 4.74 ha to be provided. Wetlands must have natural edge profiles with >1m wide emergent zone. No access to the wetland by residents and all wetlands must be screened from residential development by a continuous tree screen at interface with residential development or earth mounding such that disturbance is minimised. Implementation of the wetland shall be carried out as advance works.
OM5	Use appropriate (visually unobtrusive and non-reflective) building materials and colours in built structures.
OM6	During detailed design, refine building layout to create a min. 10m wide gap between buildings north of Wo Shang Wai pond and also two min. 10m wide gaps in the row of buildings adjacent to Royal Palms.
OM7	Streetscape elements (e.g. paving, signage, street furniture, lighting etc.) shall be sensitively designed in a manner that responds to the local context and minimises potential negative landscape and visual impacts. Lighting units should be directional and minimise unnecessary light spill.

3 Monitoring Results

3.1 Impact Monitoring Schedule

Impact monitoring for air quality (dust), noise and water quality due to the construction work were undertaken during the reporting month in compliance with the EM&A manual in the reporting period. Regular site inspections were carried out on 4, 14, 21 and 28 February 2019 during the reporting month to assess the compliance with environmental requirements.

3.2 Results of Impact Monitoring

3.2.1 Air Quality Monitoring

3.2.1.1 1-hour TSP

Results of 1-hour TSP at the four monitoring locations are summarised in **Table 3.1**. Graphical plots of the monitoring results are shown in **Appendix F**. The weather conditions in the reporting period are provided in **Appendix G**.

Table 3.1: Summary of 1-hour TSP Monitoring Results

Monitoring Date	Start Time	1-hr TSP (μg/m³)			Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
		1st Result	2nd Result	3rd Result			
ASR1							
04-Feb-19	09:22	50	61	53	32-65	378	500
09-Feb-19	08:34	51	40	43			
15-Feb-19	08:25	32	35	38			
21-Feb-19	08:32	46	42	36			
27-Feb-19	08:36	51	65	47			
ASR2A							
04-Feb-19	13:09	59	61	55	38-61	357	500
09-Feb-19	13:13	50	41	44			
15-Feb-19	13:14	43	38	39			
21-Feb-19	13;09	50	43	40			
27-Feb-19	13:13	53	45	42			
ASR3							
04-Feb-19	13:00	48	52	58	29-77	358	500
09-Feb-19	13:03	77	75	63			
15-Feb-19	13:05	33	29	39			
21-Feb-19	13:00	47	31	35			
27-Feb-19	13:05	50	49	52			

Monitoring Date	Start Time	1-hr TSP (μg/m³)			Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
		1st Result	2nd Result	3rd Result			
ASR4							
04-Feb-19	09:33	57	66	67	32-67	372	500
09-Feb-19	08:45	54	46	44			
15-Feb-19	08:36	34	40	32			
21-Feb-19	08:43	57	49	46			
27-Feb-19	08:50	62	57	50			

3.2.1.2 24-hour TSP

Results of 24-hour TSP at the four monitoring locations are summarised in **Table 3.2**. Graphical plots of the monitoring results are shown in **Appendix F**. The weather conditions in the reporting period are provided in **Appendix G**.

Table 3.2: Summary of 24-hour TSP Monitoring Results

Monitoring Date	Monitoring Results (μg/m³)	Range (μg/m³)	Action Level (μg/m³)	Limit Level (μg/m³)
ASR1				
04-Feb-19	62	39-64	226	260
09-Feb-19	39			
15-Feb-19	47			
21-Feb-19	41			
27-Feb-19	64			
ASR2A				
04-Feb-19	54	36-73	213	260
09-Feb-19	36			
15-Feb-19	40			
21-Feb-19	39			
27-Feb-19	73			
ASR3				
04-Feb-19	52	36-64	205	260
09-Feb-19	36			
15-Feb-19	40			
21-Feb-19	36			
27-Feb-19	64			
ASR4				
04-Feb-19	55	38-55	237	260
09-Feb-19	38			
15-Feb-19	46			
21-Feb-19	40			
27-Feb-19	52			

No exceedance of 1-hour and 24-hour TSP (Action or Limit Level) was recorded in the reporting period.

3.2.2 Construction Noise Monitoring

The construction noise monitoring results are summarized in **Table 3.3**. Graphical plots of the monitoring data are shown in **Appendix F**. The weather conditions in the reporting period are provided in **Appendix G**.

Table 3.3: Summary of Construction Noise Monitoring Results

Monitoring Date	Start Time	Mean and Range of Noise Levels, dB(A)			Limit Level for L_{eq} (dB(A))
		L_{eq}	L_{10}	L_{90}	
NSR1					
04-Feb-19	14:00	55	58	42	75
15-Feb-19	10:46	50	52	45	
21-Feb-19	10:55	54	56	44	
27-Feb-19	11:05	51	52	44	
NSR3					
04-Feb-19	13:20	43	45	39	75
15-Feb-19	10:07	48	50	43	
21-Feb-19	10:13	48	50	48	
27-Feb-19	10:25	50	52	45	
NSR5					
04-Feb-19	10:17	44	45	42	75
15-Feb-19	09:21	51	52	47	
21-Feb-19	09:32	52	53	48	
27-Feb-19	09:43	50	52	47	
NSR7					
04-Feb-19	09:38	63	65	62	75
15-Feb-19	08:42	67	67	63	
21-Feb-19	08:50	65	67	62	
27-Feb-19	09:00	66	67	63	

No exceedance (Action/Limit Level) of construction noise was recorded in the reporting period.

3.2.3 Water Quality Monitoring

The water quality monitoring results are summarized in **Table 3.4**. Graphical plots of the monitoring data are shown in **Appendix F**. The weather conditions in the reporting period are provided in **Appendix G**.

Table 3.4: Summary of Water Quality Monitoring Results

Monitoring Date	Temp (°C)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)[1]	Suspended Solids (mg/L)
MP3							
01/02/2019	20.7	7.4	8.7	97.5	11.1	5	11
04/02/2019	25.1	7.3	8.2	99.1	42.4	42	42
08/02/2019	25.8	7.2	8.2	92.1	**68.8**	18	**73**
11/02/2019	19.4	7.3	8.7	94.9	46.8	16	47
13/02/2019	25.3	7.4	8.1	98.8	39.9	43	40
15/02/2019	22.5	7.1	8.6	103.6	46.6	23	37
18/02/2019	20.6	7.2	8.6	103.0	55.5	12	48

Monitoring Date	Temp (ºC)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)(1)	Suspended Solids (mg/L)
20/02/2019	25.6	7.2	8.1	100.1	26.3	11	26
22/02/2019	24.7	7.4	8.2	98.8	27.4	5	11
25/02/2019	18.8	7.3	8.4	98.7	39.8	9	27
27/02/2019	20.4	7.3	8.6	95.9	44.5	17	36
Action Level	-	<5.5 or >7.5	<6.85	-	>64	-	>65
Limit Level	-	<4.0 or >8.0	<6.65	-	>67	-	>66
MP4							
01/02/2019	20.4	7.1	6.9	65.9	18.0	<2	18
04/02/2019	24.8	7.2	7.0	75.4	31.3	4	31
08/02/2019	25.5	7.0	6.8	88.7	43.4	<2	44
11/02/2019	19.1	7.1	7.1	68.6	37.5	3	37
13/02/2019	25.0	7.1	7.0	85.5	27.1	3	27
15/02/2019	22.2	7.0	7.1	82.4	47.8	4	44
18/02/2019	20.3	7.1	7.1	75.8	28.9	3	34
20/02/2019	25.3	7.2	7.1	87.6	33.9	4	34
22/02/2019	24.4	7.2	7.1	84.2	34.1	4	32
25/02/2019	18.5	7.1	7.0	63.7	37.0	4	47
27/02/2019	20.1	7.2	6.9	70.4	42.9	3	34
Action Level	-	<5.5 or >7.5	<3.91	-	>60	-	>50
Limit Level	-	<4.0 or >8.0	<3.82	-	>64	-	>53
MP5							
01/02/2019	21.8	7.5	7.1	70.2	11.0	<2	11
04/02/2019	26.2	7.4	6.8	74.7	32.8	10	33
08/02/2019	26.9	7.4	7.0	90.3	28.2	<2	28
11/02/2019	20.5	7.4	6.9	71.2	44.1	8	44
13/02/2019	26.4	7.5	7.0	87.3	31.2	13	31
15/02/2019	23.6	7.4	6.9	76.7	49.9	9	50
18/02/2019	21.7	7.3	7.2	79.3	34.9	7	39
20/02/2019	26.7	7.3	7.0	87.2	29.7	6	31
22/02/2019	25.8	7.4	6.9	79.7	33.4	6	32
25/02/2019	19.9	7.5	6.8	62.8	48.4	7	47
27/02/2019	21.5	7.5	7.0	73.0	44.3	6	35
Action Level	-	<5.5 or >7.5	<4.13	-	>81	-	>66
Limit Level	-	<4.0 or >8.0	<3.87	-	>84	-	>69
MP6							
01/02/2019	21.9	7.5	6.7	65.4	11.5	4	12
04/02/2019	26.3	7.5	6.9	76.4	35.3	9	35
08/02/2019	27.0	7.4	6.9	86.8	27.9	3	27
11/02/2019	20.6	7.5	6.8	73.7	45.2	9	45
13/02/2019	26.5	7.5	6.9	84.9	31.4	13	31
15/02/2019	23.7	7.4	6.9	76.3	52.0	8	51
18/02/2019	21.8	7.4	7.1	72.2	33.1	6	37

Monitoring Date	Temp (ºC)	pH	Dissolved Oxygen (DO) (mg/L)	DO (%)	Turbidity (NTU)	BOD (mg/L)(1)	Suspended Solids (mg/L)
20/02/2019	26.8	7.4	6.8	82.7	48.4	4	49
22/02/2019	25.9	7.5	7.0	84.7	36.8	6	30
25/02/2019	20.0	7.5	6.9	63.3	51.8	7	47
27/02/2019	21.6	7.5	6.8	68.8	42.6	6	37
Action Level	-	<5.5 or >7.5	<4.61	-	>94	-	>75
Limit Level	-	<4.0 or >8.0	<4.52	-	>96	-	>75

Notes:
(1) "<2": Value is too low to indicate (<2mg/L).
(2) Values in **Bold** indicate Action Level exceedance.
(3) Values **Underlined and in Bold** indicate Limit Level exceedance.

3.2.3.1 Exceedance Investigation and Findings

During February 2019, a total of two Limit Level exceedances were observed. One Limit Level exceedance of turbidity and one Limit Level exceedance of SS were recorded at MP3.

The Event and Action Plan in **Appendix D** was followed under these cases of exceedances.

From investigation, general site maintenance work and regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond) were undertaken.

Based on the recent site observations carried out by ET, the Contractor implemented the following water quality mitigation measures as recommended in EIA report which include:

- Temporary drainage channels were provided to collect the surface runoff generated within the project site; and
- Installation of barrier at the drainage channels to intercept site runoff and pump the wastewater to the sedimentation tanks as primary treatment prior to treatment by wastewater treatment facilities (AquaSed), which will ensure all site runoff is treated to satisfactory quality before discharging into the northern ditches.

Exceedances of Turbidity and SS at MP3

Limit Level exceedances of turbidity and SS were observed on 8 February 2019 at MP3.

As understood, the fish pond near the site (represented by MP3) is separated from the open ditch by the pond bund (since commencement of construction phase EM&A monitoring in May 2010) and from the construction site by the WRA (since it was completed in November 2010). No direct discharge from the project site to the fish pond was observed.

On the day of turbidity and SS exceedance (8 February 2019), the water body was observed to be a slightly muddy in appearance at MP3 while the water level was also low. It is noted that turbidity and SS exceedance was not detected at the other locations on these dates.

It is concluded that the exceedances of turbidity and SS at MP3 were possibly due to localised natural variations and external factors such as pond fish culture activities in the fish pond represented by MP3, which are not related to project construction activities.

Conclusion

As a result, the abovementioned exceedances were unlikely to be due to the construction works and therefore not considered to be related to the project.

4 Ecological Monitoring

4.1 Monitoring of Birds

This report documents surveys conducted in the Survey Area between 1 and 28 February 2019. The Wetland Restoration Area (WRA) is also surveyed as the area is accessible and site formation works for WRA has been completed. The updated survey transect is provided in **Figure 4.1**. Dates and ecological surveys conducted during this period are summarised in **Appendix H**.

Monitoring was undertaken following the survey methodology in the EM&A Manual. A transect was followed in the bird surveys (see **Figure 4.1**). All bird species were identified to species and all bird species of conservation importance and/or wetland dependent were enumerated and recorded to the habitats in which they were observed. Flying birds were not recorded unless they were foraging and/or associated with the habitat (such as swifts). Further, notable bird observations during other surveys were also recorded.

Bird surveys were conducted on a weekly basis. A total of 36 bird species were recorded in the Survey Area (excluding the WRA), 20 of which were species of conservation importance and/or wetland-dependence. Within the WRA, 38 bird species were recorded, 19 of which were species of conservation importance and/or wetland-dependence including two of the three target species (Little Egret and Chinese Pond Heron). The WRA continues to attract a number of species of conservation importance, including Little Grebe, *Tachybaptus ruficollis*, Great Cormorant *Phalacrocorax carbo*, Grey Heron, *Ardea cinerea*, Great Egret, *Ardea alba*, Purple Heron, *Ardea purpurea*, Yellow Bittern*, Ixobrychus sinensis*, Black Kite, *Milvus migrans*, Common Greenshank, *Tringa nebularia*, Wood Sandpiper, *Tringa glareola*, White-throated Kingfisher, *Halcyon smyrnensis*, and Collared Crow, *Corvus torquatus*. Little Grebe, Yellow Bittern, Wood Sandpiper, White-throated Kingfisher and Collared Crow are listed by Fellowes *et al*. as of “Local Concern” in 2002. Great Cormorant, Grey Heron and Great Egret are listed by Fellowes *et al*. as of “Potential Regional Concern” in 2002. Purple Heron, Black Kite and Common Greenshank are listed by Fellowes et al. as of “Regional Concern” in 2002.

In addition to wetland-dependence birds, the WRA also attracts a number of terrestrial birds. Survey findings indicate that the WRA not only provides important habitat for wetland-dependence birds but also the terrestrial birds.

A summary of survey data is provided in **Appendix I**.

4.2 Monitoring of Herpetofauna

No herpetofauna surveys were scheduled in the reporting month. No amphibian species nor reptile species were recorded in other surveys.

A summary of the survey findings is provided in **Appendix J**.

4.3 Monitoring of Dragonflies and Butterflies

No odonates and butterflies surveys were scheduled in the reporting month. No odonata species nor butterfly species were recorded in other surveys.

A summary of the survey findings is provided in **Appendix J**.

4.4 Monitoring of Mammals

Monitoring of mammals was conducted concurrently with other surveys.

No mammal species was recorded in the Survey Area (excluding the WRA) nor within the WRA during the regular survey. Two mammals were observed within the WRA during the outside survey.

A summary of the survey findings is provided in **Appendix J**.

4.5 Monitoring of Water Quality

During the reporting period, the water level of Cell 2 reached the action level on 20 February 2019 and the water level of Cell 1 and Cell 2 reached the action level on 22 February 2019. The monitoring frequency will be doubled in the coming month. According to the ecological monitoring data, the low water level in the WRA attracted wetland dependence species including Little Grebe, Great Cormorant, Grey Heron, Great Egret, Purple Heron, Yellow Bittern, Black Kite, White-breasted Waterhen, Common Moorhen, Common Greenshank, Wood Sandpiper, Common Sandpiper, White-throated Kingfisher, Common Kingfisher, Eastern Yellow Wagtail, White Wagtail and Collared Crow. As the low water level attracts wetland dependence birds, the existing water level will be maintained.

Monitoring data is presented in **Appendix K**. Locations for the monitoring of water quality for the ecological monitoring are shown in **Figure 4.2**.

4.6 Management Activities

4.6.1 Vegetation Management

Removal of exotic vegetation in all cells was undertaken; these removals included but were not limited to *Ipomoea* sp*., Mikania* sp., *Mimosa* sp., *Pennisetum* sp*.* and *Typha* sp.

Vegetation management activities undertaken at the site primarily involved watering of plants, weeding and grass cutting.

4.6.2 Wildlife Management

Removal of Golden Apple Snail was undertaken on an “as-seen” basis.

All sighted Red Fire Ant nests were treated with approved pesticide.

Mitigation actions have been taken in the WRA during the survey period to increase the WRA utilization by birds, including:

1. Controlling the vegetation at Cell 1, Cell 2, Cell 3 and Cell 4.

4.7 Summary

Ecological monitoring during February 2019 was carried out according to the survey methodology and frequency outlined in the EM&A Manual.

A summary of the survey findings is listed in **Table 4.1** below:

Table 4.1: Summary of Ecological Monitoring in WRA and Survey Area under EM&A Manual

Species	Survey Area (excluding WRA)	WRA
Birds (total)	36	38
Birds (of conservation importance and/or wetland-dependence)	20	19
Amphibians	-	-
Reptiles	-	-
Mammals	0	2
Odonates	-	-
Butterflies	-	-

Survey findings indicate that the ponds within the Survey Area supported numbers and diversity of wetland-dependent birds typical of fish pond areas. The WRA continues to attract wetland dependent fauna and serves as a buffer between the residential portion and the fishponds in the north.

5 Landscape and Visual

5.1 Site Inspections

The EM&A programme for Landscape and Visual impact due to the construction commenced in June 2010 and continued during the reporting period. Site inspections on Landscape and Visual impact were carried out on 4 and 21 February 2019 to confirm the implementation of mitigation measures at the construction stage.

The Event and Action Plan for Landscape & Visual is shown in **Appendix D**.

5.2 Construction Phase Audit Summary

The audit was undertaken with references to the specific checklists provided in **Table 2.13 – Table 2.15** and audit results are summarized below in **Table 5.1**. Representative photos showing the implementation of mitigation measures are presented in **Appendix M**.

Table 5.1: Construction and Operation Phase Audit Summary

Area of Works	Items of be Monitored
Works Area	The boundaries of the works area have been established on site in accordance with the contract documents and approved plans (EP), and the limit of current heavy construction activity is now confined to within the site hoardings (North side of the site / access road) and the noise barriers (other sides of the site). Minor works such as horticultural maintenance of the planting and transplanted trees, and boundary fence repair was proceeding along the Royal Palms – Palm Springs boundary. (**Appendix M** Photo 1 – **Table 2.14** CM2 refers) No construction works were observed to have exceeded the site boundaries. No construction was carried out at the wetland restoration area after 15 November 2010.
Protection of all trees and woodland blocks to be retained	Trees retained within the site along the northeast boundary, beside wetland restoration area, have been identified and protected by temporary protective fencing.
Streams	The works site is partly encircled by a berm / perimeter channel to intercept surface water and prevent it from washing off into any of the neighbouring sites. Surface water is collected within the site in a temporary drainage channel. Gravels beds and barriers have been installed to filter site runoff, sedimentation ponds have been provided to enable primary treatment before discharge to mains drains.
Clearance of existing vegetation	Site clearance was completed prior to the commencement of construction.
Transplanting of trees	Tree transplanting has been completed, with the trees relocated to various points within the planting strip along the southern boundary of the site, outside the noise barrier. Most of the trees continue to re-establish well up to now, other than those (i.e. T597 and T35a) were collapsed after Typhoon Mangkhut. For these 2 nos. of transplanting trees, tree removal work is completed, and tree replacement works should be undertaken prior to site formation and building works.
Topsoil stripping	Suitable pond bund and soil material which had been excavated and stockpiled from the original site, has now been re-used within the landscape works. Dust suppression measures are active along all internal site access tracks.
New buildings	No new permanent buildings have yet been constructed on site.
Boundaries	Hoardings have been erected along most of the boundaries of the site. Installation of new screen fence between the future residential sites and the constructed wetland restoration areas is complete. Fence has been painted green to match with the surrounding vegetated environment. (**Appendix M** Photo 1 – **Table 2.14** CM2 refers)
Noise Barrier	Noise barriers have been installed along the southern and western boundaries of the site in accordance with the contract requirements. Their design complies with the mitigation requirements, with upper 6 to 7m portion of the barrier being made from a translucent material with green tinted (to match with the environment). Supporting GMS structure, likewise, has been painted green. (**Appendix M** Photo 3 – **Table 2.14** CM6 refers).
Night-time lighting	No night-time works were reported to have been carried out during the monitoring period.

Area of Works	Items of be Monitored
Landscape and wetland treatments generally	Continuous belt of screen planting along the southern and western boundaries of the site has been completed. The formation, soiling and water control structures of the wetland restoration area have been completed. (**Appendix M** Photo 3 – **Table 2.14** CM6 refers) The wetland areas are being established, with the ponds are being seasonally filled with rain water. Planting of areas around the WRA cells is complete. No construction was carried out at the wetland restoration area after 15 November 2010. (**Appendix M** Photo 2 – **Table 2.14** CM2 refers)
Soiling, etc.	The soil placement and grading for each of the wetland restoration areas has been completed. Soil holes were left after the tree stump removal work in the advance planting strip area. It is recommended to refill these holes with top soil to avoid soil drought.
Plant supply	The plant material used in the Advance Planting Strip and in the WRA are all commonly available species and came from commercial sources. Transplanted reeds (*Phragmites australis*) at the wetland habitat came from the temporary holding nursery onsite.
Planting	The tree species are all from the approved list. Some of the trees that were identified having defects (i.e. broken branches, branch cracks, uprooted roots, termite infestation and etc.), proper mitigation measures are to be adopted. Some of the recently planted trees are in poor condition. These trees are under close monitoring. If the condition of these trees continues to deteriorate, tree replacement will be required. Seedling trees and shrubs have been established at the margins of the wetland cells. Some invasive vegetation has been found during site inspection, removal of these species should be undertaken on a regular basis.
Establishment Works	The advance planting, the compensatory planting and transplanted trees are generally being maintained by the landscape sub-contractor in accordance with the specification to ensure that the contract requirements are met. For those unrecoverable trees after Typhoon Mangkhut, tree removal or related arboricultural maintenance work is undergoing. Some trees are in poor health condition. Close monitoring for those trees is recommended. Several trees were dead with completely dehydrated tree crown and tree removal with replacement are recommended. Regular weeding for over-grown shrub is recommended. For those trees with broken trunks, which may not be recovered, some of them were removed during the arboricultural maintenance works. Tree removal works should be continued for the trees with unrecoverable health and structure problems and subsequent tree replacement is suggested. Regular pruning of the trees should be undertaken to remove the defective parts (e.g. dead branches, dieback, broken branches, hanging branches) on the trees. For those uprooted /leaning trees, re-erection of these trees and installation of proper tree support system are recommended. For those that might be unrecoverable, tree removal and replacement are recommended. Termite infestation was observed on numbers of trees. Proper treatment to remove these termite tracks should be undertaken immediately. For those trees with severe termite infestation, application of approved termiticide is recommended. Tree stump removal is recommended after the tree removal so as to make room for the new replacement trees. Tree replacement works should be conducted as soon as possible prior to any other site formation and building works. Removal of extensive growth of weeds and invasive climbers in the space behind screen noise barrier needs to be undertaken on a monthly basis as they may inhibit the advance planting. Horticultural maintenance (grass cutting, weeding, watering etc.) in the shrubs and tree seedling areas around the WRA cells should be undertaken regularly. Large amount of red fire ant nests were observed along the maintenance path of WRA area. Termiticide should be applied to eradicate of all the nests to avoid further spreading of red fire ants. Regular removal of invasive species (i.e. apple snails, *Mikania micrantha, Mimosa pudica, Bidens alba* and etc.) in WRA should be undertaken. The growth of shrubs / seedlings on the north side of WRA remains fair.

6 Environmental Site Inspection and Audit

6.1 Site Inspection

The ET had carried out construction phase weekly site inspections on 4, 14, 21 and 28 February 2019. All observations have been recorded in the site inspection checklist and passed to the Contractor together with the appropriate recommended mitigation measures where necessary. The key observations from site inspections and associated recommendations are summarized in **Table 6.1**.

Table 6.1: Summary of Site Inspections and Recommendations

Key Observations	ET Recommendation	Contractor's Responses / Action(s) Undertaken	Close-out (Date)
Nil	N/A	N/A	N/A

6.2 Solid and Liquid Waste Management Status

The Contractor has been registered as a chemical waste producer for the Project. Construction and demolition (C&D) material sorting was carried out on site. A sufficient number of receptacles were available for general refuse collection.

As advised by the Contractor, no inert C&D material (i.e. broken concrete/ big boulders) were generated on site and sent to a sorting facility for recycling into rockfill. No metals were generated and collected by registered recycling collector. No paper/cardboard packing and no plastics were generated on site and collected by registered recycling collector. No chemical waste was generated and collected by licensed chemical waste collector. No other types of wastes (e.g. general refuse) were generated on site and disposed of at public landfill facility.

The Contractor is advised to maintain on site waste sorting and recording system and maximize reuse / recycling of C&D wastes, whenever these are generated.

6.3 Status of Environmental Licences and Permits

The environmental permits, licences, and/or notifications on environmental protection for this Project which were valid during the reporting period is summarised in **Table 6.2**.

Table 6.2: Status of Environmental Submissions, Licences and Permits

Statutory Reference	Description	Permit/Reference No.	Status
EIAO	Environmental Permit	EP-311/2008/E	Valid
APCO	Notification of Construction Work under APCO	316688 (27 Apr 2010)	Valid
WPCO	Discharge Licence	WT00022647-2015 (8 Oct 2015)	Valid
WDO	Registration as Chemical Waste Producer	WPN0000-542-H3083-04	Valid
WDO	Bill Account for Disposal	700945423	Valid

Legend: EIAO – Environmental Impact Assessment Ordinance; APCO – Air Pollution Control Ordinance; WPCO – Water Pollution Control Ordinance; WDO – Waste Disposal Ordinance

6.4 Recommended Mitigation Measures

The EM&A programme followed the recommended mitigation measures in the EM&A Manual. The EM&A requirements as well as the summary of implementation status of the environmental mitigation measures are provided in **Appendix L**. In particular, the following mitigation measures were brought to attention during the site audits.

Air Quality

- Dark smoke emission from equipment/plant should be avoided.

Noise

- The noise barriers and hoardings should have no gaps and openings to avoid noise leakage.

Water Quality

- Site effluent should be discharged in accordance with discharge licence.
- The site should be confined and properly maintained to avoid silt runoff.
- Chemicals will always be stored on drip trays or in bunded areas.

Waste Management

- The chemical waste storage area should be clearly labelled.
- General refuse should be stored in enclosed bins or compaction units separate from C&D and chemical wastes.

7 Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

7.1 Record of non-compliance of Action and Limit Levels

There was no breach of Action or Limit Levels for Air Quality and Noise monitoring in the reporting month.

During February 2019, a total of two Limit Level exceedances were observed. One Limit Level exceedance of turbidity and one Limit Level exceedance of SS were recorded at MP3.

A summary is presented in **Table 7.1** below.

Table 7.1: Summary of Exceedances in Water Quality

Monitoring Date	pH	Dissolved Oxygen (DO) (mg/L)	Turbidity (NTU)	Suspended Solids (mg/L)
MP3				
08/02/2019	7.2	8.2	**68.8**	**73**
Action Level	<5.5 or >7.5	<6.85	>64	>65
Limit Level	<4.0 or >8.0	<6.65	>67	>66

Notes:
(1) "<2": Value is too low to indicate (<2mg/L).
(2) Values in **Bold** indicate Action Level exceedance.
(3) Values **Underlined and in Bold** indicate Limit Level exceedance.

7.2 Record on Environmental Complaints Received

No environmental complaint was received during the reporting month.

7.3 Record on Notifications of Summons and Successful Prosecution

No notifications of summons or successful prosecution were received the reporting month.

7.4 Review of Reasons for and Implications of Non-compliance, Complaints, Summons and Prosecutions

Non-compliance

Investigations have been carried out to identify the causes of the water quality exceedances.

The investigation findings are presented in **Section 3.2.3.1**. It was concluded that the abovementioned exceedances were unlikely to be due to the construction works and therefore not considered to be related to the project.

Complaints, Summons and Prosecutions

Not applicable for this reporting month.

7.5 Follow-up Actions Taken

Non-compliance

As non-compliances have been recorded, the Event and Action Plan has been followed. Although it is considered that the exceedances were not related to the Project, the Contractor was reminded to implement the water quality mitigation measures in accordance with the recommendation stated in Section 5.6.1 – 5.6.4 of the EIA Report as far as practicable and regular spot check would be conducted on the nearby discharge by Contractor and inform ET for investigation.

Complaints, Summons and Prosecutions

Not applicable for this reporting month.

7.6 Cumulative Statistics for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative statistics for complaints, notifications of summons and successful prosecutions for the Project account for period starting from the date of commencement of construction (i.e. 12 May 2010) to the end of the reporting month and are summarized in **Table 7.2** below.

Table 7.2: Statistics for Complaints, Notifications of Summons and Successful Prosecution

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Successful Prosecutions
This reporting month (February 2019)	0	0	0
From 12 May 2010 to end of the reporting month (February 2019)	8	0	0

8 Future Key Issues

8.1 Site Preparatory Works and Construction Works for the Coming Month

The major site works to be commissioned in the coming month include:

- Site formation
- Regular maintenance work for the Wetland Restoration Area (including lowering of the water level and removal of unwanted species in the pond)
- Foundation Work

8.2 Key Issues for the Coming Months

Key issues to be considered in the coming three months include:

- Provision of water spraying or dust suppression chemical to prevent generation of dust from activities on-site and the haul road during dry weather conditions;
- Provision of wheel washing facilities at vehicle exit point;
- Generation and treatment of site surface runoffs and wastewater from activities on-site and during wet weather conditions;
- Sorting, recycling, storage and disposal of general refuse and construction waste from activities on-site; and
- Management of chemicals and avoidance of oil spillage on-site and to the drainage system.

8.3 Monitoring Schedule for the Coming Month

The environmental site inspection and environmental monitoring will be continued in the coming month. Impact monitoring for air, noise, water quality, ecology and landscape and visual in accordance with the approved EM&A Manual has commenced since 12 May 2010. The tentative monitoring schedule for March 2019 is shown in the **Table 8.1**.

Table 8.1: Tentative Environmental Monitoring and Audit Schedule for the Next Reporting Month

Tentative Environmental Monitoring and Audit Schedule for March 2019

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1 Water **Bird**	2
3	4 Water	5 **Bird** 24-hr TSP 1-hr TSP Noise Monitoring	6 Water *	7 *	8 Water	9
10	11 Water 24-hr TSP 1-hr TSP Noise Monitoring	12 **Bird**	13 Water **Dragonfly & Butterfly**	14 * **Herpetofauna**	15 Water **Landscape** 24-hr TSP 1-hr TSP @	16
17	18 Water	19 **Bird**	20 Water **Water Quality Monitoring (additional)**	21 * 24-hr TSP 1-hr TSP Noise Monitoring	22 Water **Water Quality Monitoring (additional)**	23
24	25 Water	26 **Bird**	27 Water 24-hr TSP 1-hr TSP Noise Monitoring	28 *	29 Water	30
31						

* Site Audit by Mott MacDonald (MM)

@ Report Submission (Monthly EM&A Report)

Ecological Surveys & Landscape Audits indicated in **bold font**

8.4 Conclusions and Recommendations

8.4.1 Conclusions

The EM&A programme as recommended in the EM&A manual has been undertaken in the reporting month since 12 May 2010.

Monitoring of Air Quality, Noise, Water Quality, Ecology and Landscape and Visual impacts due to the Project was under way. In particular, the 1-hr TSP, 24-hr TSP, noise level (as L_{eq}) and water quality parameters (such as pH, DO, turbidity and SS) under monitoring have been checked against established Action and Limit levels.

There was no breach of Action or Limit levels for Air Quality (1-hr TSP and 24-hr TSP) and Noise level (as L_{eq}) in the reporting month.

During February 2019, a total of two Limit Level exceedances were observed. One Limit Level exceedance of turbidity and one Limit Level exceedance of SS were recorded at MP3.

However, since no project-related activity was identified which may have caused the recorded exceedances during the reporting month, it is concluded that the exceedances were likely to be

due to external factors such as pond fish culture activities and localised natural variations affecting the vicinity in general.

8.4.2 Recommendations

With considerations on the construction activities and environment, the following recommendations were provided:

Air Quality

- All stockpiles should be covered by tarpaulin or kept wet by water spraying;
- All vehicles should be washed to remove any dusty materials before leaving the construction sites;
- The portion of road leading the construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;
- During the dry season, sufficient water spraying should be provided at haul road to reduce dust emission; and
- Ensure proper functioning of the wheel wash facility.

Noise

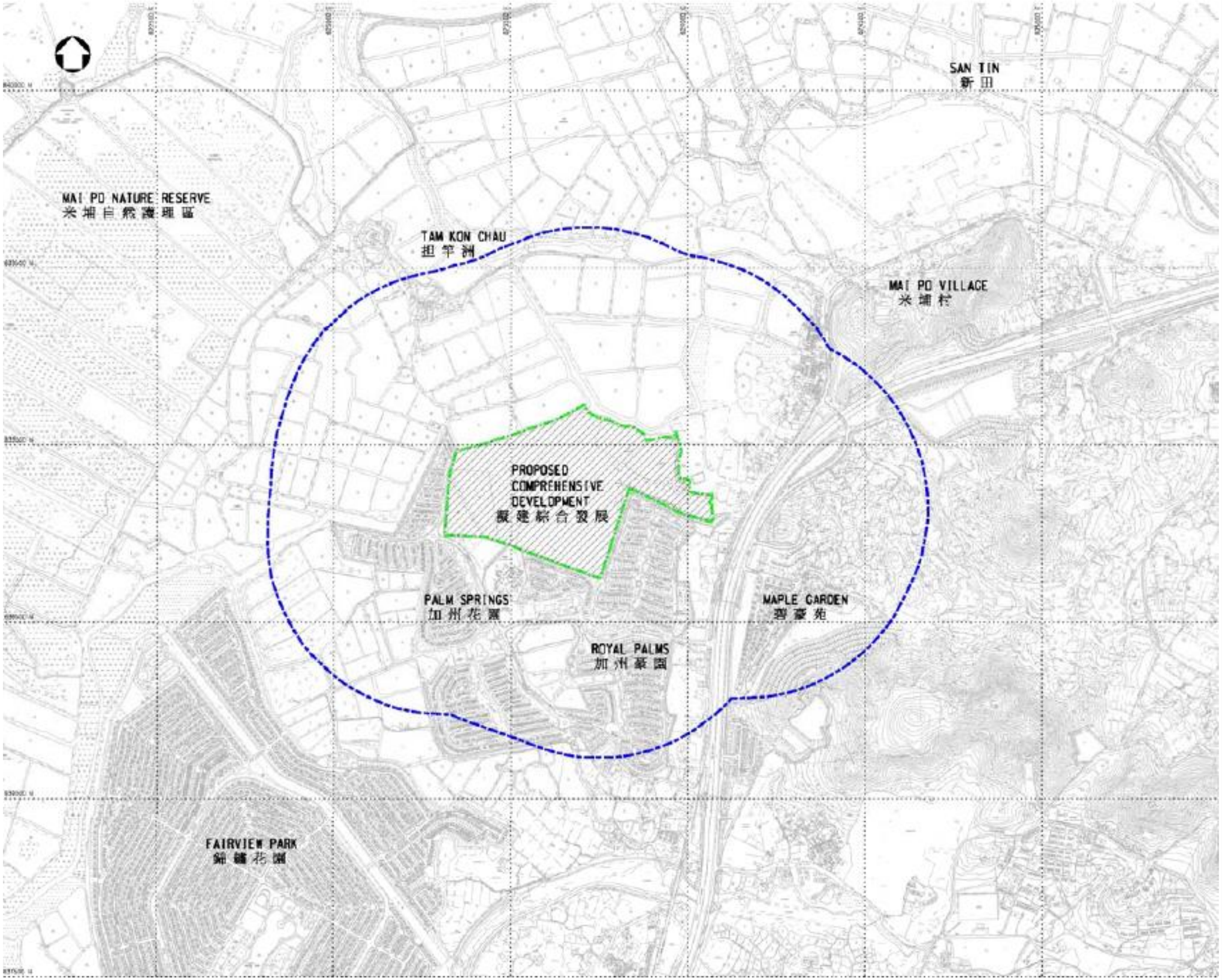
- Mobile plant should be sited as far away from NSRs as possible;
- Plant known to emit noise strongly in one direction should be orientated to direct noise away from the NSRs; and
- The construction activities should be better scheduled to reduce noise nuisance.

Water Quality

- Effluent should be discharged in accordance with the discharge licence conditions;
- Soil contaminated with chemicals/oils should be removed from site and the voids should be created filled with suitable materials; and
- Silt and debris should be removed from the temporary drainage channel regularly.

Waste Management

- General refuse should be stored in enclosed bins or compaction units separate from C&D and chemical wastes to minimise odour, pest and litter impacts.
- Reuse the excavated materials as far as practical to reduce the amount of waste disposal;
- C&D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal;
- Ensure drip trays are provided for chemical containers to prevent leakage or soil contamination;
- All plants and vehicles should be properly maintained to prevent oil leakage; and
- Oil stains on soil should be cleared by disposal of contaminated soil.



Notes

Key to symbols

Site Boundary

500m Assessment Area

Proposed Comprehensive Development

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd

MOTT MACDONALD

20/F AIA Kowloon Tower
Landmark East
100 How Ming Street
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W mottmac.com

Client

PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

General Layout Plan of the Project Site

Designed			Eng check		
Drawn			Coordination		
Dwg check			Approved		
Scale at A1		Status		Rev	

Drawing Number

Figure 1.1

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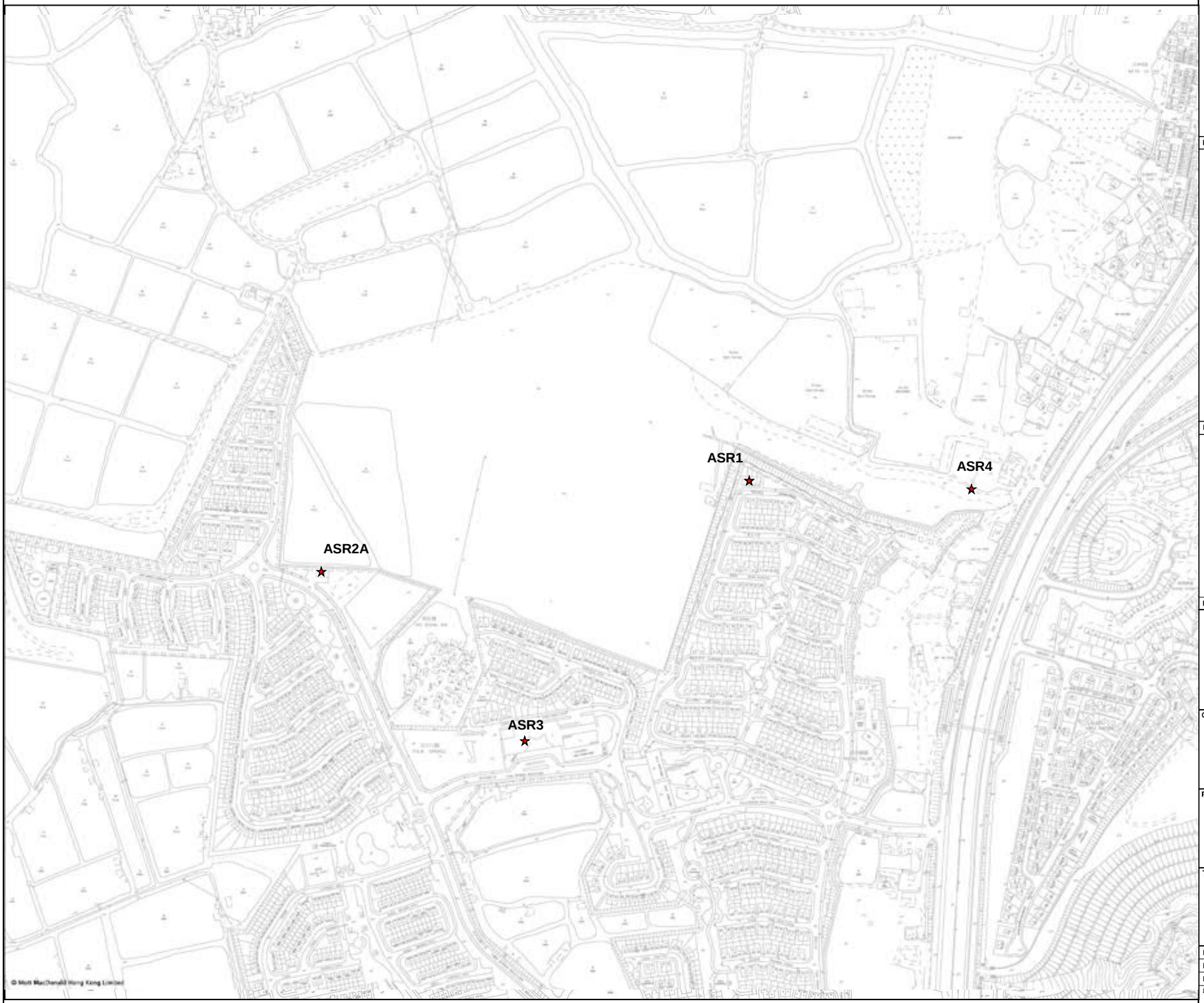

Notes

Key to symbols

★ Construction Phase Air Quality Monitoring Locations

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd

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20/F AIA Kowloon Tower
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PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

Locations of Air Quality Monitoring Stations

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Figure 2.1

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Notes

Key to symbols

● Construction Phase Noise Monitoring Stations

Reference drawings

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PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI, YUEN LONG

Title

Locations of Noise Monitoring Stations

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Drawing Number

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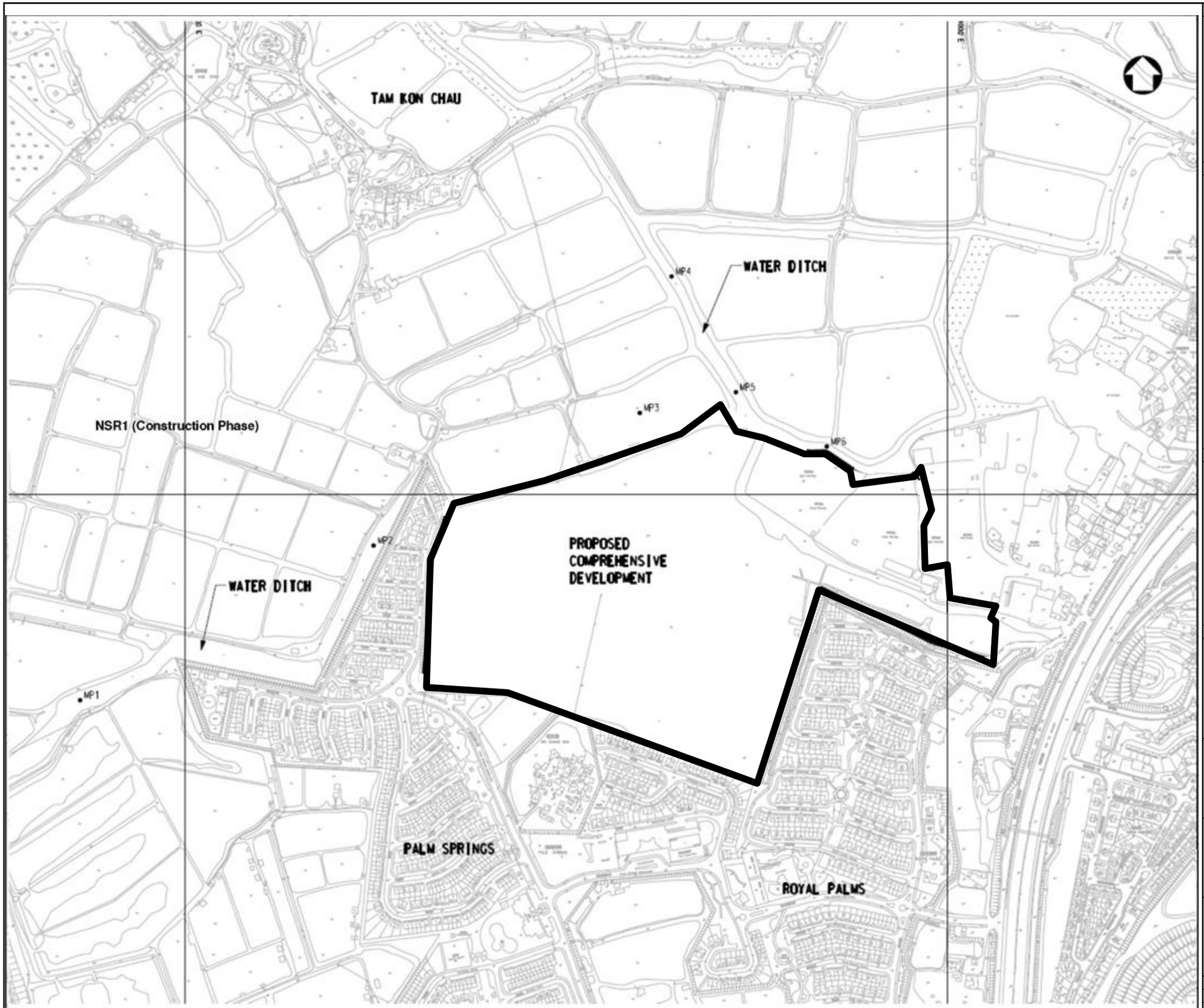

Notes

Key to symbols

- Water Quality Monitoring Stations
- Site Boundary

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd

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Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

Locations of Water Quality Monitoring Stations

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Drawing Number

Figure 2.3

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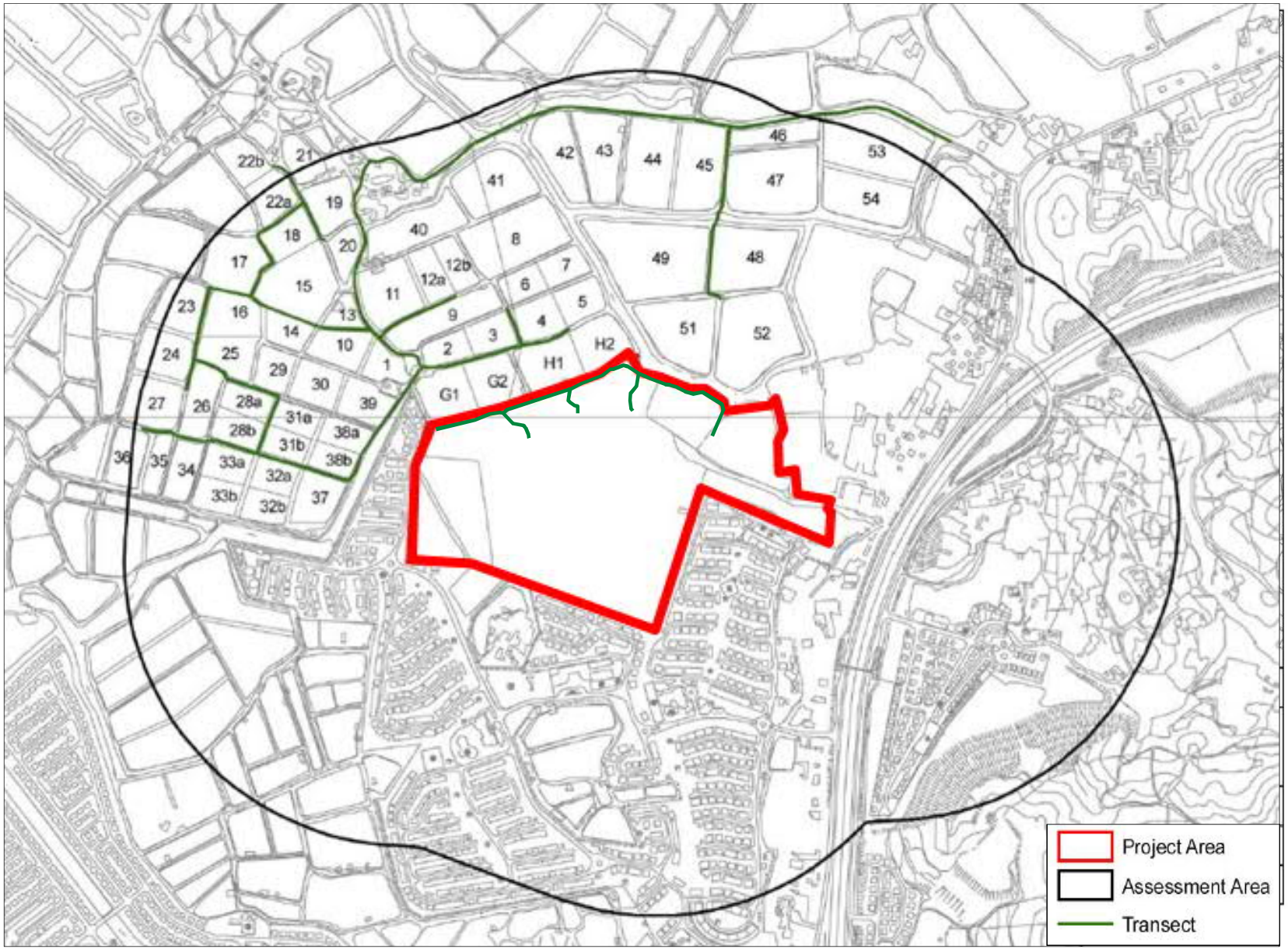

Notes

Key to symbols

Project Area
Assessment Area
Transect

Reference drawings

Rev	Date	Drawn	Description	Ch'k'd	App'd

MOTT MACDONALD

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PROFIT POINT ENTERPRISES LIMITED

Project

PROPOSED COMPREHENSIVE DEVELOPMENT
AT WO SHANG WAI, YUEN LONG

Title

Survey Area and Transect Walked

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Drawn			Coordination		
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Drawing Number

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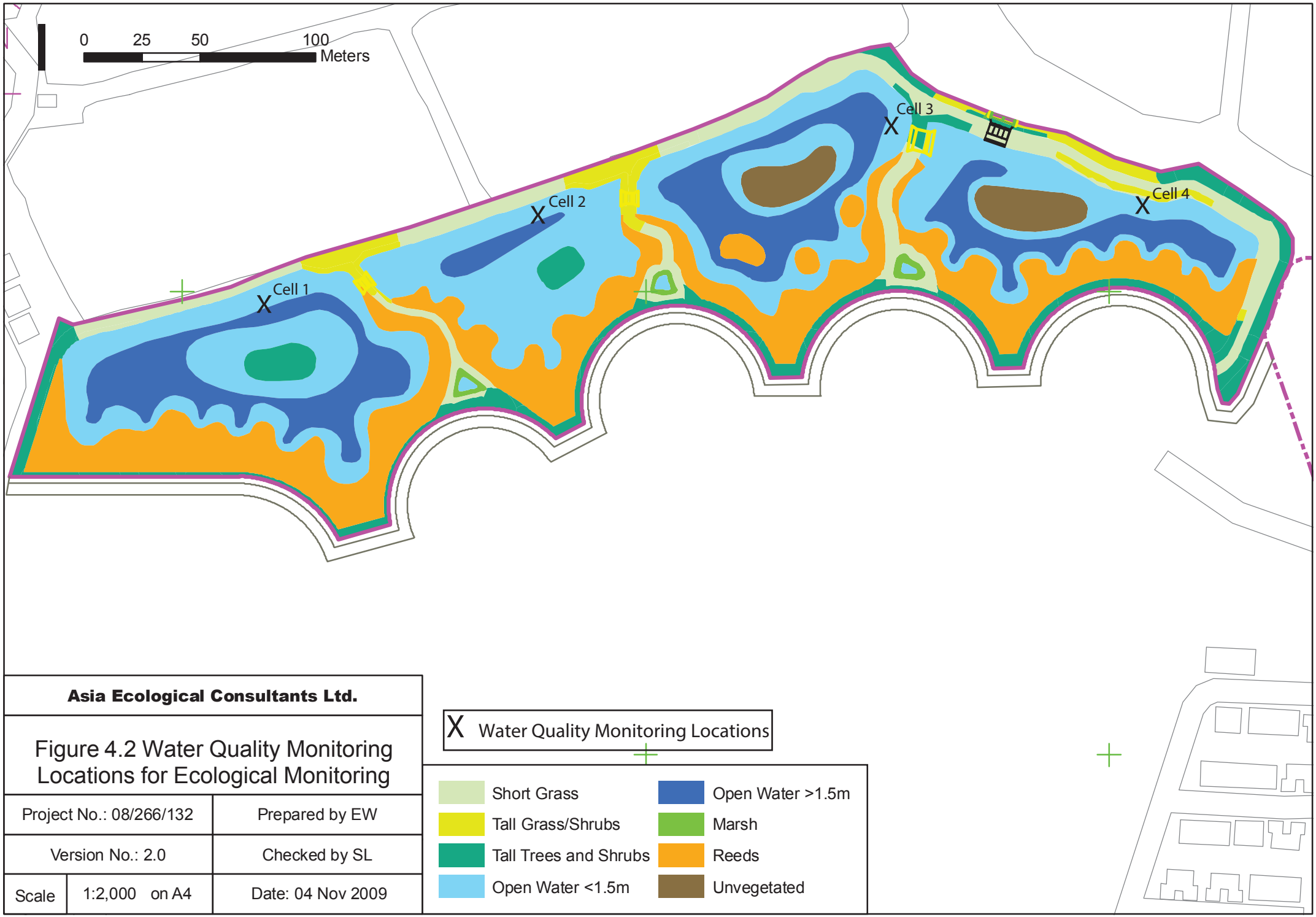

Asia Ecological Consultants Ltd.

Figure 4.2 Water Quality Monitoring Locations for Ecological Monitoring

Project No.: 08/266/132		Prepared by EW
Version No.: 2.0		Checked by SL
Scale	1:2,000 on A4	Date: 04 Nov 2009

Appendices

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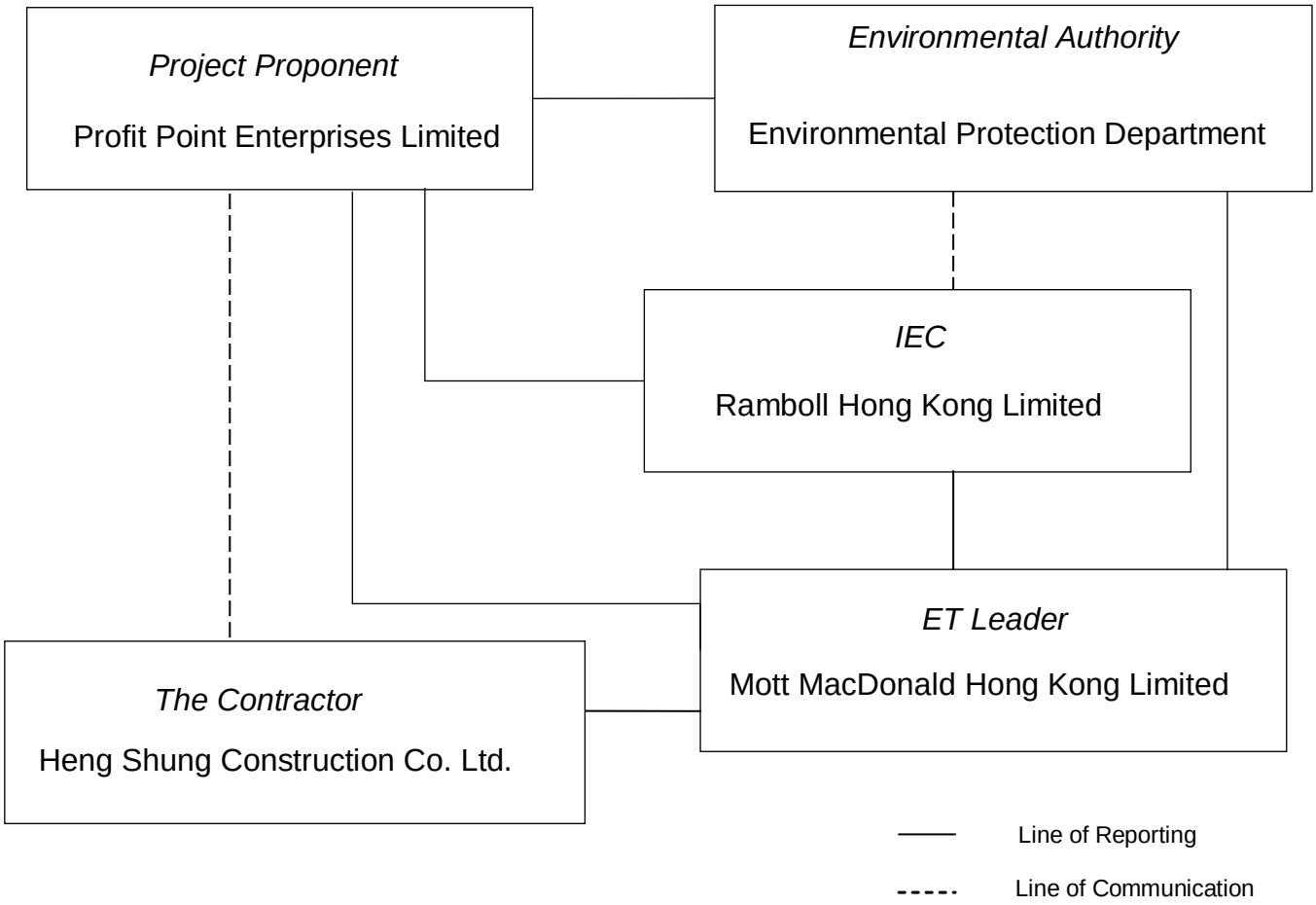
A. Project Organization Chart



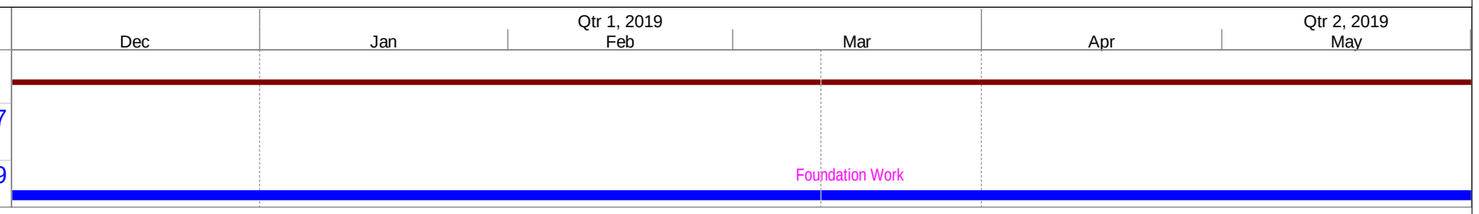
Contact information:

Company	Position	Name	Telephone
Profit Point Enterprises Limited (Project Proponent)	Project Manager	Mr. Kelvin Lau	2908 8114
Heng Shung Construction Co. Ltd. (The Contractor)	Construction Manager	Mr. Joe Chan	2908 2260
	Site Agent	Mr. Wong Shun Wah	9588 8848
	Senior Safety and Environment Officer	Mr. Lun Ho Yin	9866 7497
Ramboll Hong Kong Limited (Independent Environmental Checker (IEC))	Independent Environmental Checker	Mr. David Yeung	3465 2888
Mott MacDonald Hong Kong Ltd. (Environmental Team (ET))	Environmental Team Leader	Mr. Sunny Chan	2828 5962

B. Tentative Construction Programme

Wo Shang Wai Construction Works Programme (Including TOA)

ID	Task Name	Working	Start	Finish
0	**Wo Shang Wai Construction Phase**	**3697 days**	**Wed 13/01/10**	**Fri 31/12/21**
5	Site Formation	2153 days	Mon 03/01/11	Sun 31/12/17
6	Foundation Work	467 days	Tue 02/01/18	Sun 30/06/19



Project : Wo Shang Wai
Revision : I
Print Date : Tue 12/03/19

Task		Inactive Milestone		Manual Summary Rollup	
Milestone		Inactive Summary		Manual Summary	
Summary		Manual Task		Start-only	
Inactive Task		Duration-only		Finish-only	

C. Action and Limit Levels for Construction Phase

Air Quality

Action and Limit Levels for 24-hour TSP

Monitoring Station	Action Level (μg/m³)	Limit Level (μg/m³)
ASR1	226	260
ASR2A	213	260
ASR3	205	260
ASR4	237	260

Action and Limit Levels for 1-hour TSP

Monitoring Station	Action Level (μg/m³)	Limit Level (μg/m³)
ASR1	378	500
ASR2A	357	500
ASR3	358	500
ASR4	372	500

Noise

Action and Limit Levels for Construction Noise

Time Period	Action Level	Limit Level
NSR1, NSR3, NSR5, NSR7		
0700 – 1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75 dB(A)

Water Quality

Action and Limit Levels for Water Quality

Parameters	DO in mg/L		Turbidity in NTU		SS in mg/L		pH	
	Action Level	Limit Level	Action Level	Action Level	Action Level	Limit Level	Action Level	Limit Level
MP1	1.23	1.17	173	177	231	299	< 5.5 or > 7.5	< 4.0 or > 8.0
MP2	1.04	0.89	132	163	170	209		
MP3	6.85	6.65	64	67	65	66		
MP4	3.91	3.82	60	64	50	53		
MP5	4.13	3.87	81	84	66	69		
MP6	4.61	4.52	94	96	75	75		

D. Event and Action Plan for Air Quality, Noise, Water Quality and Landscape & Visual

Air Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform IEC and ER. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET. 2. Check Contractor's working method.	1. Notify Contractor.	1. Rectify any unacceptable practice. 2. Amend working methods if appropriate.
2. Exceedance for two or more consecutive samples	1. Identify the source. 2. Inform IEC and ER. 3. Advise ER on the effectiveness of the proposed remedial measures 4. Repeat measurements to confirm findings. 5. Increase monitoring frequency to daily. 6. Discuss with IEC and the Contractor on remedial actions required. 7. If exceedance continues, arrange meeting with IEC and ER. 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET. 2. Check the Contractor's working method. 3. Discuss with ET Leader and the Contractor on possible remedial measures. 4. Advise ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	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				
1. Exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures. 2. Inform ER and EPD. 3. Repeat measurement to confirm finding. 4. Increase monitoring frequency to daily. 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET. 2. Check the Contractor's working method. 3. Discuss with ET Leader and the Contractor on possible remedial measures. 4. Advise ER on the effectiveness of the proposed remedial measures. 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Ensure remedial measures properly implemented.	1. Take 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. Amend proposal if appropriate.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Notify IEC, ER, EPD and the Contractor. 2. Identify the source. 3. Repeat measurements to confirm findings. 4. Increase monitoring frequency to daily. 5. Carry out analysis of the Contractor's working procedures to determine possible mitigation to be implemented. 6. Arrange meeting IEC and ER to discuss the remedial actions to be taken. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. In consultation with IEC, agree with the remedial measures to be implemented. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by ER until the exceedance is abated.

Construction Noise

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level	1. Notify IEC and the Contractor. 2. Carry out investigation. 3. Report the results of investigation to IEC and the Contractor. 4. Discuss with the Contractor and formulate remedial measures. 5. Increase monitoring frequency to check mitigation measures.	1. Review with analysed results submitted by ET. 2. Review the proposed remedial measures by the Contractor and advise ER accordingly. 3. Supervise the implement of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented.	1. Submit noise mitigation proposals to IEC. 2. Implement noise mitigation proposals.
Limit Level	1. Identify the source. 2. Notify IEC, ER, EPD and the Contractor. 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 the causes & actions taken for the exceedances. 7. Assess effectiveness of the Contractor's remedial actions and keep IEC, EPD and ER informed of the results. 8. If exceedance stops, cease additional monitoring.	1. Discuss amongst ER, ET Leader and the Contractor on the potential remedial actions. 2. Review the Contractor's remedial actions whenever necessary to assure their effectiveness and advise ER accordingly. 3. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of exceedance in writing. 2. Notify the Contractor. 3. Require the Contractor to propose remedial measures for the analysed noise problem. 4. Ensure remedial measures are properly implemented. 5. If exceedance continues, consider what activity of the work is responsible and instruct the Contractor to stop that activity of work until the exceedance is abated.	1. Take immediate action to avoid further exceedance. 2. Submit proposals for remedial actions to IEC within 3 working days of notification. 3. Implement the agreed proposals. 4. Resubmit proposals if problem still not under control. 5. Stop the relevant activity of works as determined by the ER until the exceedance is abated.

Water Quality

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
1. Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) 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; and 6. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC on the proposed mitigation measures; and 2. Make agreement on the mitigation measures to be implemented.	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; and 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) 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 daily; and 8. Repeat measurement on next day of exceedance.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 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; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Engineer 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; and 6. Implement the agreed mitigation measures.
Limit Level				
1. Exceedance for one sample	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) 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; and 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; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 2. Request Contractor to critically review the working methods; 3. Make agreement on the mitigation measures to be implemented; and 4. Assess the effectiveness of the implemented mitigation measures.	1. Inform the Engineer 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 ER and propose mitigation measures to IEC and ER within 3 working days; and 6. Implement the agreed mitigation measures.

Event	Action			
	ET Leader	IEC	ER	Contractor
2. Exceedance for two or more consecutive samples	1. Repeat in-situ measurement to confirm finding; 2. Identify source(s) 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; and 7. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Discuss with ET and Contractor on the mitigation measures; 2. Review proposals on mitigation measures submitted by Contractor and advise the ER accordingly; and 3. Assess the effectiveness of the implemented mitigation measures.	1. Discuss with IEC, ET and Contractor on the proposed mitigation measures; and 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; and 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.	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 ER and propose mitigation measures to IEC and ER within 3 working days; 6. Implement the agreed mitigation measures; and 7. As directed by the Engineer, to slow down or to stop all or part of the marine work or construction activities.

Landscape and Visual

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level				
Non-conformity on one occasion	1. Identify Source; 2. Inform the IEC and the ER; 3. Discuss remedial actions with the IEC, the ER and the Contractor; and 4. Monitor remedial actions until rectification has been completed.	1. Check report; 2. Check the Contractor's working method; 3. Discuss with the ES and the contractor on possible remedial measures; 4. Advise the ER on effectiveness of proposed remedial measures; and 5. Check implementation of remedial measures.	1. Notify Contractor; and 2. Ensure remedial measures are properly implemented	1. Amend working methods; and 2. Rectify damage and undertake any necessary replacement

Event	Action			
Repeated Non-conformity	1. Identify Source; 2. Inform the Project Proponent, IEC and the ER. If serious non-compliance inform EPD; 3. Increase monitoring frequency; 4. Discuss remedial actions with the IEC, the ER and the Contractor; 5. Monitor remedial actions until rectification has been completed; and 6. If exceedance stops, cease additional monitoring.	1. Check monitoring report; 2. Check the Contractor's working method; 3. Discuss with the ES and the Contractor on possible remedial measures; 4. Advise the ER on effectiveness of proposed remedial measures; and 5. Supervise implementation of remedial measures.	1. Notify the Contractor; and 2. Ensure remedial measures are properly implemented.	1. Amend working methods; and 2. Rectify damage and undertake any necessary replacement.

E. Calibration Certificates

Appendix E

Calibration Record

(Air Quality Monitoring)

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

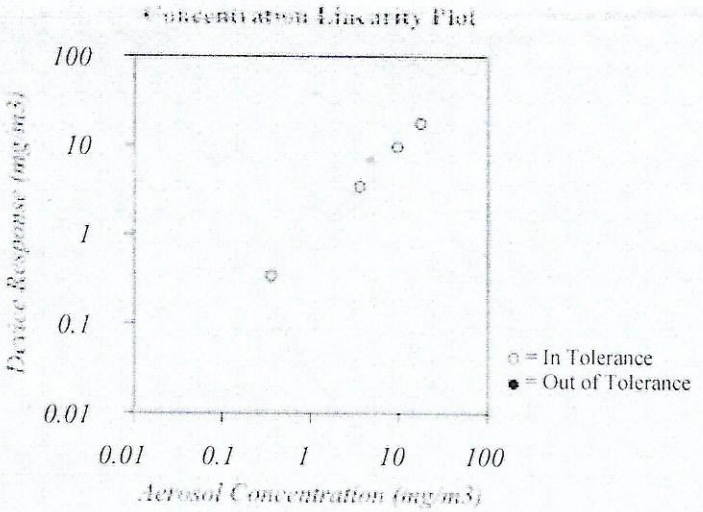
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	74.14 (23.4)	°F (°C)
Relative Humidity	46.0	%RH
Barometric Pressure	29.09 (985.1)	inHg (hPa)

Model	**AM510**
Serial Number	**11011005**

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance



System ID: DTH01-02

CONCENTRATION *Unit: mg/m3*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	9.539	9.700	8.585~10.493	3	3.542	3.507	2.479~4.605
2	0.354	0.334	0.301~0.407	4	17.151	17.681	15.436~18.866

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 4:1

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005409	10-19-17	10-31-18	Temp/Humidity	E005410	10-19-17	10-31-18
DC Voltage	E003314	05-02-18	05-31-19	DC Voltage	E003315	05-17-18	05-31-19
Photometer	E003319	07-31-18	01-31-19	Microbalance	M001324	11-02-16	11-30-18
Pressure	E003511	10-02-17	10-31-18	Flowmeter	E002471	04-16-18	04-30-19

Ton Vang
Calibrated

August 2, 2018
Date

CERTIFICATE OF CALIBRATION AND TESTING

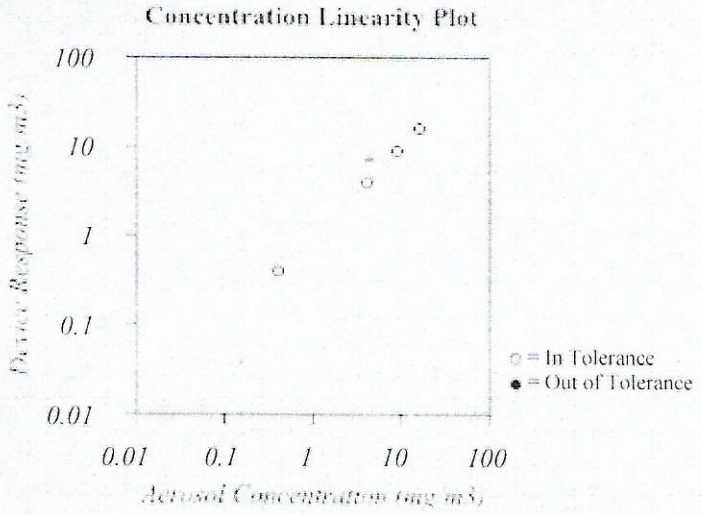
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	74.3 (23.5)	°F (°C)
Relative Humidity	52	%RH
Barometric Pressure	29.08 (984.8)	inHg (hPa)

Model	AM510
Serial Number	11404015

☒ As Left ☐ As Found

☒ In Tolerance ☐ Out of Tolerance



System ID: DTH01-02

CONCENTRATION *Unit: mg/m3*

#	STANDARD	MEASURED	ALLOWABLE RANGE	#	STANDARD	MEASURED	ALLOWABLE RANGE
1	9.119	9.110	8.207~10.031	3	4.077	3.997	2.854~5.300
2	0.404	0.392	0.343~0.465	4	15.985	15.985	14.386~17.584

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 4:1.

Measurement Variable	System ID	Last Cal.	Cal. Due	Measurement Variable	System ID	Last Cal.	Cal. Due
Temp/Humidity	E005409	10-19-17	10-31-18	Temp/Humidity	E005410	10-19-17	10-31-18
DC Voltage	E003314	05-02-18	05-31-19	DC Voltage	E003315	05-17-18	05-31-19
Photometer	E003319	07-31-18	01-31-19	Microbalance	M001324	11-02-16	11-30-18
Pressure	E003511	10-02-17	10-31-18	Flowmeter	E002471	04-16-18	04-30-19

Bailey Parsons
Calibrated

August 6, 2018
Date

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR1
Calibrated by : W.Y.Tam
Date : 02/01/2019

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0816

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 19 Mar 2018
Slope (m) : 2.05242
Intercept (b) : -0.01383
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1017
Ta(K) : 292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	12.6	3.593	1.757	57	57.70
2	13 holes	9.3	3.087	1.511	50	50.61
3	10 holes	6.8	2.640	1.293	42	42.51
4	7 holes	4.2	2.074	1.017	36	36.44
5	5 holes	2.9	1.724	0.847	29	29.35

Sampler Calibration Relationship

Slope(m):30.476 Intercept(b):-4.167 Correlation Coefficient(r): 0.9967

Checked by: Magnum Fan Date: 04/01/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR2A
Calibrated by : W.Y.Tam
Date : 02/01/2019

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0890

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 19 Mar 2018
Slope (m) : 2.05242
Intercept (b) : -0.01383
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1017
Ta(K) : 292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	13.0	3.650	1.784	57	57.70
2	13 holes	10.2	3.233	1.582	50	50.61
3	10 holes	7.5	2.772	1.357	46	46.56
4	7 holes	4.8	2.218	1.087	37	37.45
5	5 holes	2.6	1.632	0.802	26	26.32

Sampler Calibration Relationship

Slope(m):31.025 Intercept(b):2.692 Correlation Coefficient(r): 0.9939

Checked by: Magnum Fan Date: 04/01/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR3
Calibrated by : W.Y.Tam
Date : 02/01/2019

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 0764

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 19 Mar 2018
Slope (m) : 2.05242
Intercept (b) : -0.01383
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1017
Ta(K) : 292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	13.1	3.664	1.792	60	60.73
2	13 holes	10.3	3.249	1.590	52	52.64
3	10 holes	7.2	2.716	1.330	46	46.56
4	7 holes	4.4	2.123	1.041	36	36.44
5	5 holes	2.9	1.724	0.847	28	28.34

Sampler Calibration Relationship

Slope(m):33.105 Intercept(b):1.248 Correlation Coefficient(r): 0.9965

Checked by: Magnum Fan Date: 04/01/2019

High-Volume TSP Sampler
5-Point Calibration Record

Location : ASR4
Calibrated by : W.Y.Tam
Date : 02/01/2019

Sampler
Model : GMWS-2310 ACCU-VOL
Serial Number : S/N 1043

Calibration Orifice and Standard Calibration Relationship
Serial Number : 2454
Service Date : 19 Mar 2018
Slope (m) : 2.05242
Intercept (b) : -0.01383
Correlation Coefficient(r) : 0.99994

Standard Condition
Pstd (hpa) : 1013
Tstd (K) : 298.18

Calibration Condition
Pa (hpa) : 1017
Ta(K) : 292

Resistance Plate		dH [green liquid] (inch water)	Z	X=Qstd (cubic meter/min)	IC	Y
1	18 holes	13.2	3.678	1.799	58	58.71
2	13 holes	9.7	3.153	1.543	49	49.60
3	10 holes	7.2	2.716	1.330	45	45.55
4	7 holes	4.6	2.171	1.064	36	36.44
5	5 holes	3.0	1.753	0.861	29	29.35

Sampler Calibration Relationship

Slope(m): 30.566 Intercept(b): 3.063 Correlation Coefficient(r): 0.9967

Checked by: Magnum Fan Date: 04/01/2019

Appendix E

Calibration Record

(Noise Monitoring)

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C186446
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-2352) Date of Receipt / 收件日期 : 14 November 2018

Description / 儀器名稱 : Acoustic Calibrator
Manufacturer / 製造商 : Casella
Model No. / 型號 : CEL-120/1
Serial No. / 編號 : 3421612
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 24 November 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- The Bruel & Kjaer Calibration Laboratory, Denmark
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Engineer

Date of Issue 簽發日期 : 27 November 2018

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C186446
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.

2. The results presented are the mean of 3 measurements at each calibration point.

3. Test equipment :

Equipment ID	Description	Certificate No.
CL130	Universal Counter	C183775
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C181288

4. Test procedure : MA100N.

5. Results :

5.1 Sound Level Accuracy

UUT Nominal Value	Measured Value (dB)	Mfr's Spec. (dB)	Uncertainty of Measured Value (dB)
94 dB, 1 kHz	94.0	± 0.25	± 0.2
114 dB, 1 kHz	114.0		

5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000 0	1 kHz ± 5 Hz	± 0.1

Remark : The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this 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 environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited 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 the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

輝創工程有限公司
Sun Creation Engineering Limited
Calibration & Testing Laboratory

Certificate of Calibration
校正證書

Certificate No. : C182192
證書編號

ITEM TESTED / 送檢項目 (Job No. / 序引編號 : IC18-0729) Date of Receipt / 收件日期 : 6 April 2018

Description / 儀器名稱 : Sound Level Meter
Manufacturer / 製造商 : Rion
Model No. / 型號 : NL-52
Serial No. / 編號 : 00331806
Supplied By / 委託者 : Envirotech Services Co.
Room 113, 1/F, My Loft, 9 Hoi Wing Road, Tuen Mun,
New Territories, Hong Kong

TEST CONDITIONS / 測試條件

Temperature / 溫度 : (23 ± 2)°C
Relative Humidity / 相對濕度 : (50 ± 25)%
Line Voltage / 電壓 : ---

TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 28 April 2018

TEST RESULTS / 測試結果

The results apply to the particular unit-under-test only.
The results do not exceed manufacturer's specification.
The results are detailed in the subsequent page(s).

The test equipment used for calibration are traceable to National Standards via :
- The Government of The Hong Kong Special Administrative Region Standard & Calibration Laboratory
- Agilent Technologies / Keysight Technologies
- Rohde & Schwarz Laboratory, Germany
- Fluke Everett Service Center, USA

Tested By 測試 : H T Wong
Technical Officer

Certified By 核證 : K C Lee
Engineer

Date of Issue 簽發日期 : 3 May 2018

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C182192
證書編號

1. The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours, and switched on to warm up for over 10 minutes before the commencement of the test.

2. Self-calibration was performed before the test.

3. The results presented are the mean of 3 measurements at each calibration point.

4. Test equipment :

Equipment ID	Description	Certificate No.
CL280	40 MHz Arbitrary Waveform Generator	C180024
CL281	Multifunction Acoustic Calibrator	PA160023

5. Test procedure : MA101N.

6. Results :

6.1 Sound Pressure Level

6.1.1 Reference Sound Pressure Level

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.4	± 1.1

6.1.2 Linearity

UUT Setting				Applied Value		UUT Reading (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)	
30 - 130	L_A	A	Fast	94.00	1	93.4 (Ref.)
				104.00		103.4
				114.00		113.4

IEC 61672 Class 1 Spec. : ± 0.6 dB per 10 dB step and ± 1.1 dB for overall different.

6.2 Time Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq. (kHz)		
30 - 130	L_A	A	Fast	94.00	1	93.4	Ref.
			Slow			93.4	± 0.3

The test equipment used for calibration are traceable to the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory
c/o 4/F, 1 Hing On Lane, Tuen Mun, New Territories, Hong Kong
輝創工程有限公司 — 校正及檢測實驗所
c/o 香港新界屯門興安里一號四樓
Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Certificate of Calibration
校正證書

Certificate No. : C182192
證書編號

6.3 Frequency Weighting

6.3.1 A-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_A	A	Fast	94.00	63 Hz	67.1	-26.2 ± 1.5
					125 Hz	77.2	-16.1 ± 1.5
					250 Hz	84.7	-8.6 ± 1.4
					500 Hz	90.2	-3.2 ± 1.4
					1 kHz	93.4	Ref.
					2 kHz	94.6	+1.2 ± 1.6
					4 kHz	94.4	+1.0 ± 1.6
					8 kHz	92.4	-1.1 (+2.1 ; -3.1)
					12.5 kHz	89.0	-4.3 (+3.0 ; -6.0)

6.3.2 C-Weighting

UUT Setting				Applied Value		UUT Reading (dB)	IEC 61672 Class 1 Spec. (dB)
Range (dB)	Function	Frequency Weighting	Time Weighting	Level (dB)	Freq.		
30 - 130	L_C	C	Fast	94.00	63 Hz	92.5	-0.8 ± 1.5
					125 Hz	93.2	-0.2 ± 1.5
					250 Hz	93.4	0.0 ± 1.4
					500 Hz	93.4	0.0 ± 1.4
					1 kHz	93.4	Ref.
					2 kHz	93.3	-0.2 ± 1.6
					4 kHz	92.6	-0.8 ± 1.6
					8 kHz	90.5	-3.0 (+2.1 ; -3.1)
					12.5 kHz	87.1	-6.2 (+3.0 ; -6.0)

Remarks :
- UUT Microphone Model No. : UC-59 & S/N : 04871
- Mfr's Spec. : IEC 61672 Class 1
- Uncertainties of Applied Value :

94 dB	: 63 Hz - 125 Hz	: ± 0.35 dB
	250 Hz - 500 Hz	: ± 0.30 dB
	1 kHz	: ± 0.20 dB
	2 kHz - 4 kHz	: ± 0.35 dB
	8 kHz	: ± 0.45 dB
	12.5 kHz	: ± 0.70 dB
104 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)
114 dB	: 1 kHz	: ± 0.10 dB (Ref. 94 dB)

- The uncertainties are for a confidence probability of not less than 95 %.

Note :
Only the original copy or the laboratory's certified true copy is valid.

The values given in this 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 environment changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Sun Creation Engineering Limited 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 the Nation Standards as specified in this certificate. This certificate shall not be reproduced except in full, without the prior written approval of this laboratory.
本證書所載校正用之測試器材均可溯源至國際標準。局部複印本證書需先獲本實驗所書面批准。

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Tel/電話: (852) 2927 2606 Fax/傳真: (852) 2744 8986 E-mail/電郵: callab@suncreation.com Website/網址: www.suncreation.com

Appendix E

Calibration Record

(Water Quality Monitoring)

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI010081
Date of Issue : 08 January, 2019

PART A – CUSTOMER INFORMATION

Enovative Environmental Service Ltd.
Flat 2207, Yu Fun House,
Yu Chui Court, Shatin
New Territories, Hong Kong
Attn: Mr. Thomas WONG

PART B – DESCRIPTION

Name of Equipment	:	YSI ProDSS (Multi-Parameters)
Manufacturer	:	YSI (a xylem brand)
Serial Number	:	17E100747
Date of Received	:	Dec 31, 2018
Date of Calibration	:	Dec 31, 2018
Date of Next Calibration[a]	:	Mar 31, 2019

PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H^+ B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Salinity	APHA 21e 2520 B
Turbidity	APHA 21e 2130 B
Temperature	Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

PART D – CALIBRATION RESULTS[b,c]

(1) pH at 25°C

Target (pH unit)	Displayed Reading[d] (pH Unit)	Tolerance[e](pH Unit)	Results
4.00	4.08	0.08	Satisfactory
7.42	7.55	0.13	Satisfactory
10.01	10.17	0.16	Satisfactory

Tolerance of pH should be less than ±0.20 (pH unit)

(2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
8.8	9.2	0.4	Satisfactory
18.0	17.6	-0.4	Satisfactory
39.5	39.3	-0.2	Satisfactory

Tolerance limit of temperature should be less than ±2.0 (°C)

~ CONTINUED ON NEXT PAGE ~

Remark(s): -

[a] *The "Date of Next Calibration" is recommended according to best practice principals as practiced by QPT or quoted form relevant international standards.*
[b] *The results relate only to the calibrated equipment as received*
[c] *The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.*
[d] *"Displayed Reading" denotes the figure shown on item under calibration/ checking regardless of equipment precision or significant figures.*
[e] *The "Tolerance Limit" mentioned is referenced to YSI product specifications.*

APPROVED SIGNATORY: _____
LAM Ho-yee, Emma
Assistant Laboratory Manager

專業化驗有限公司
QUALITY PRO TEST-CONSULT LIMITED
Unit 10, 14/F, Wah Wai Centre, 38-40 Au Pui Wan St., Fotan, Hong Kong
Email: info@qualityprotest.com; Website: www.qualityprotest.com
Tel: (852) 3956 8717; Fax: (852) 3956 3928

REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AI010081
Date of Issue : 08 January, 2019

PART D – CALIBRATION RESULTS (Cont'd)

(3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.41	0.32	-0.09	Satisfactory
5.71	5.63	-0.08	Satisfactory
7.78	7.91	0.13	Satisfactory
9.33	9.23	-0.10	Satisfactory

Tolerance limit of dissolved oxygen should be less than ±0.20 (mg/L)

(4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading (μS/cm)	Displayed Reading (μS/cm)	Tolerance (%)	Results
0.001	146.9	155.4	5.8	Satisfactory
0.01	1412	1366	-3.3	Satisfactory
0.1	12890	12823	-0.5	Satisfactory
0.5	58670	57898	-1.3	Satisfactory
1.0	111900	111575	-0.3	Satisfactory

Tolerance limit of conductivity should be less than ±10.0 (%)

(5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	10.06	0.6	Satisfactory
20	20.02	0.1	Satisfactory
30	30.79	2.6	Satisfactory

Tolerance limit of salinity should be less than ±10.0 (%)

(6) Turbidity

Expected Reading (NTU)	Displayed Reading[f] (NTU)	Tolerance[g] (%)	Results
0	0.22	--	--
10	9.89	-1.1	Satisfactory
20	20.68	3.4	Satisfactory
100	98.82	-1.2	Satisfactory
800	748.91	-6.4	Satisfactory

Tolerance limit of turbidity should be less than ±10.0 (%)

~ END OF REPORT ~

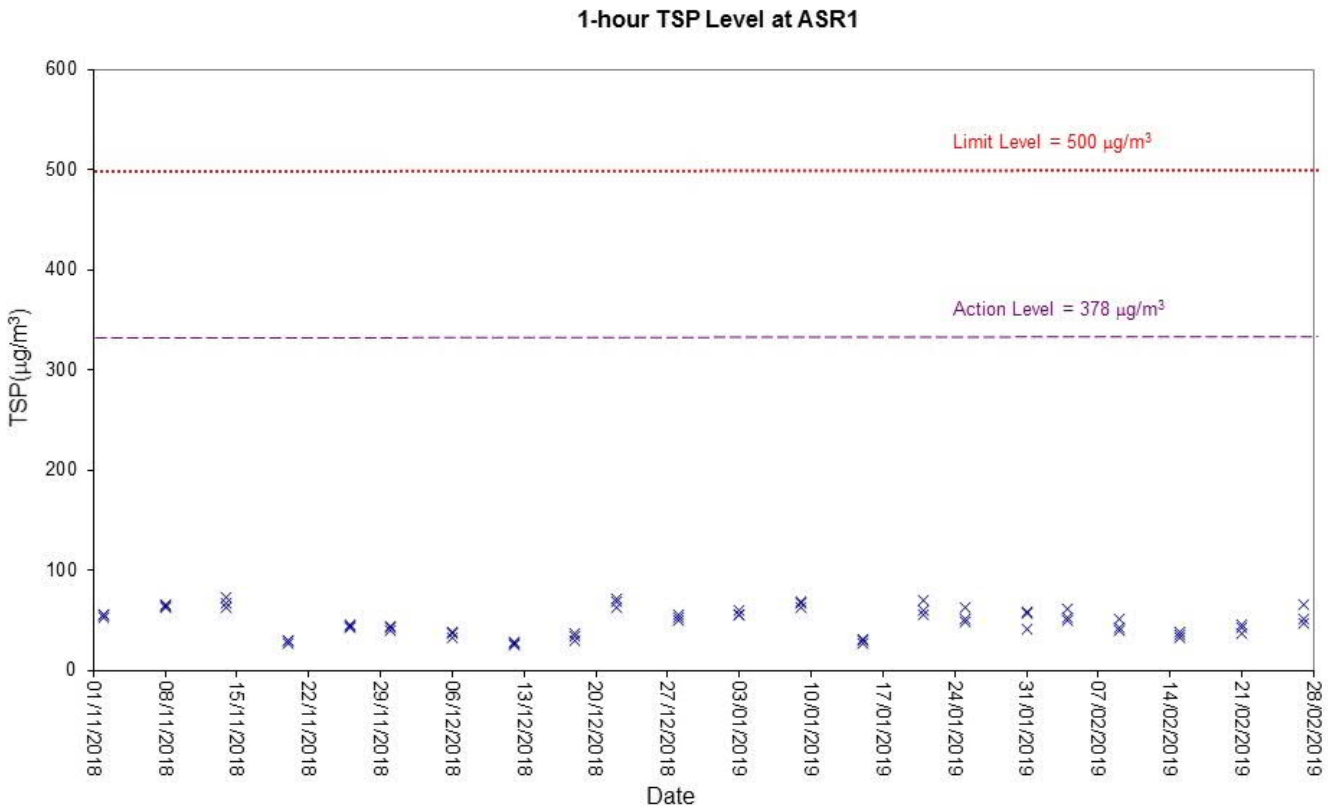
Remark(s): -

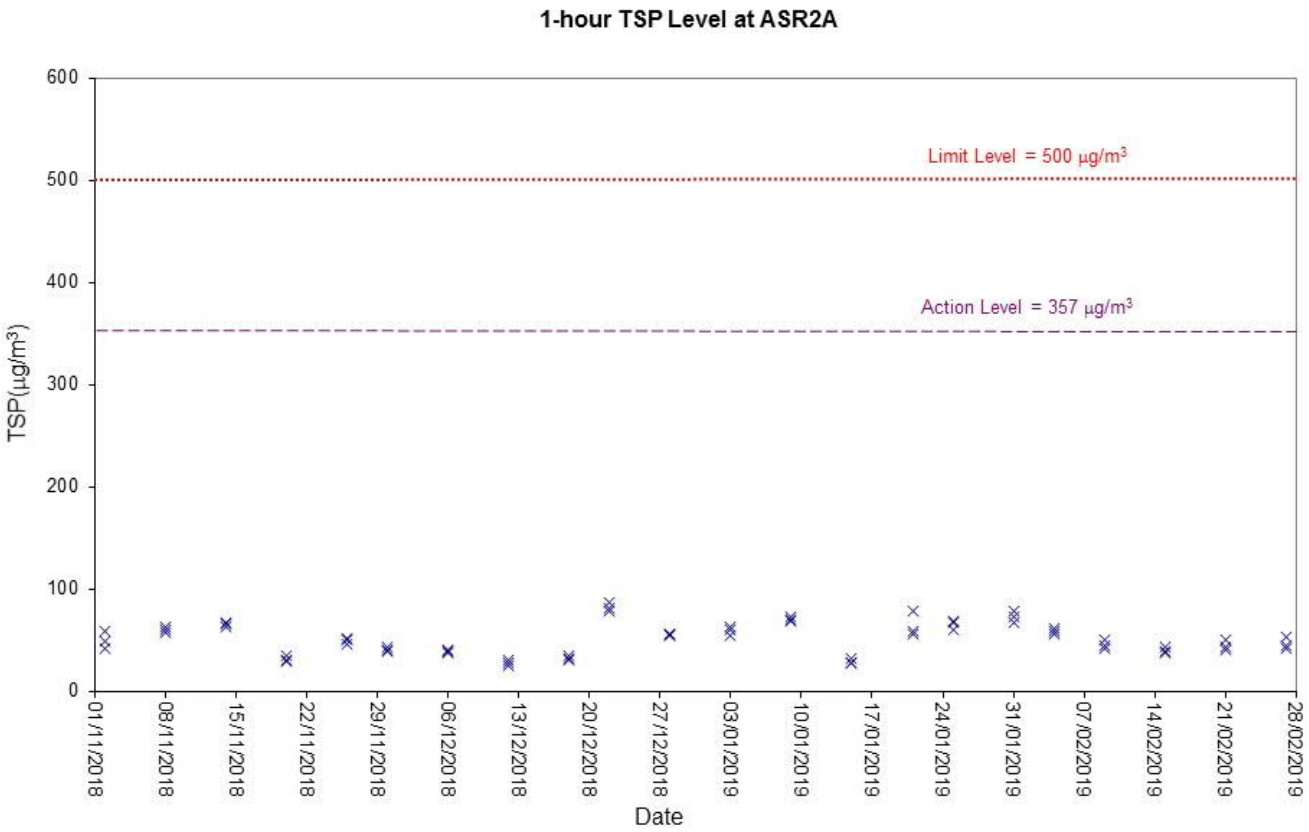
[f] *"Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.*

[g] *The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted form relevant international standards.*

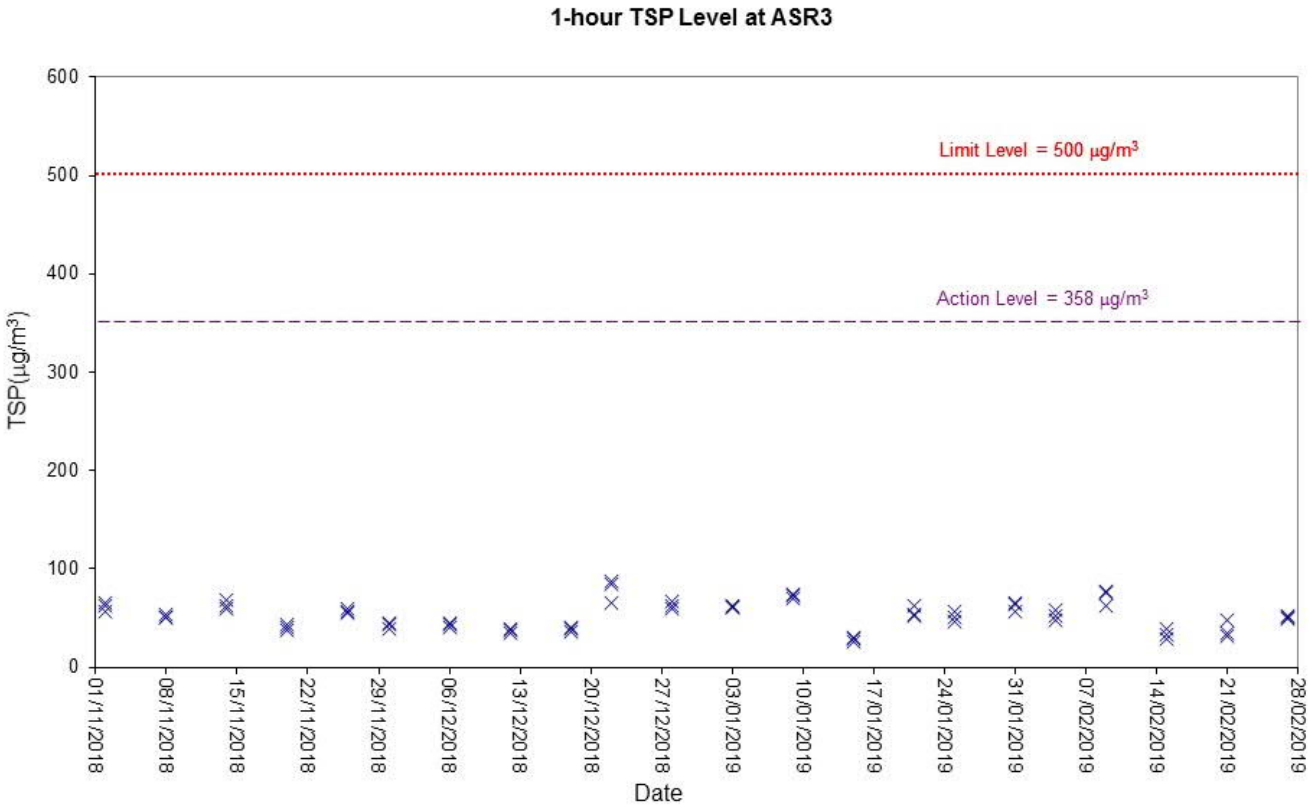
F. Graphical Plots of the Monitoring Results

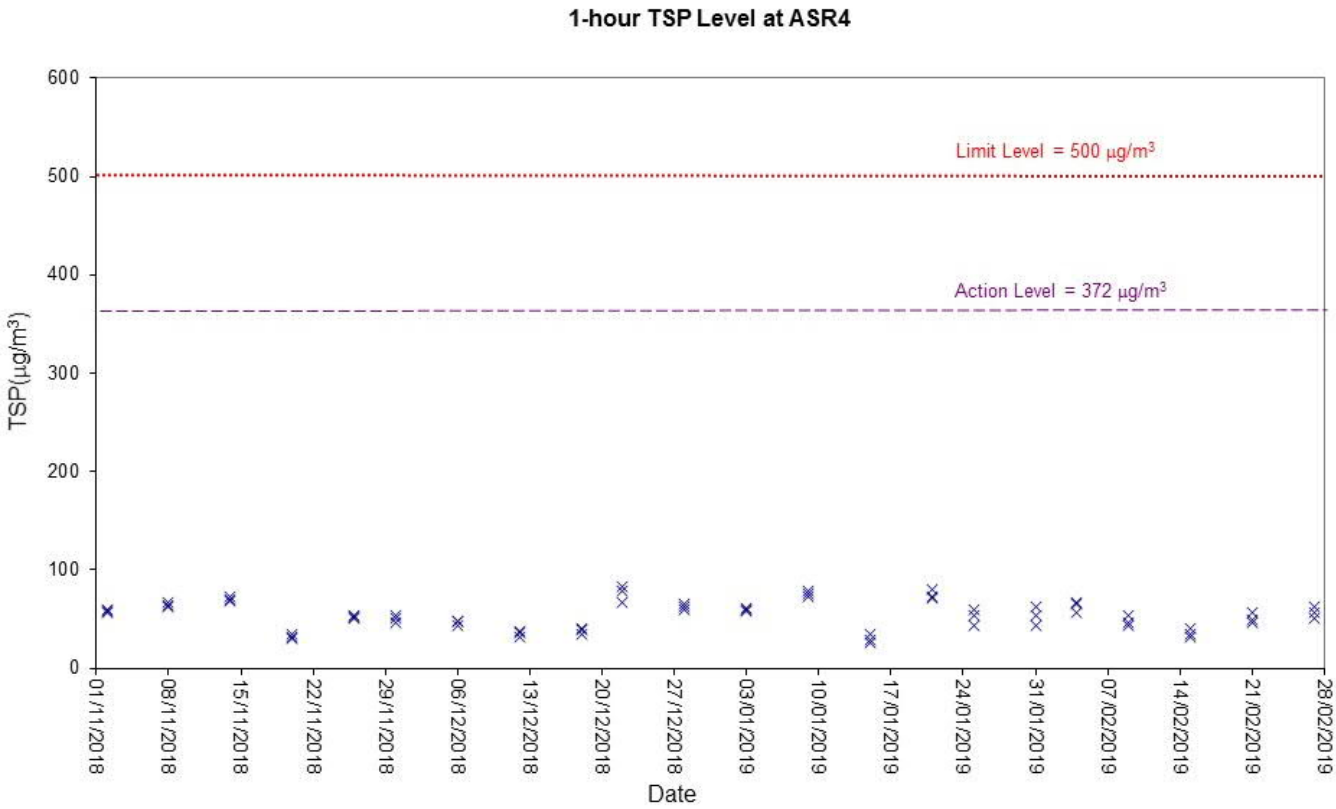
Air Quality


1-hour TSP Level at ASR1
Limit Level = 500 µg/m³
Action Level = 378 µg/m³
TSP(µg/m³)
600
500
400
300
200
100
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
17/01/2019
24/01/2019
31/01/2019
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date

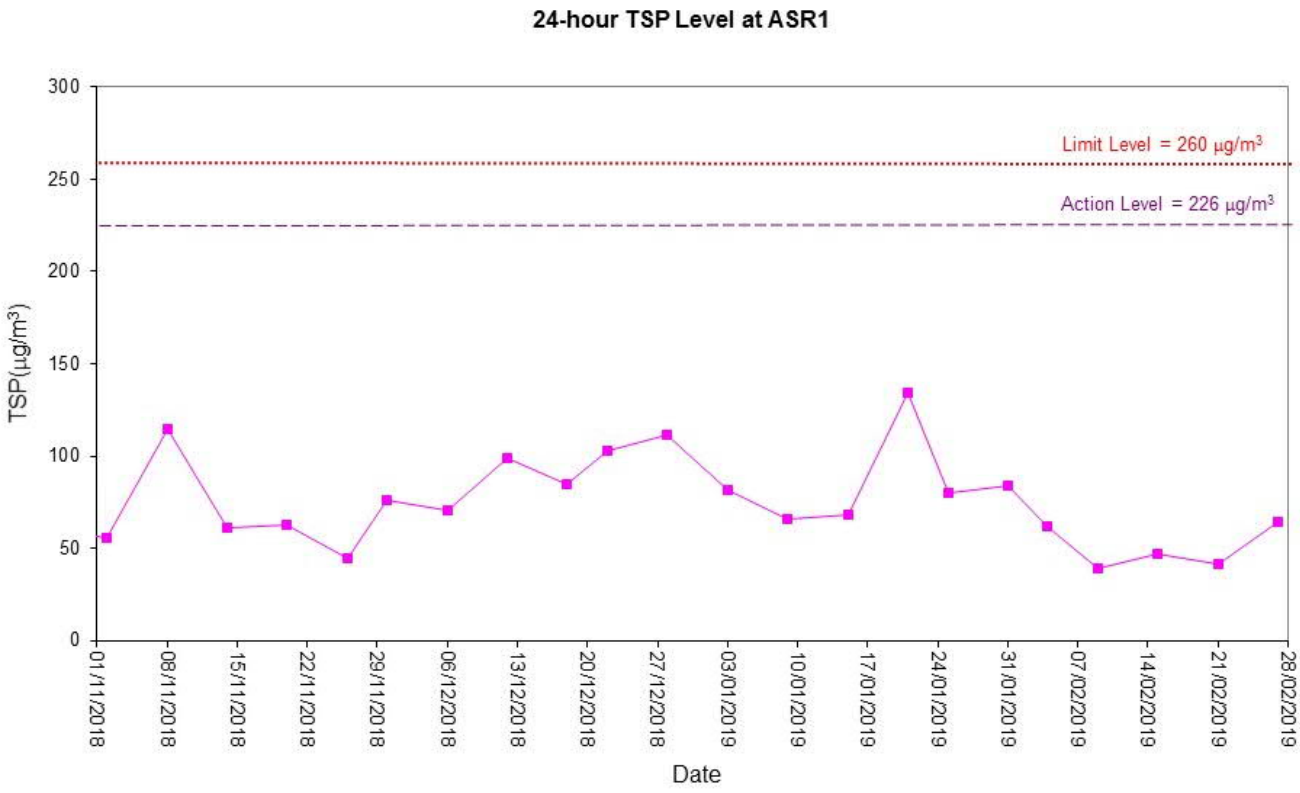

1-hour TSP Level at ASR2A
Limit Level = 500 µg/m³
Action Level = 357 µg/m³
TSP(µg/m³)
600
500
400
300
200
100
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
17/01/2019
24/01/2019
31/01/2019
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date

Air Quality


1-hour TSP Level at ASR3
Limit Level = 500 µg/m³
Action Level = 358 µg/m³
TSP(µg/m³)
600
500
400
300
200
100
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
17/01/2019
24/01/2019
31/01/2019
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date


1-hour TSP Level at ASR4
Limit Level = 500 µg/m³
Action Level = 372 µg/m³
TSP(µg/m³)
600
500
400
300
200
100
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
17/01/2019
24/01/2019
31/01/2019
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date

Air Quality


24-hour TSP Level at ASR1
Limit Level = 260 µg/m³
Action Level = 226 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
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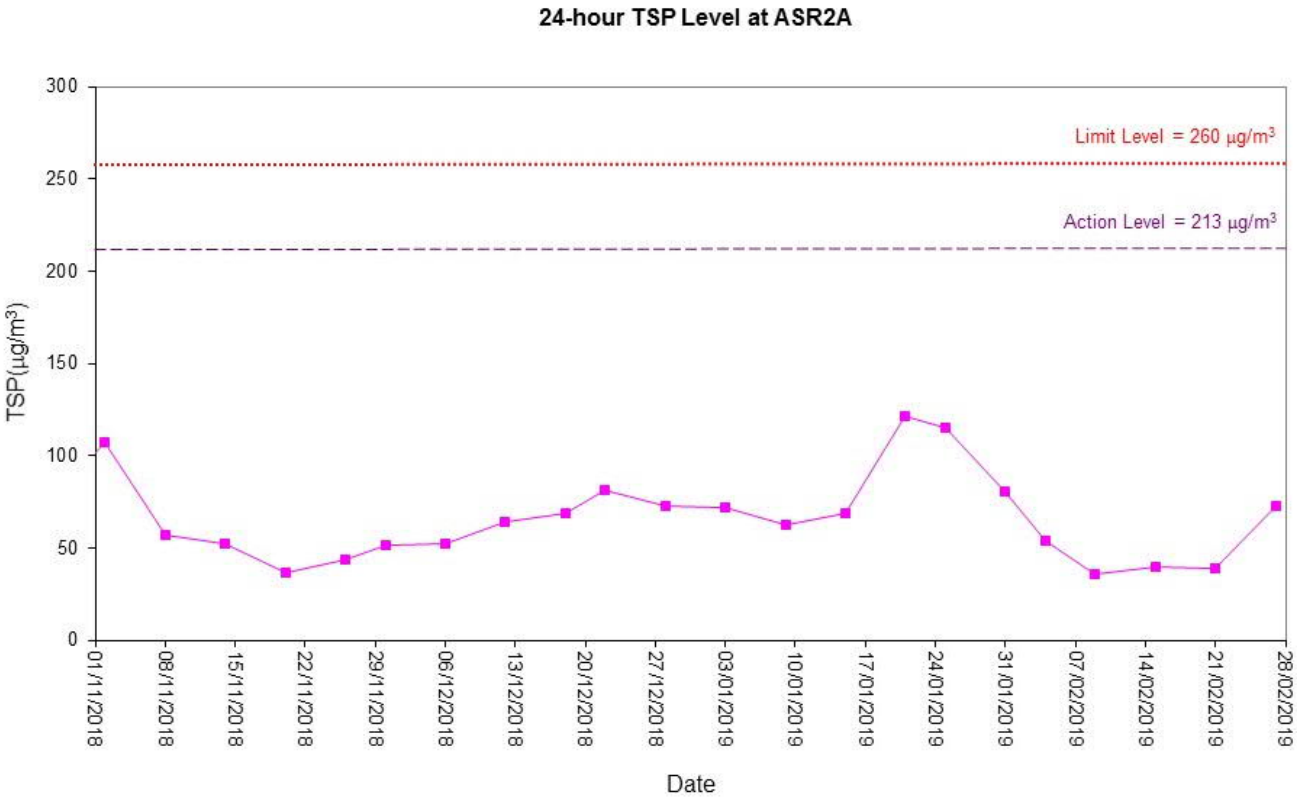
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date


24-hour TSP Level at ASR2A
Limit Level = 260 µg/m³
Action Level = 213 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
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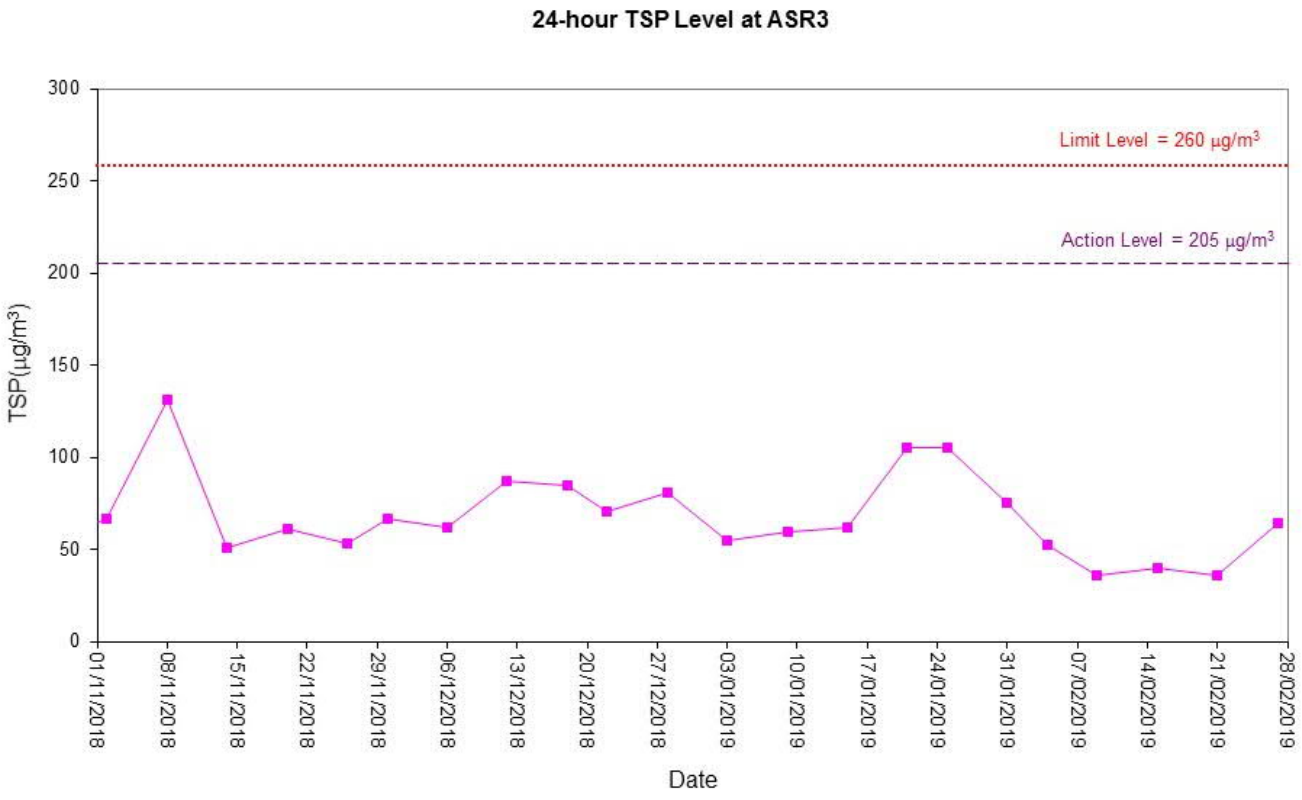
21/02/2019
28/02/2019
Date

Air Quality


24-hour TSP Level at ASR3
Limit Level = 260 µg/m³
Action Level = 205 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
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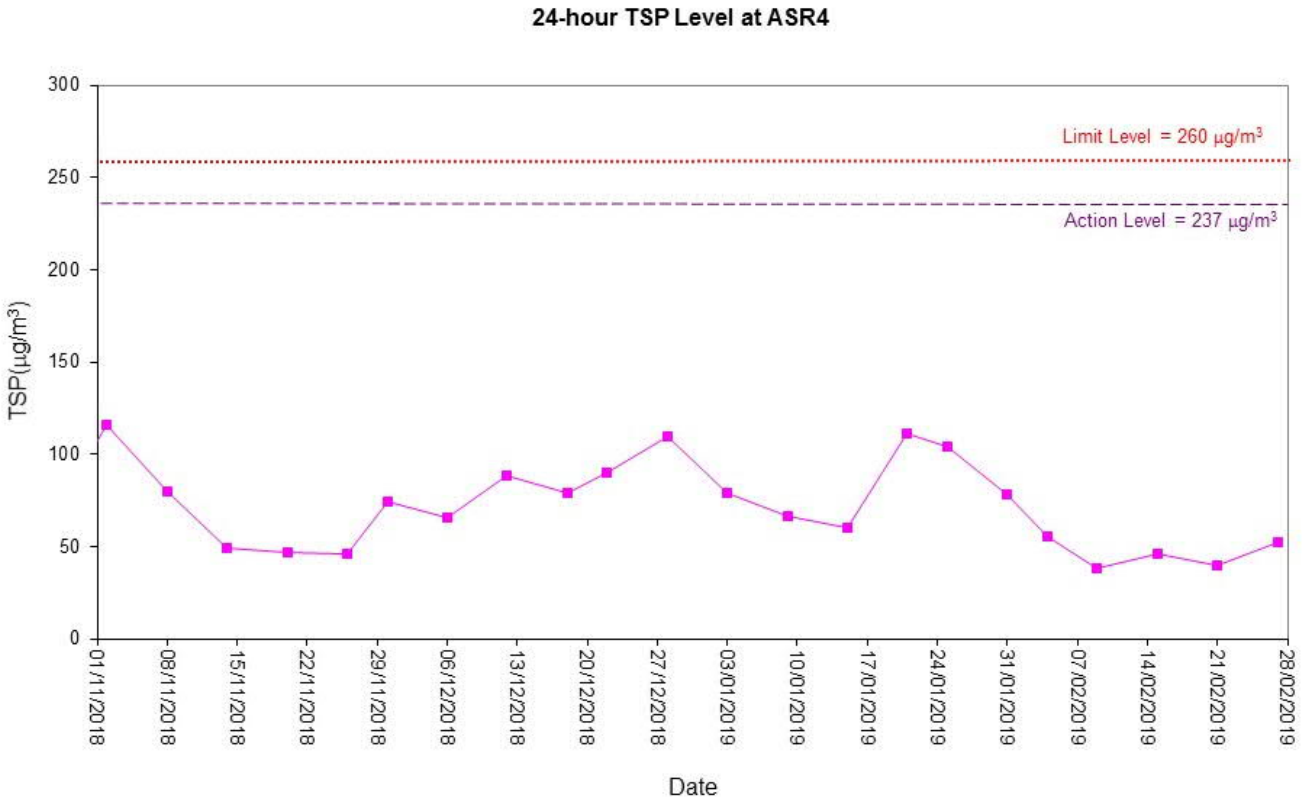
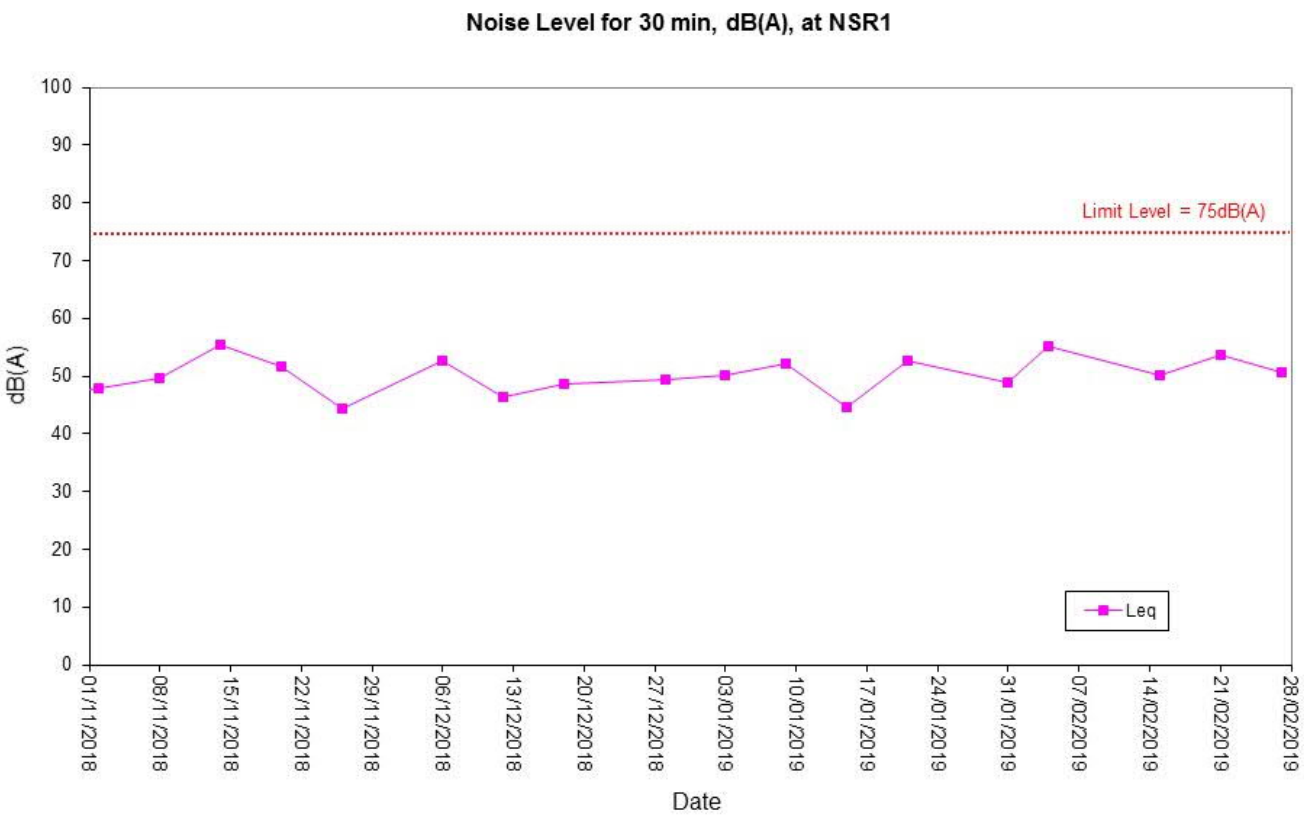
28/02/2019
Date


24-hour TSP Level at ASR4
Limit Level = 260 µg/m³
Action Level = 237 µg/m³
TSP(µg/m³)
300
250
200
150
100
50
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
10/01/2019
17/01/2019
24/01/2019
31/01/2019
07/02/2019
14/02/2019
21/02/2019
28/02/2019
Date

Noise


Noise Level for 30 min, dB(A), at NSR1
Limit Level = 75dB(A)
Leq
dB(A)
Date
100
90
80
70
60
50
40
30
20
10
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
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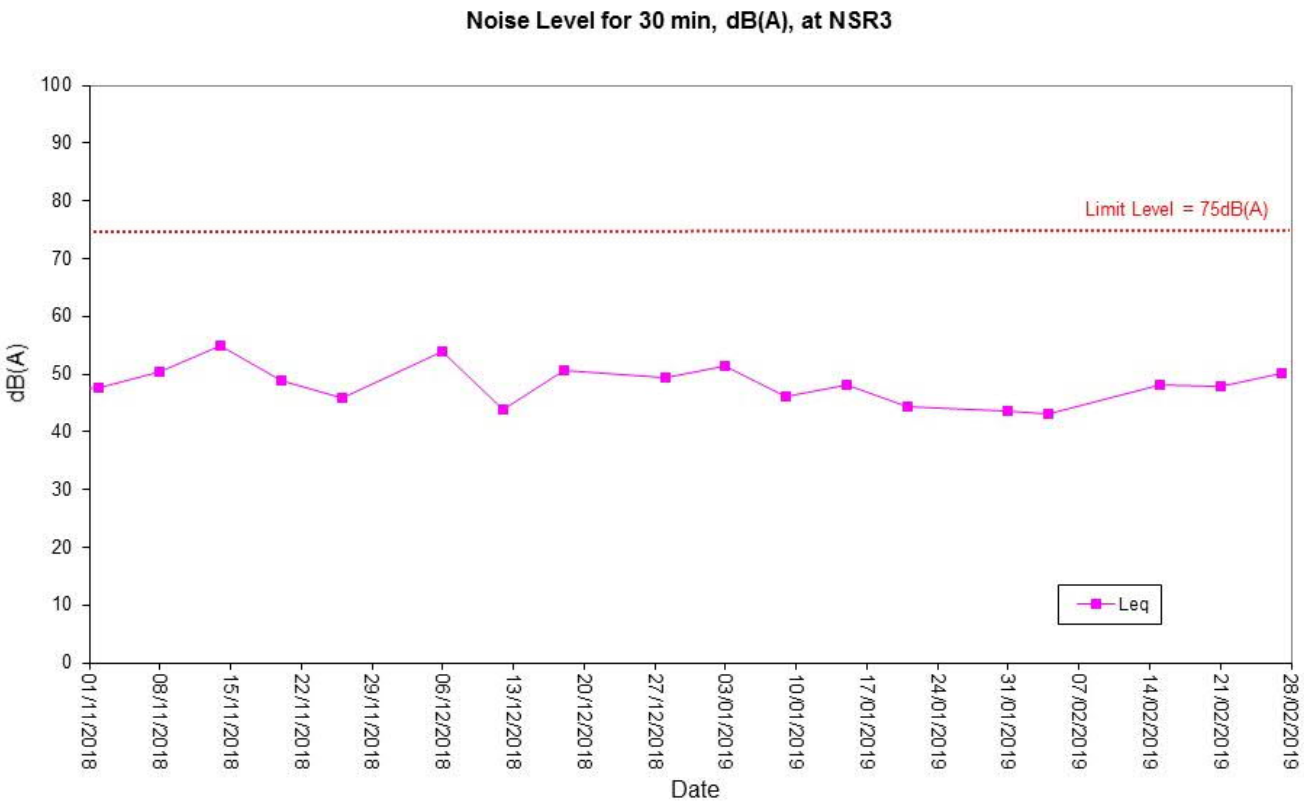
28/02/2019


Noise Level for 30 min, dB(A), at NSR3
Limit Level = 75dB(A)
Leq
dB(A)
Date
100
90
80
70
60
50
40
30
20
10
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
03/01/2019
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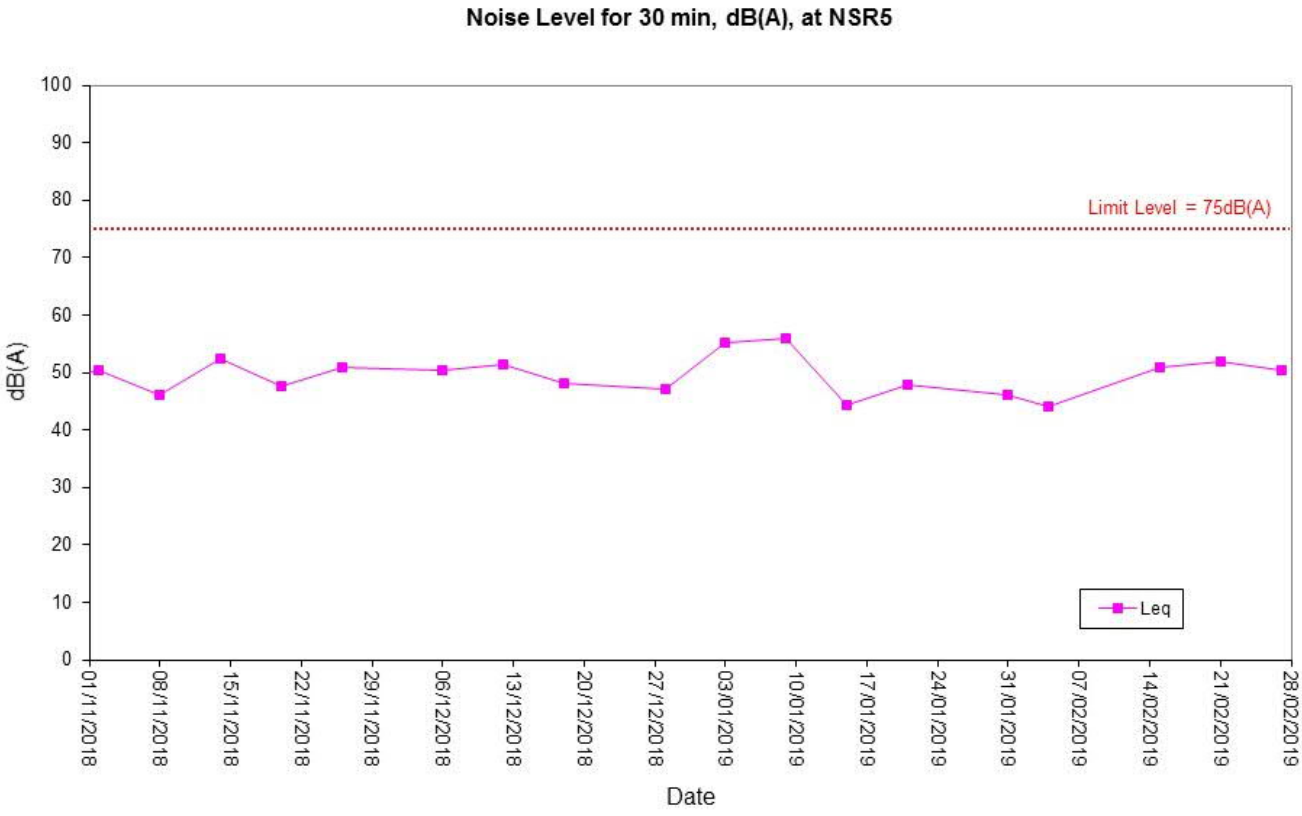
21/02/2019
28/02/2019

Noise


Noise Level for 30 min, dB(A), at NSR5
Limit Level = 75dB(A)
Leq
dB(A)
Date
100
90
80
70
60
50
40
30
20
10
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
29/11/2018
06/12/2018
13/12/2018
20/12/2018
27/12/2018
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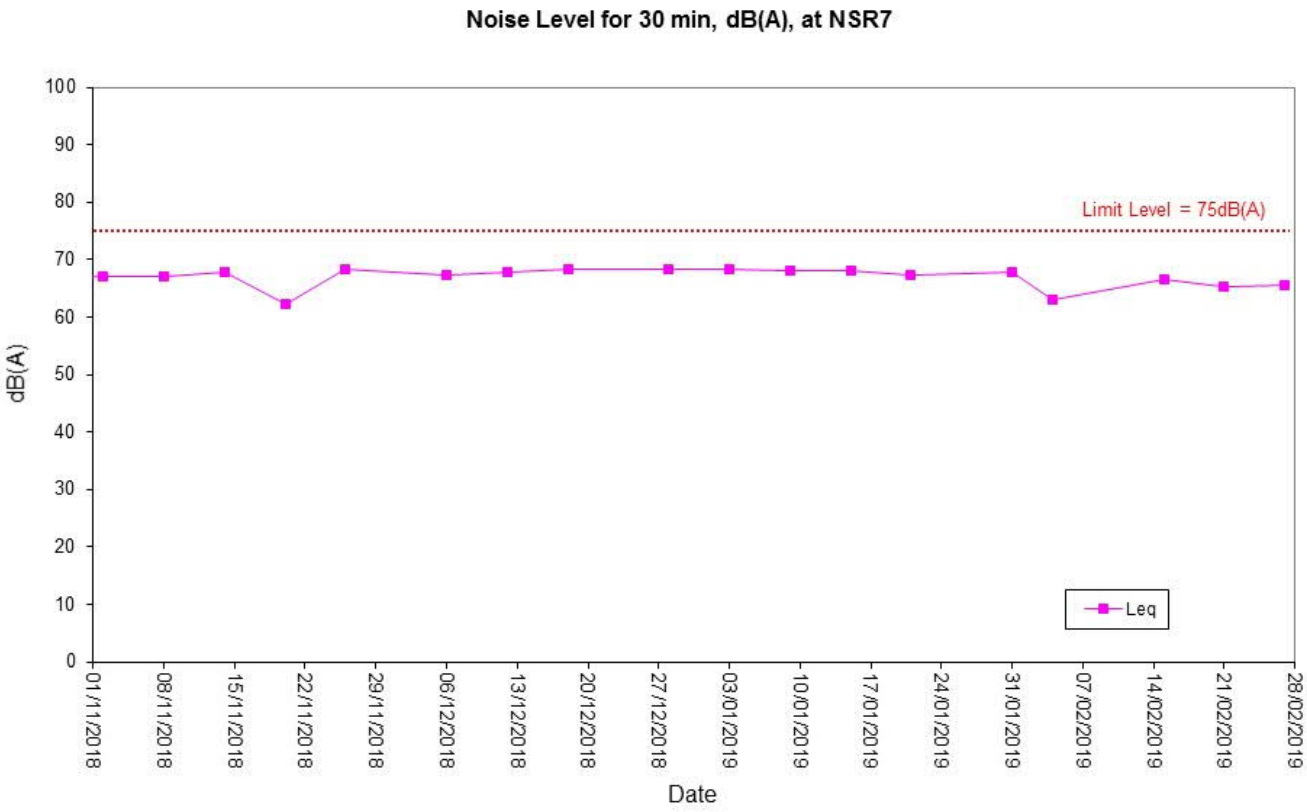
28/02/2019


Noise Level for 30 min, dB(A), at NSR7
Limit Level = 75dB(A)
Leq
dB(A)
Date
100
90
80
70
60
50
40
30
20
10
0
01/11/2018
08/11/2018
15/11/2018
22/11/2018
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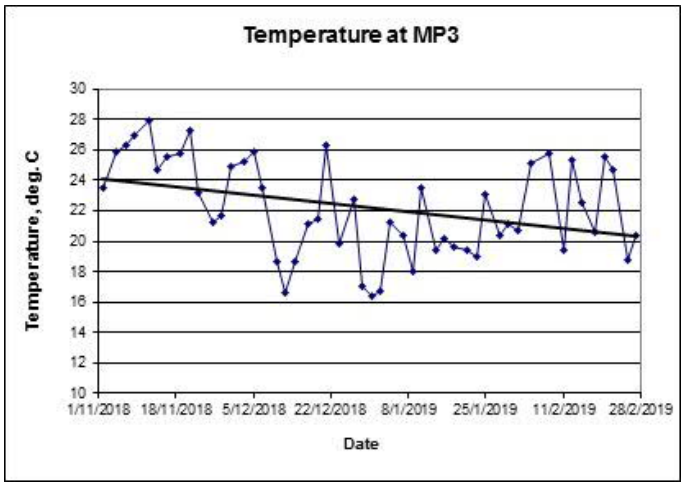
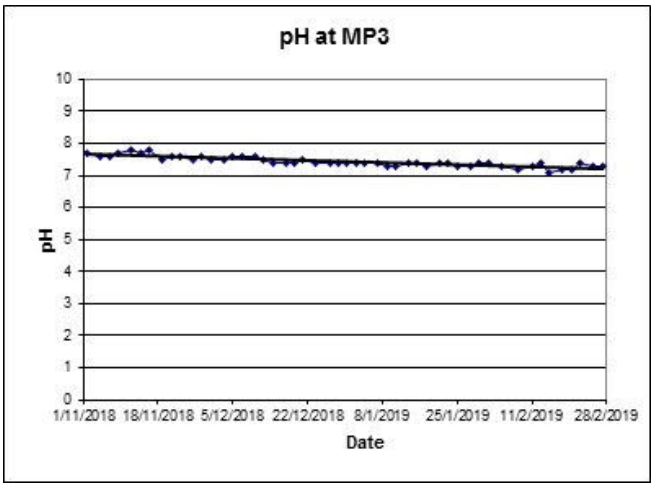
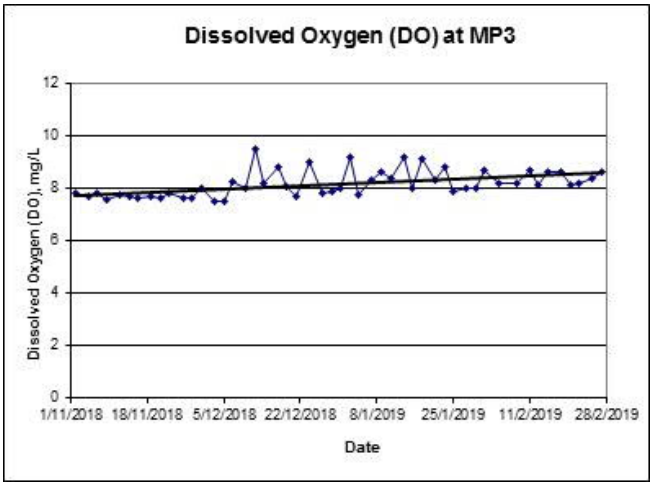
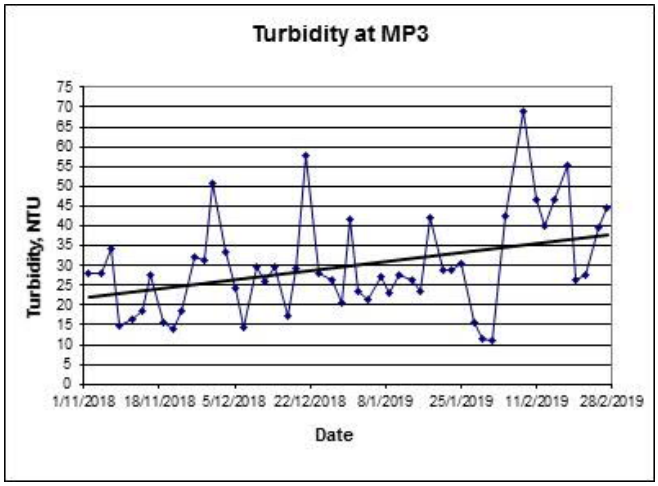
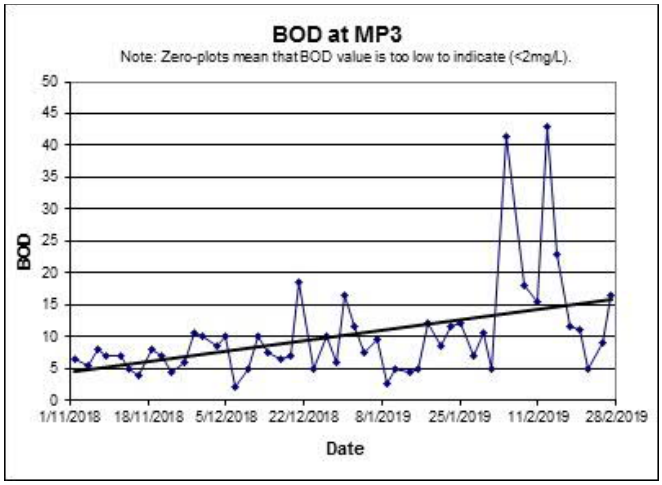
Water Quality

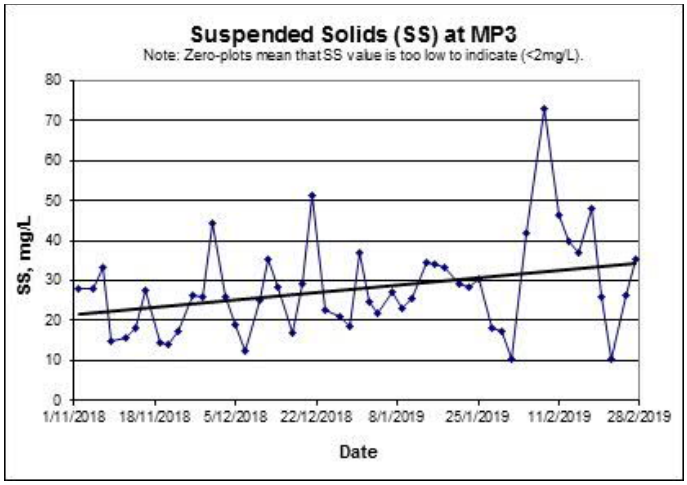




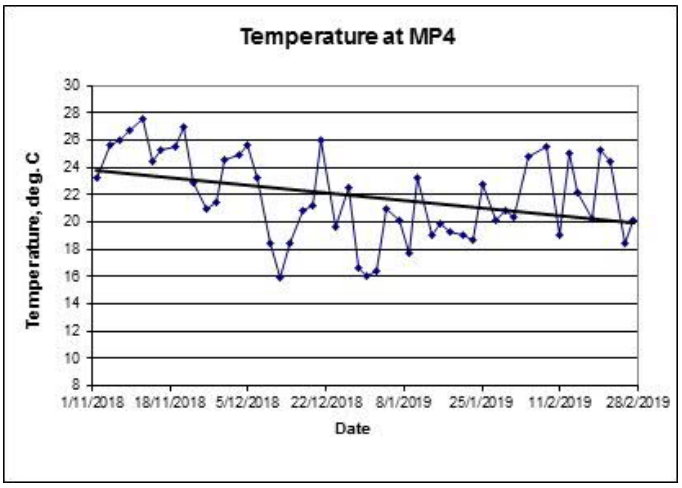


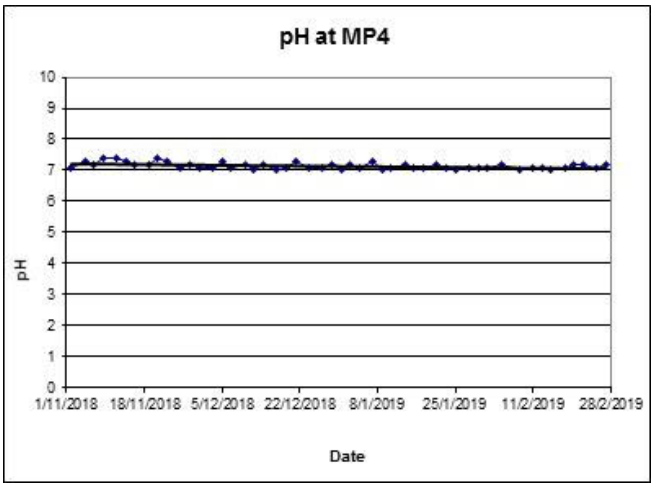


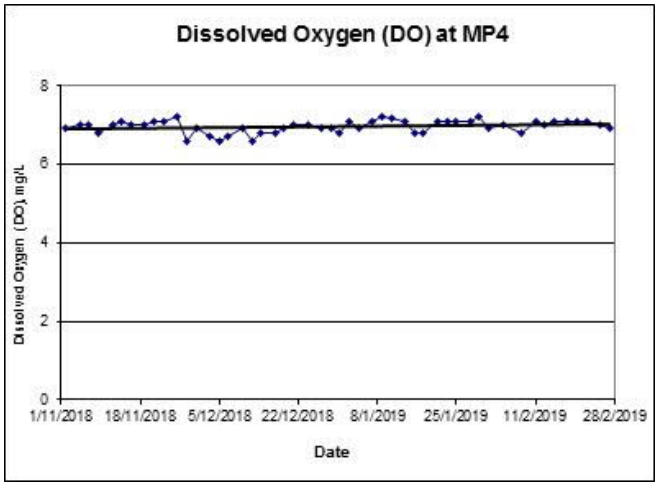


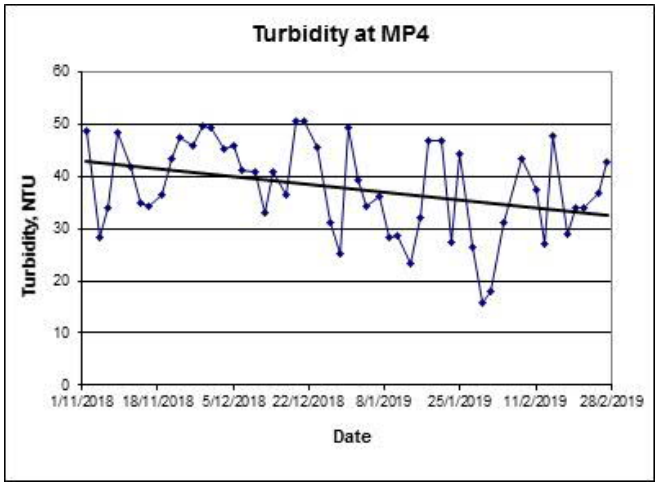


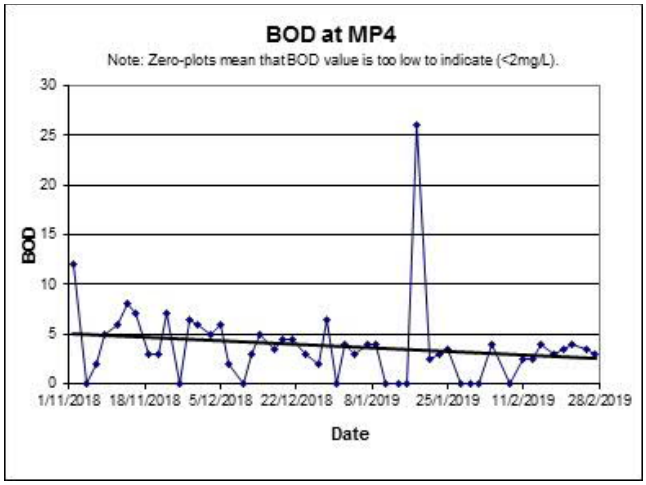
Water Quality

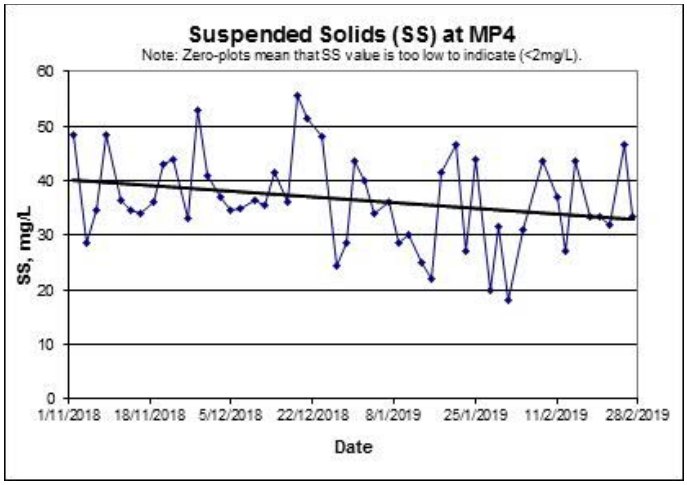




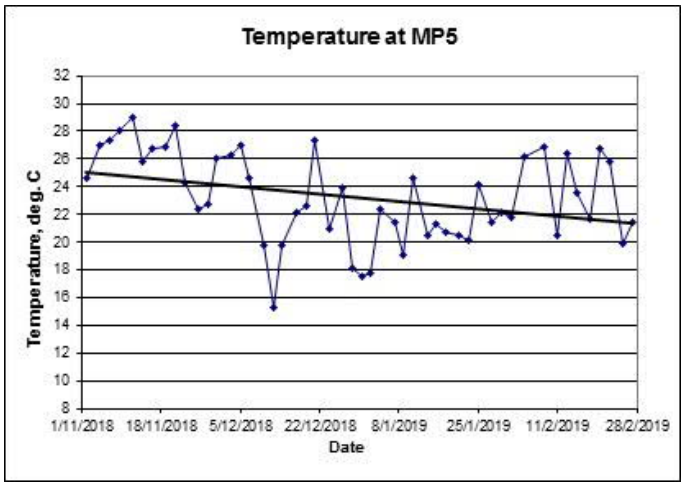


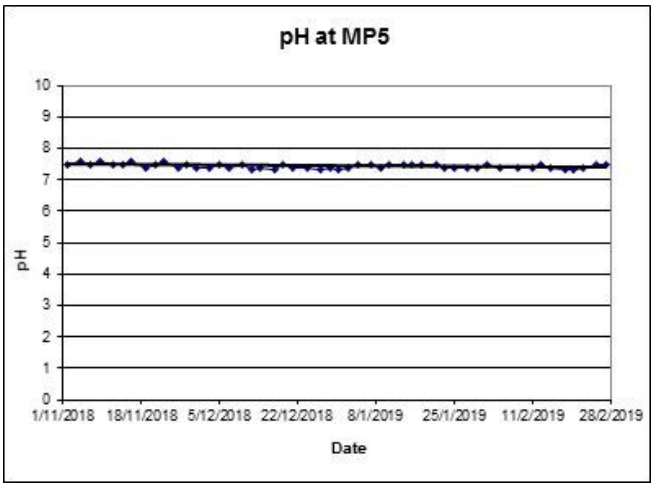


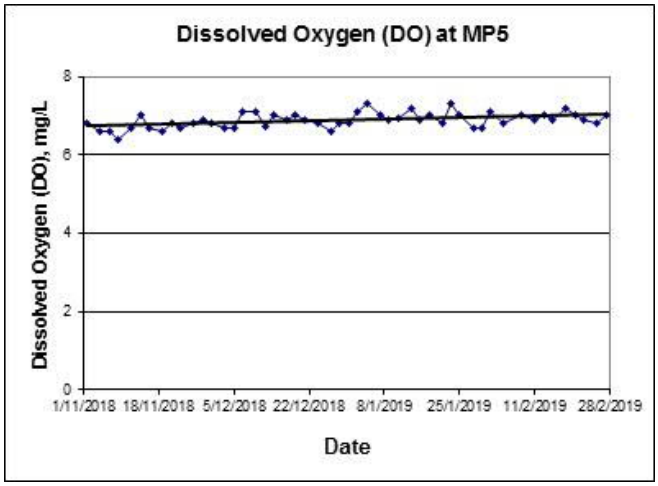


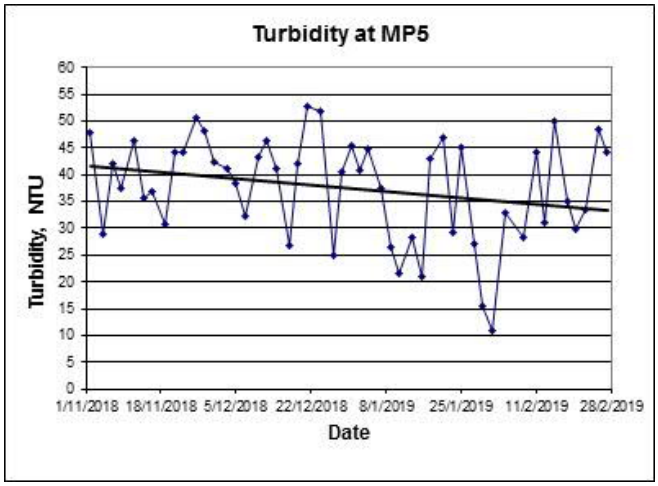


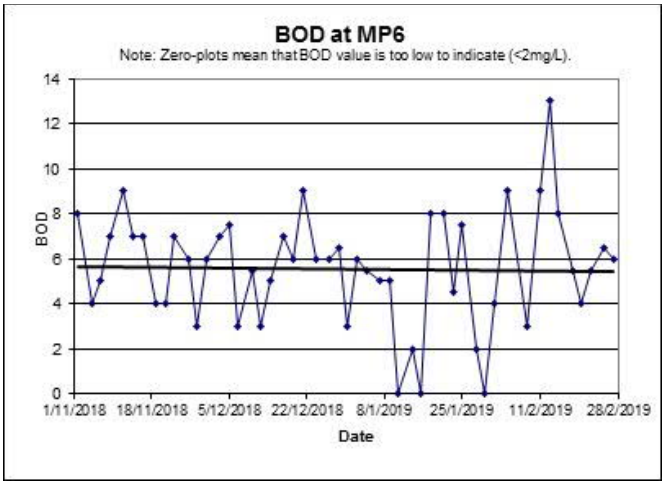
Water Quality

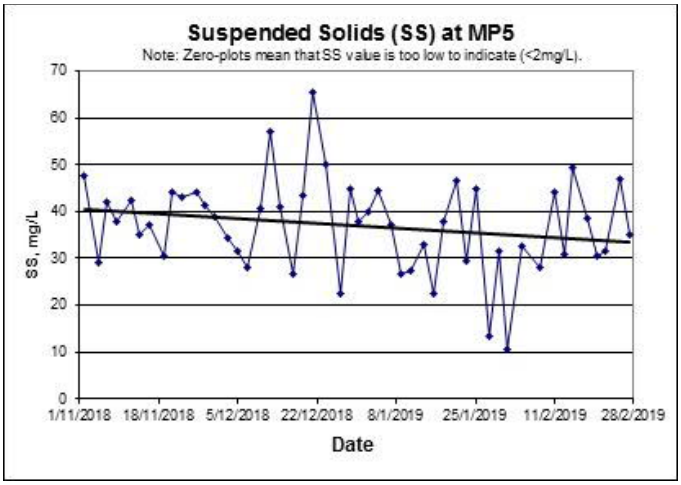




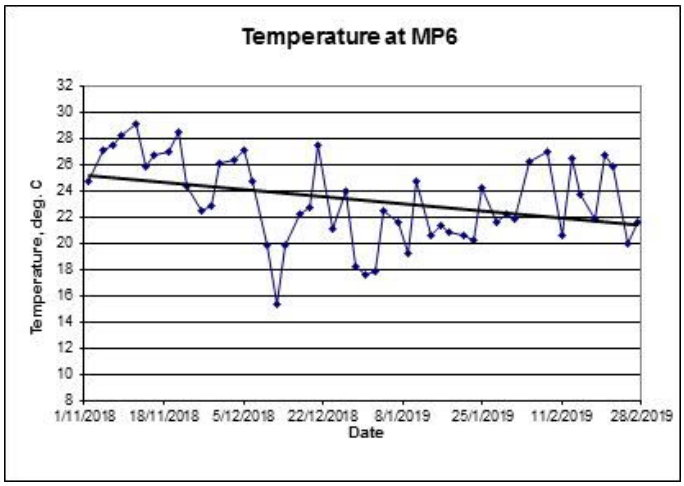


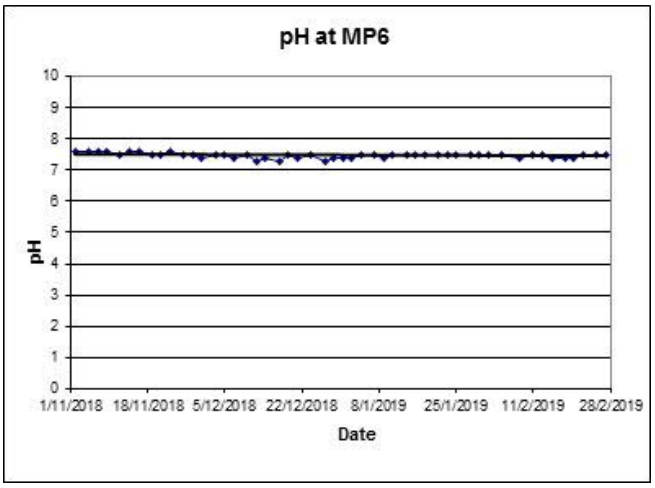


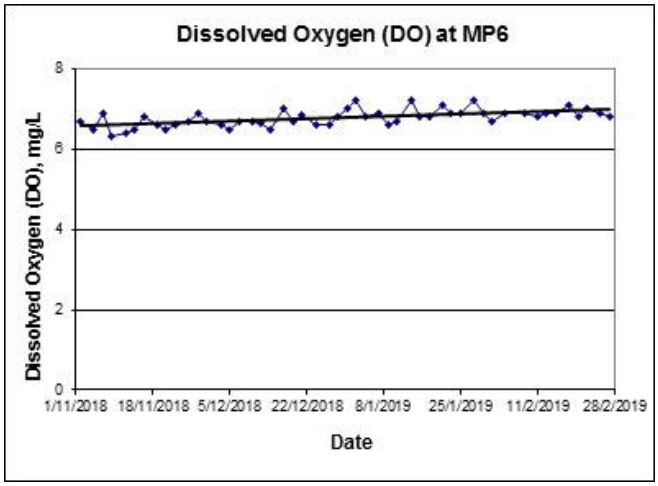


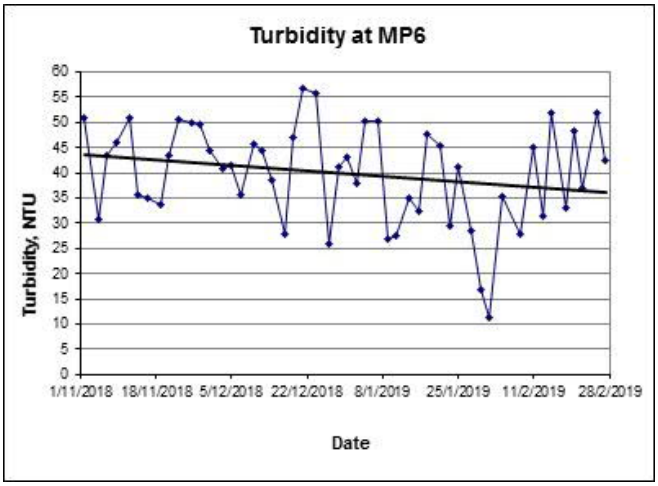


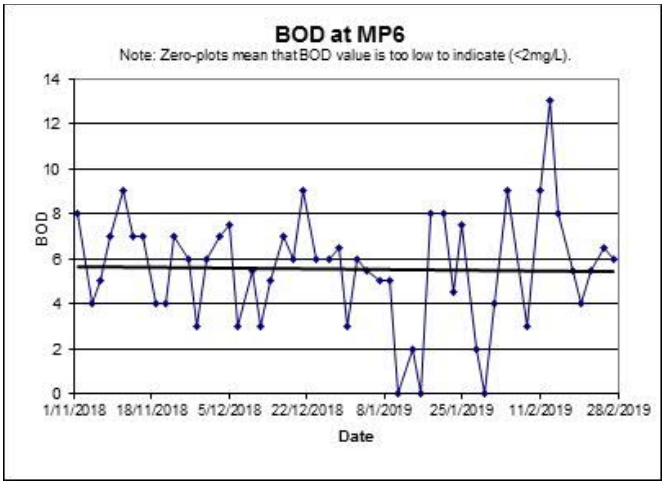
Water Quality

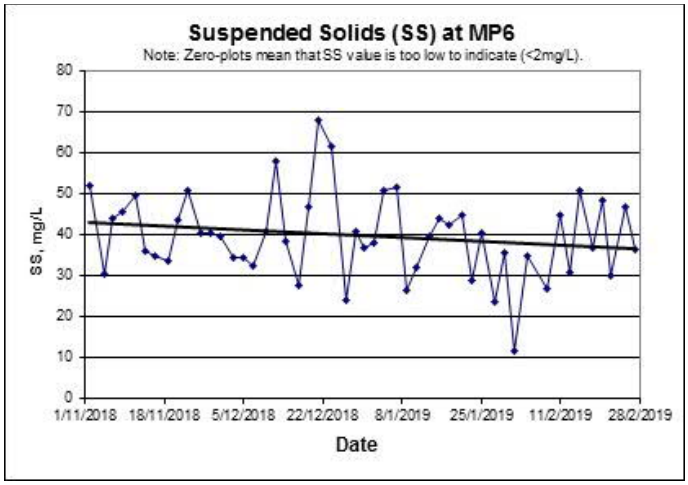












ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1904859**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 01-Feb-2019
Order number	:	*Quote number*	: HKE/2894/2017	*Date of issue*	: 12-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	:				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1904859 supersedes any previous reports with this reference. Testing period is from 01-Feb-2019 to 12-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1904859 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[01-Feb-2019]	HK1904859-001	10	5	----	----	----
MP3-2	[01-Feb-2019]	HK1904859-002	11	5	----	----	----
MP4-1	[01-Feb-2019]	HK1904859-003	17	<2	----	----	----
MP4-2	[01-Feb-2019]	HK1904859-004	19	<2	----	----	----
MP5-1	[01-Feb-2019]	HK1904859-005	11	<2	----	----	----
MP5-2	[01-Feb-2019]	HK1904859-006	10	<2	----	----	----
MP6-1	[01-Feb-2019]	HK1904859-007	12	4	----	----	----
MP6-2	[01-Feb-2019]	HK1904859-008	11	4	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2177960)								
HK1904695-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1904839-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 2177961)								
HK1904878-005	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	5	0.00
HK1904929-002	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	11	11	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2177960)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	96.5	----	81	120	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 2177961)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	108	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2167020)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	98.2	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905210**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 04-Feb-2019
Order number	:	*Quote number*	: HKE/3396/2018	*Date of issue*	: 12-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905210 supersedes any previous reports with this reference. Testing period is from 04-Feb-2019 to 12-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905210 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	04-Feb-2019	HK1905210-001	43	42	----	----	----
MP3-2	04-Feb-2019	HK1905210-002	41	41	----	----	----
MP4-1	04-Feb-2019	HK1905210-003	30	4	----	----	----
MP4-2	04-Feb-2019	HK1905210-004	32	4	----	----	----
MP5-1	04-Feb-2019	HK1905210-005	34	10	----	----	----
MP5-2	04-Feb-2019	HK1905210-006	31	10	----	----	----
MP6-1	04-Feb-2019	HK1905210-007	34	9	----	----	----
MP6-2	04-Feb-2019	HK1905210-008	36	9	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
				Laboratory Duplicate (DUP) Report				
EA/ED: Physical and Aggregate Properties (QC Lot: 2177964)								
HK1905143-010	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	6	6	0.00
HK1905145-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 2177965)								
HK1905335-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	64	62	3.66

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2177964)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	90.0	----	81	120	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 2177965)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	102	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2168728)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	94.4	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905337**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 08-Feb-2019
Order number	:	*Quote number*	: HKE/3396/2018	*Date of issue*	: 14-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905337 supersedes any previous reports with this reference. Testing period is from 08-Feb-2019 to 14-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905337 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[08-Feb-2019]	HK1905337-001	72	18	----	----	----
MP3-2	[08-Feb-2019]	HK1905337-002	74	18	----	----	----
MP4-1	[08-Feb-2019]	HK1905337-003	43	<2	----	----	----
MP4-2	[08-Feb-2019]	HK1905337-004	44	<2	----	----	----
MP5-1	[08-Feb-2019]	HK1905337-005	28	<2	----	----	----
MP5-2	[08-Feb-2019]	HK1905337-006	28	<2	----	----	----
MP6-1	[08-Feb-2019]	HK1905337-007	28	3	----	----	----
MP6-2	[08-Feb-2019]	HK1905337-008	26	3	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2182842)								
HK1905304-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	2	3	0.00
HK1905340-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	3	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2182842)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	90.5	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2176855)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	96.7	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905634**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 11-Feb-2019
Order number	:	*Quote number*	: HKE/3396/2018	*Date of issue*	: 18-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905634 supersedes any previous reports with this reference. Testing period is from 11-Feb-2019 to 18-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905634 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[11-Feb-2019]	HK1905634-001	46	15	----	----	----
MP3-2	[11-Feb-2019]	HK1905634-002	47	16	----	----	----
MP4-1	[11-Feb-2019]	HK1905634-003	35	3	----	----	----
MP4-2	[11-Feb-2019]	HK1905634-004	39	2	----	----	----
MP5-1	[11-Feb-2019]	HK1905634-005	45	8	----	----	----
MP5-2	[11-Feb-2019]	HK1905634-006	43	8	----	----	----
MP6-1	[11-Feb-2019]	HK1905634-007	44	9	----	----	----
MP6-2	[11-Feb-2019]	HK1905634-008	46	9	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	LOR	Unit	Original Result	Duplicate Result	RPD (%)
				Laboratory Duplicate (DUP) Report				
EA/ED: Physical and Aggregate Properties (QC Lot: 2187897)								
HK1905517-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	176	192	8.47
HK1905620-004	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	10	11	0.00
EA/ED: Physical and Aggregate Properties (QC Lot: 2187898)								
HK1905635-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1906152-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	5	4	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2187897)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	90.0	----	81	120	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 2187898)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	93.5	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2179382)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	94.8	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905826**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 12-Feb-2019
Order number	:	*Quote number*	: HKE/3396/2018	*Date of issue*	: 21-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905826 supersedes any previous reports with this reference. Testing period is from 12-Feb-2019 to 21-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905826 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[13-Feb-2019]	HK1905826-001	41	40	----	----	----
MP3-2	[13-Feb-2019]	HK1905826-002	39	46	----	----	----
MP4-1	[13-Feb-2019]	HK1905826-003	26	3	----	----	----
MP4-2	[13-Feb-2019]	HK1905826-004	28	2	----	----	----
MP5-1	[13-Feb-2019]	HK1905826-005	31	12	----	----	----
MP5-2	[13-Feb-2019]	HK1905826-006	31	13	----	----	----
MP6-1	[13-Feb-2019]	HK1905826-007	32	13	----	----	----
MP6-2	[13-Feb-2019]	HK1905826-008	30	13	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2195576)								
HK1906095-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1906095-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2195576)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	110	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2185826)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	95.3	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905830**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 15-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 25-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905830 supersedes any previous reports with this reference. Testing period is from 15-Feb-2019 to 25-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905830 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[15-Feb-2019]	HK1905830-001	38	24	----	----	----
MP3-2	[15-Feb-2019]	HK1905830-002	36	22	----	----	----
MP4-1	[15-Feb-2019]	HK1905830-003	42	4	----	----	----
MP4-2	[15-Feb-2019]	HK1905830-004	45	4	----	----	----
MP5-1	[15-Feb-2019]	HK1905830-005	51	9	----	----	----
MP5-2	[15-Feb-2019]	HK1905830-006	48	9	----	----	----
MP6-1	[15-Feb-2019]	HK1905830-007	52	8	----	----	----
MP6-2	[15-Feb-2019]	HK1905830-008	50	8	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2200214)								
HK1905830-001	MP3-1	EA025: Suspended Solids (SS)	----	2	mg/L	38	39	3.63
HK1905832-003	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	34	33	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2200214)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	91.0	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2189134)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	87.6	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905832**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 18-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 25-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905832 supersedes any previous reports with this reference. Testing period is from 18-Feb-2019 to 25-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905832 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[18-Feb-2019]	HK1905832-001	46	11	----	----	----
MP3-2	[18-Feb-2019]	HK1905832-002	50	12	----	----	----
MP4-1	[18-Feb-2019]	HK1905832-003	34	3	----	----	----
MP4-2	[18-Feb-2019]	HK1905832-004	33	3	----	----	----
MP5-1	[18-Feb-2019]	HK1905832-005	39	7	----	----	----
MP5-2	[18-Feb-2019]	HK1905832-006	38	7	----	----	----
MP6-1	[18-Feb-2019]	HK1905832-007	40	5	----	----	----
MP6-2	[18-Feb-2019]	HK1905832-008	34	6	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2200214)								
HK1905830-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	38	39	3.63
HK1905832-003	MP4-1	EA025: Suspended Solids (SS)	----	2	mg/L	34	33	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2200214)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	91.0	----	81	120	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905835**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 20-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 27-Feb-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905835 supersedes any previous reports with this reference. Testing period is from 20-Feb-2019 to 27-Feb-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905835 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[20-Feb-2019]	HK1905835-001	26	12	----	----	----
MP3-2	[20-Feb-2019]	HK1905835-002	26	10	----	----	----
MP4-1	[20-Feb-2019]	HK1905835-003	33	4	----	----	----
MP4-2	[20-Feb-2019]	HK1905835-004	34	3	----	----	----
MP5-1	[20-Feb-2019]	HK1905835-005	30	6	----	----	----
MP5-2	[20-Feb-2019]	HK1905835-006	31	6	----	----	----
MP6-1	[20-Feb-2019]	HK1905835-007	47	4	----	----	----
MP6-2	[20-Feb-2019]	HK1905835-008	50	4	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2205155)								
HK1907107-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	7	7	0.00
HK1907186-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	2	3	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2205155)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	95.0	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2198213)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	105	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905836**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 22-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 01-Mar-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905836 supersedes any previous reports with this reference. Testing period is from 22-Feb-2019 to 01-Mar-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905836 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[22-Feb-2019]	HK1905836-001	10	5	----	----	----
MP3-2	[22-Feb-2019]	HK1905836-002	11	5	----	----	----
MP4-1	[22-Feb-2019]	HK1905836-003	34	4	----	----	----
MP4-2	[22-Feb-2019]	HK1905836-004	30	4	----	----	----
MP5-1	[22-Feb-2019]	HK1905836-005	30	6	----	----	----
MP5-2	[22-Feb-2019]	HK1905836-006	33	6	----	----	----
MP6-1	[22-Feb-2019]	HK1905836-007	30	5	----	----	----
MP6-2	[22-Feb-2019]	HK1905836-008	30	6	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2209958)								
HK1907599-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	<2	<2	0.00
HK1907759-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	2	2	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2209958)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	94.0	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2201356)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	91.4	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905838**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 25-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 04-Mar-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905838 supersedes any previous reports with this reference. Testing period is from 25-Feb-2019 to 04-Mar-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905838 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[25-Feb-2019]	HK1905838-001	27	9	----	----	----
MP3-2	[25-Feb-2019]	HK1905838-002	26	9	----	----	----
MP4-1	[25-Feb-2019]	HK1905838-003	45	4	----	----	----
MP4-2	[25-Feb-2019]	HK1905838-004	48	3	----	----	----
MP5-1	[25-Feb-2019]	HK1905838-005	48	7	----	----	----
MP5-2	[25-Feb-2019]	HK1905838-006	46	7	----	----	----
MP6-1	[25-Feb-2019]	HK1905838-007	45	6	----	----	----
MP6-2	[25-Feb-2019]	HK1905838-008	49	7	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2212398)								
HK1907760-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	2	0.00
HK1908095-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	95	96	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2212398)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	85.5	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2203956)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	109	----	84	119	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ENOVATIVE ENVIRONMENTAL SERVICE LTD	*Laboratory*	: ALS Technichem (HK) Pty Ltd	*Page*	: 1 of 4
Contact	: MR THOMAS WONG	*Contact*	: Richard Fung	*Work Order*	: **HK1905840**
Address	: FLAT 2207, YU FUN HSE, YU CHUI COURT, SHATIN, N.T. HONG KONG	*Address*	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: Thomas.Wong@eno.com.hk	*E-mail*	: richard.fung@alsglobal.com		
Telephone	: ----	*Telephone*	: +852 2610 1044		
Facsimile	: ----	*Facsimile*	: +852 2610 2021		
Project	: PROPOSED COMPREHENSIVE DEVELOPMENT AT WO SHANG WAI YUEN LONG			*Date received*	: 27-Feb-2019
Order number	: —	*Quote number*	: HKE/3396/2018	*Date of issue*	: 05-Mar-2019
C-O-C number	: —			*No. of samples*	- *Received* : 8
Site	: —				- *Analysed* : 8

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This document has been signed by those names that appear on this report and are the authorised signatories.

Signatory	*Position*	*Authorised results for:*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK1905840 supersedes any previous reports with this reference. Testing period is from 27-Feb-2019 to 05-Mar-2019. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific Comments for Work Order HK1905840 :

Sample(s) were received in chilled condition.

Water sample(s) analysed and reported on as received basis.

Analytical Results

Sub-Matrix: WATER		Compound	EA025: Suspended Solids (SS)	EP030: Biochemical Oxygen Demand	----	----	----
		LOR Unit	2 mg/L	2 mg/L	----	----	----
Client sample ID	Client sampling date / time	Laboratory sample ID	EA/ED: Physical and Aggregate Properties	EP: Aggregate Organics	----	----	----
MP3-1	[27-Feb-2019]	HK1905840-001	36	16	----	----	----
MP3-2	[27-Feb-2019]	HK1905840-002	35	17	----	----	----
MP4-1	[27-Feb-2019]	HK1905840-003	34	3	----	----	----
MP4-2	[27-Feb-2019]	HK1905840-004	33	3	----	----	----
MP5-1	[27-Feb-2019]	HK1905840-005	36	6	----	----	----
MP5-2	[27-Feb-2019]	HK1905840-006	34	6	----	----	----
MP6-1	[27-Feb-2019]	HK1905840-007	37	6	----	----	----
MP6-2	[27-Feb-2019]	HK1905840-008	36	6	----	----	----

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 2212398)								
HK1907760-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	3	2	0.00
HK1908095-001	Anonymous	EA025: Suspended Solids (SS)	----	2	mg/L	95	96	0.00

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPDs (%) Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 2212398)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	10 mg/L	85.5	----	81	120	----	----
EP: Aggregate Organics (QCLot: 2210364)											
EP030: Biochemical Oxygen Demand	----	----	mg/L	----	198 mg/L	113	----	84	119	----	----

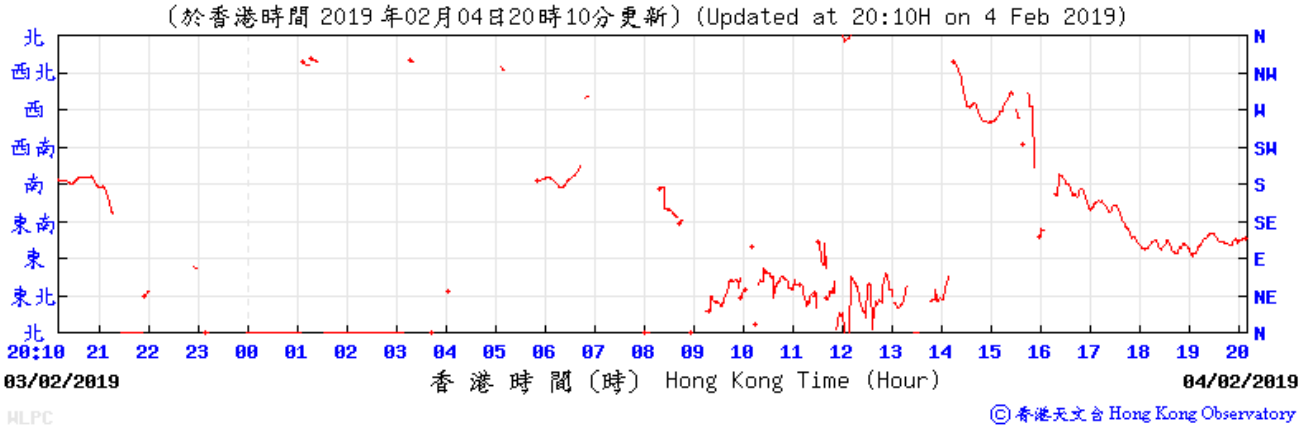
Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

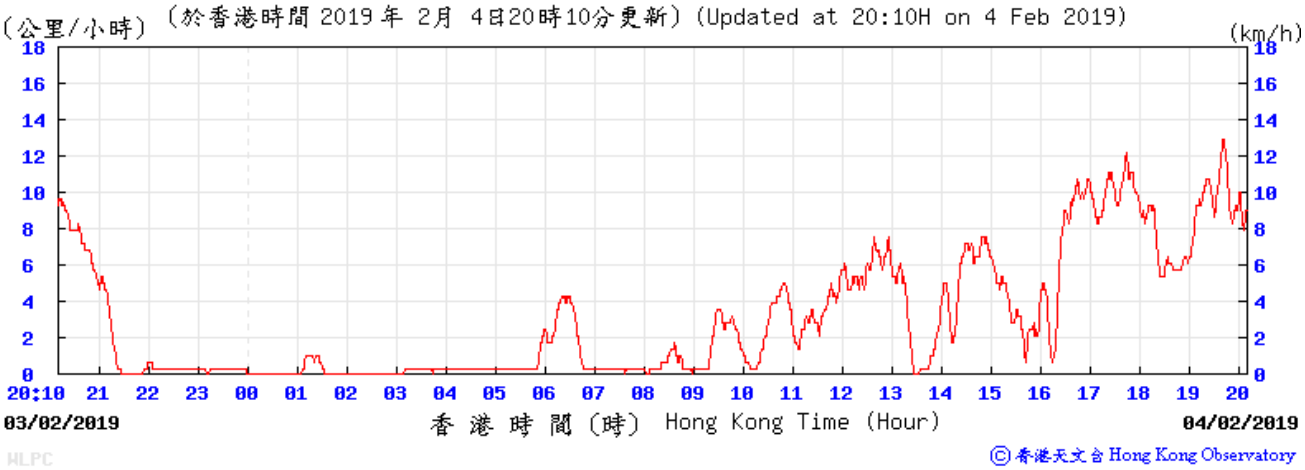
- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

G. Weather Conditions during the Monitoring Period

Wind Data for Wetland Park

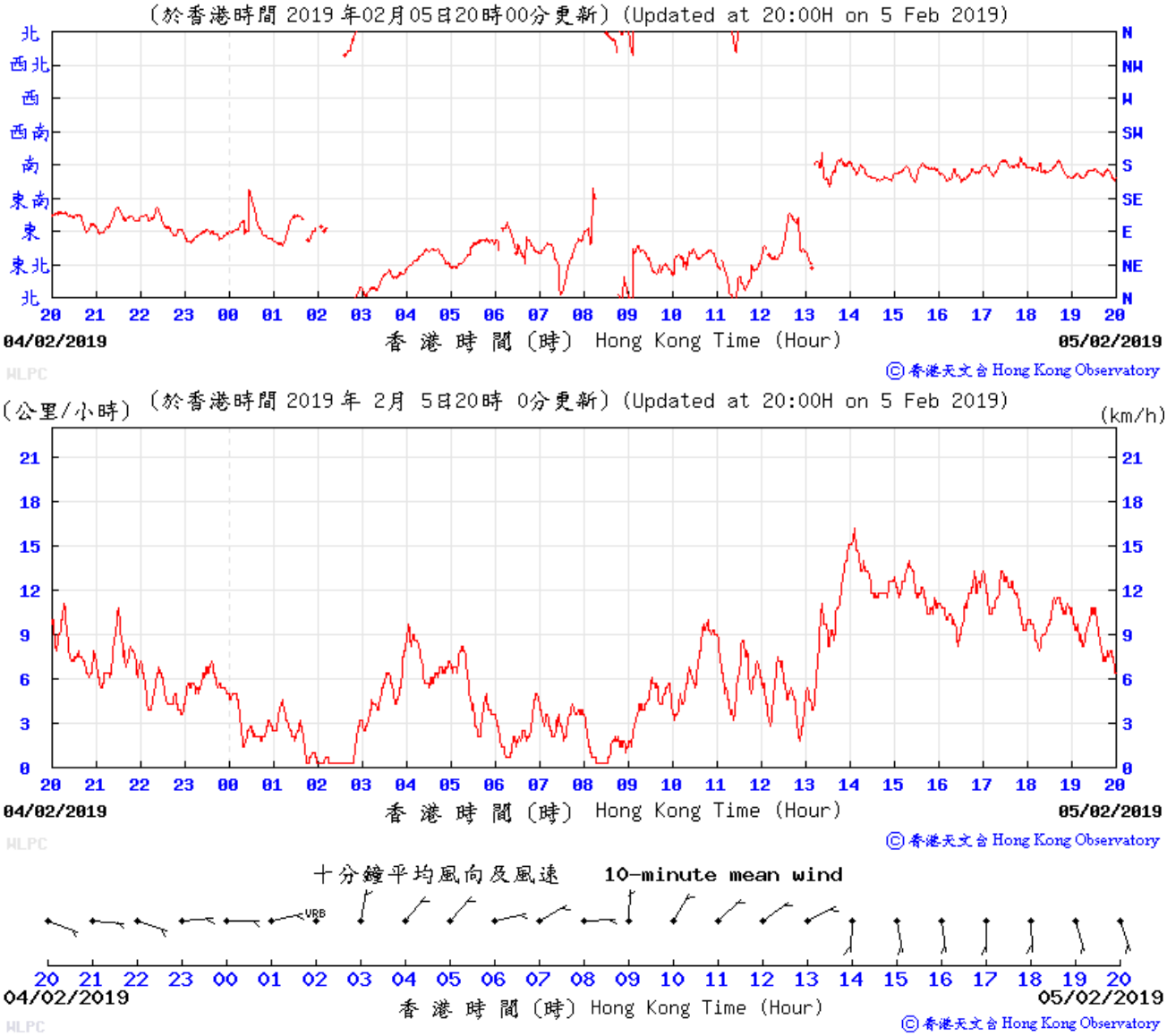
4 Feb 2019





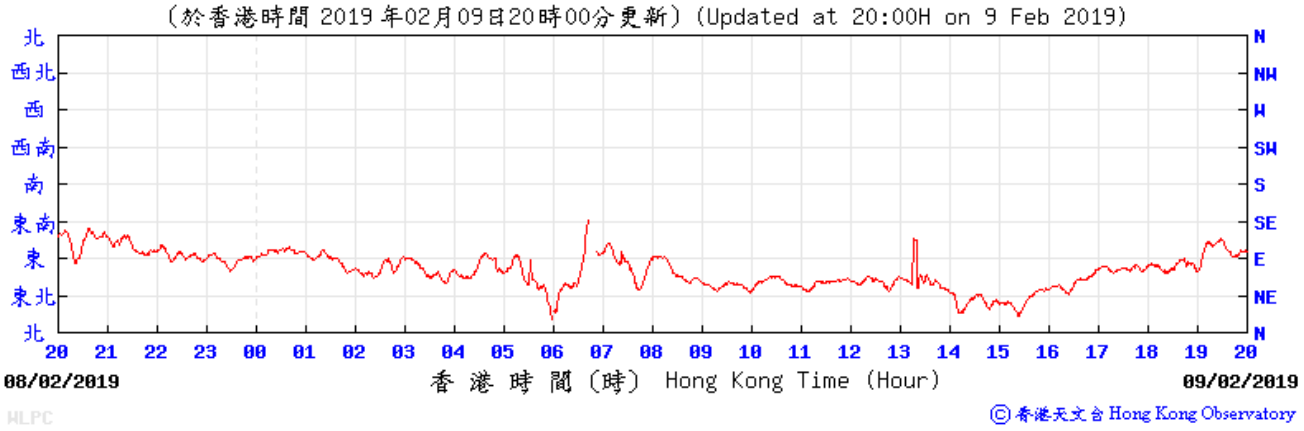
Wind Data for Wetland Park

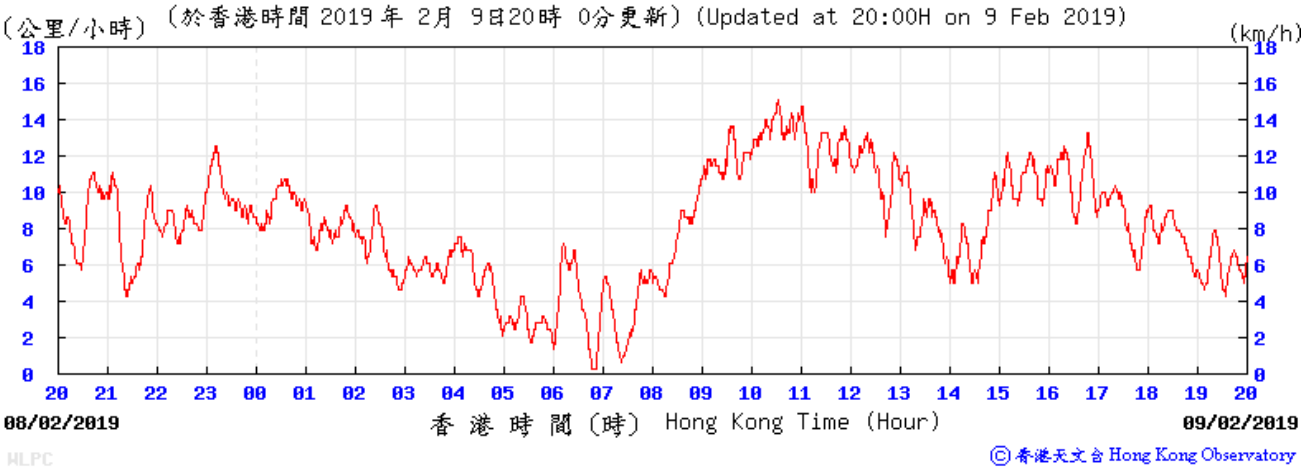
5 Feb 2019

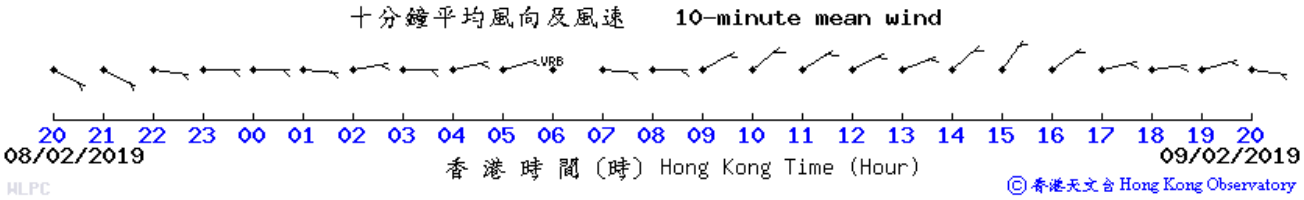


Wind Data for Wetland Park

9 Feb 2019

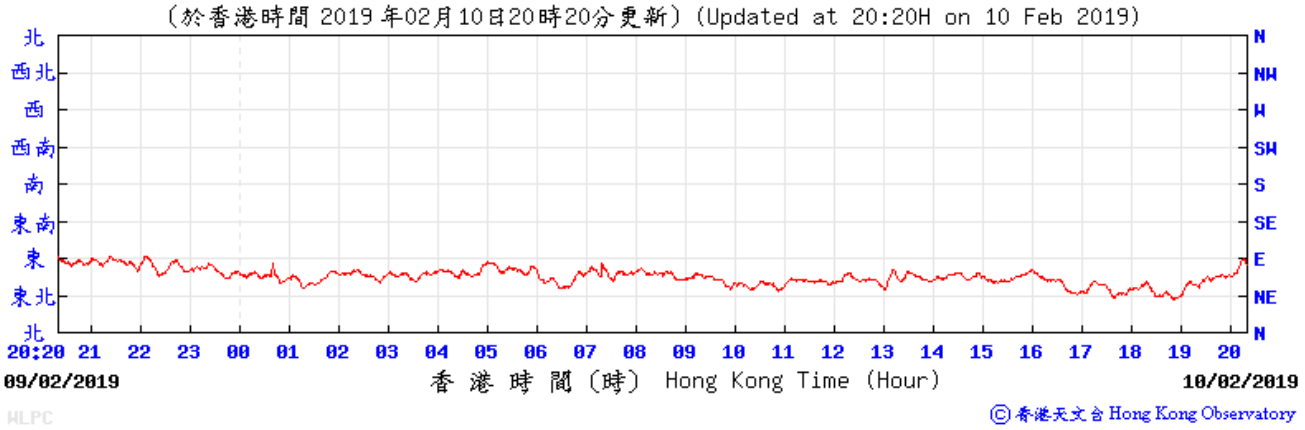


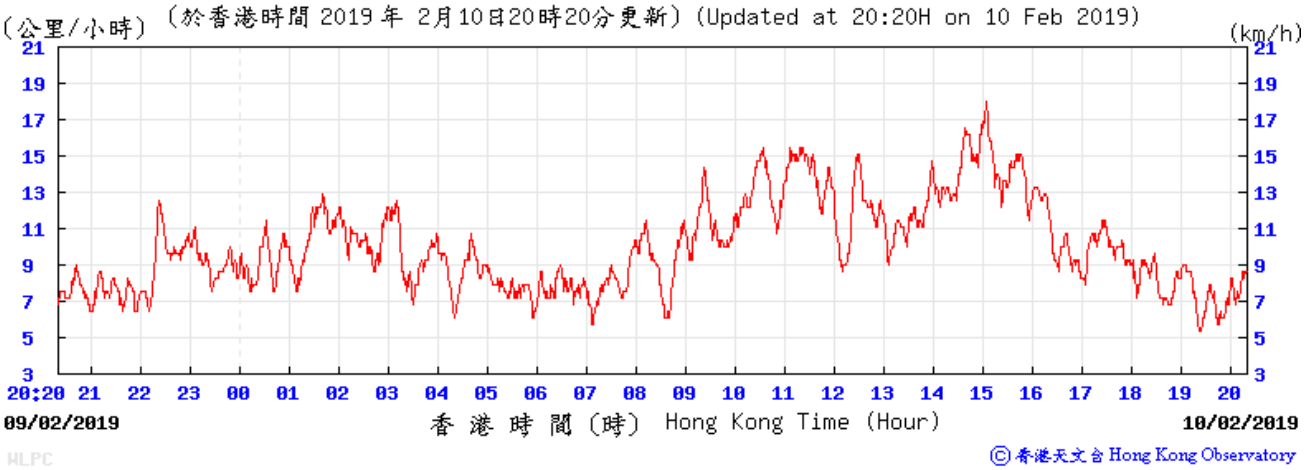


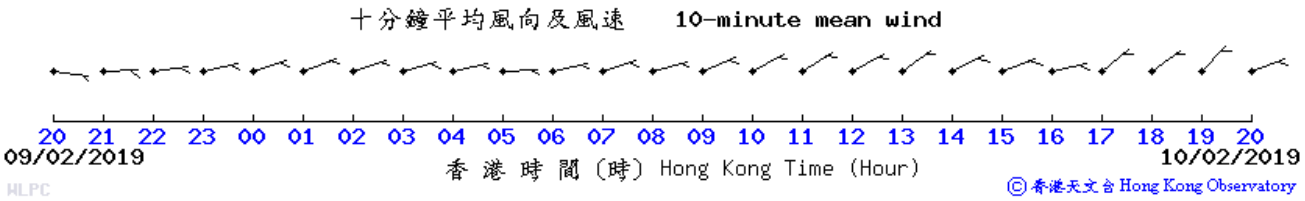


Wind Data for Wetland Park

10 Feb 2019

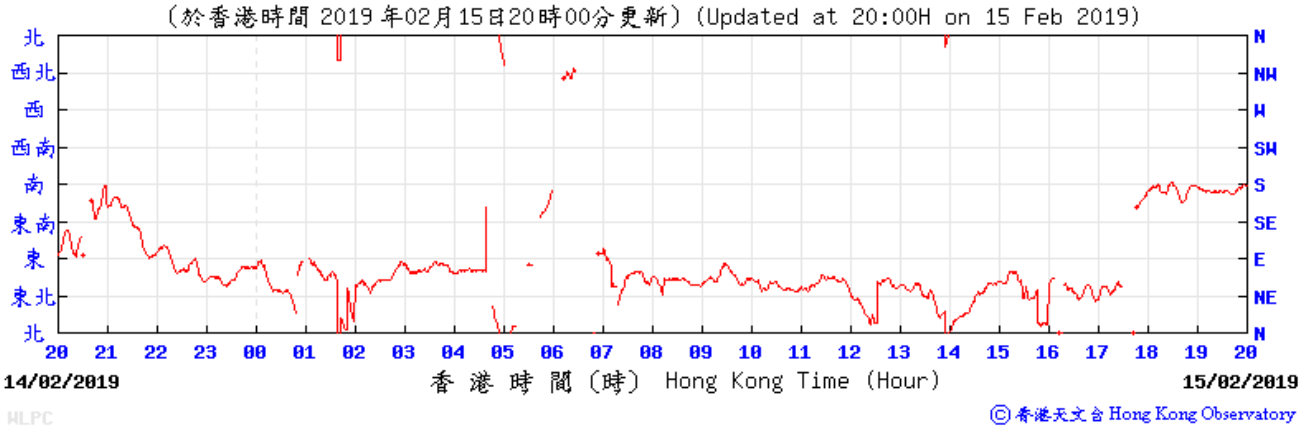


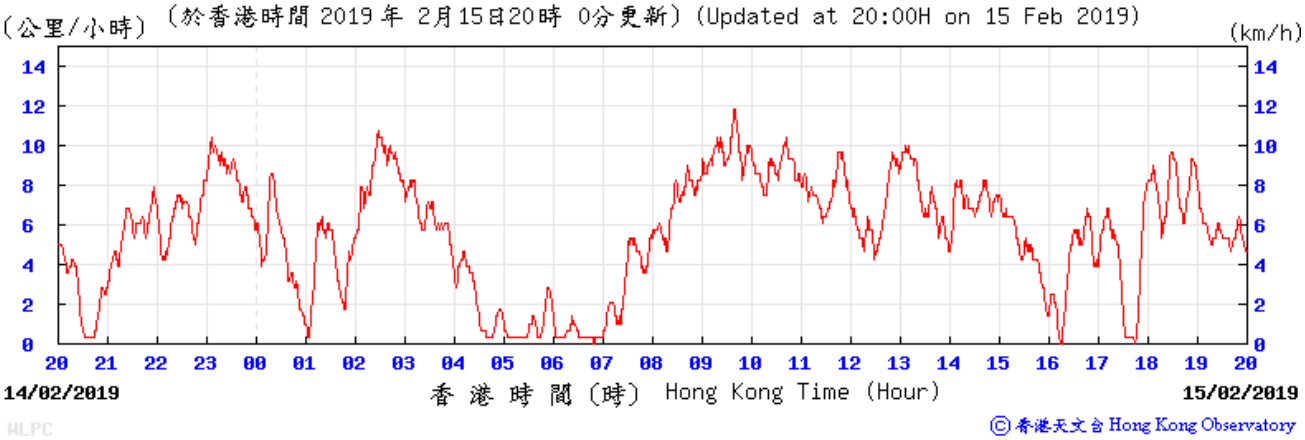


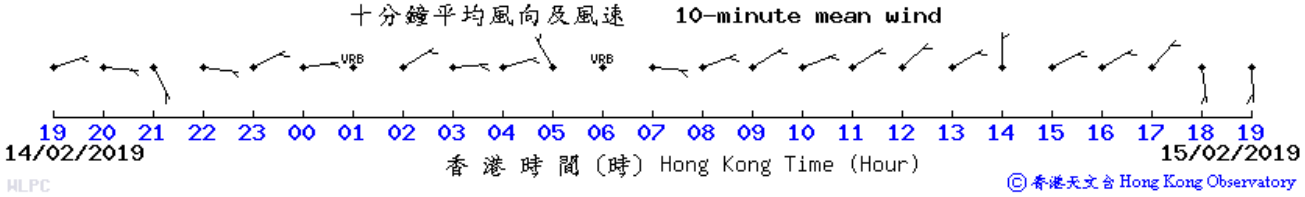


Wind Data for Wetland Park

15 Feb 2019

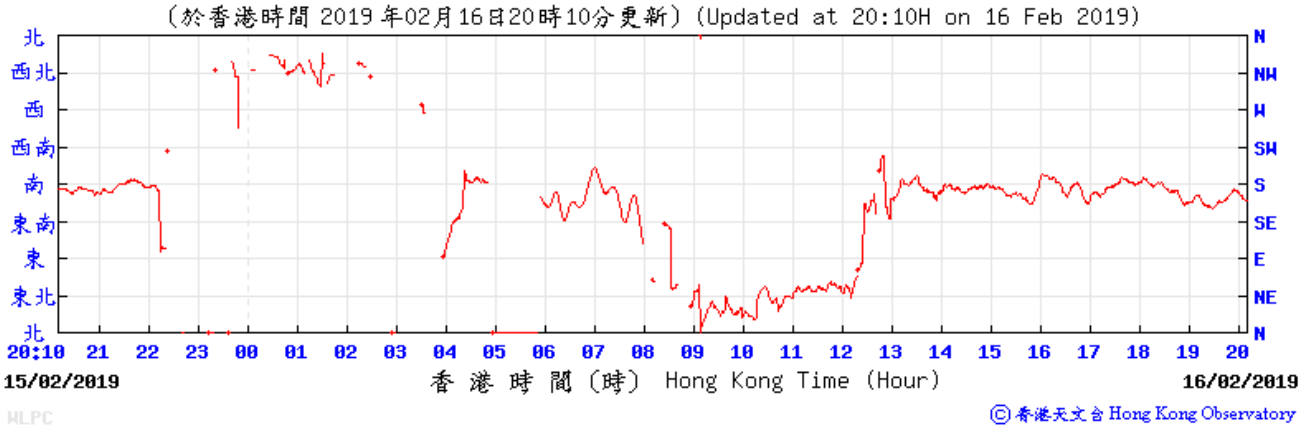


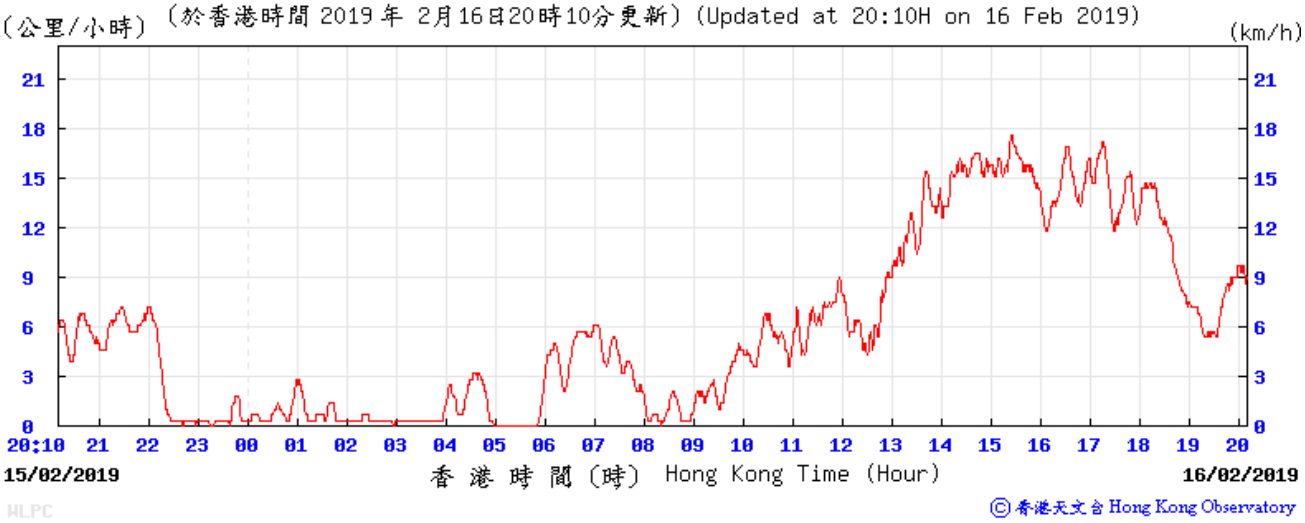


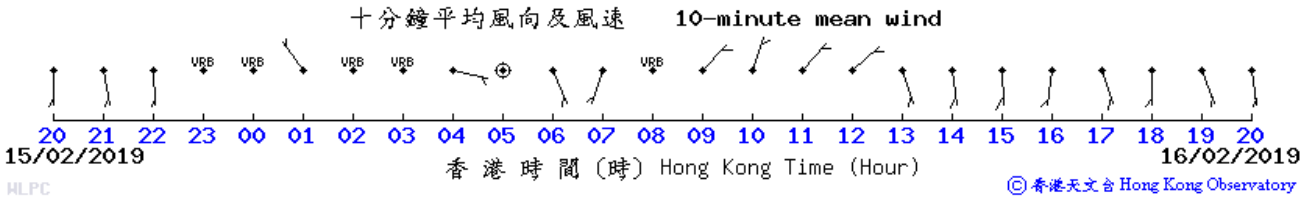


Wind Data for Wetland Park

16 Feb 2019

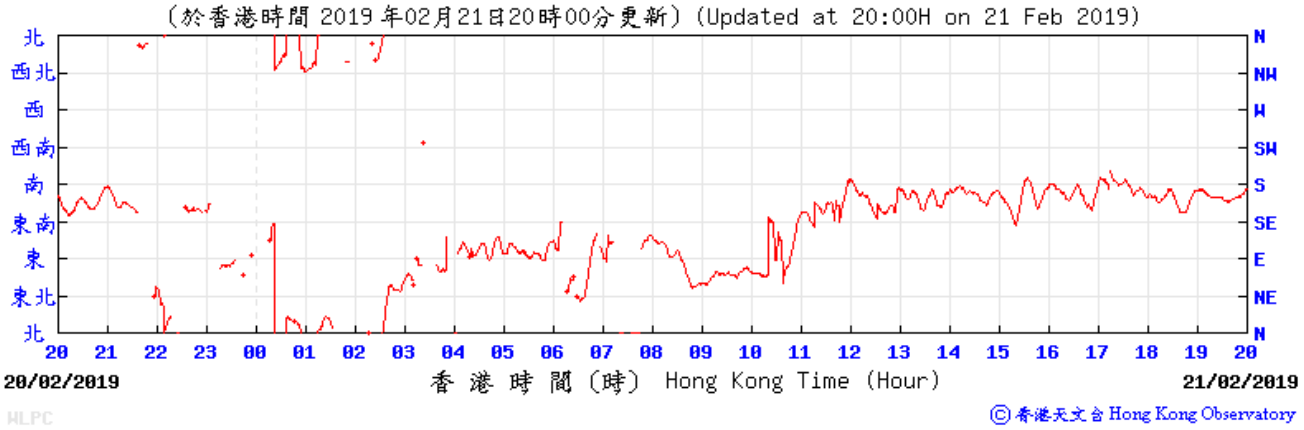


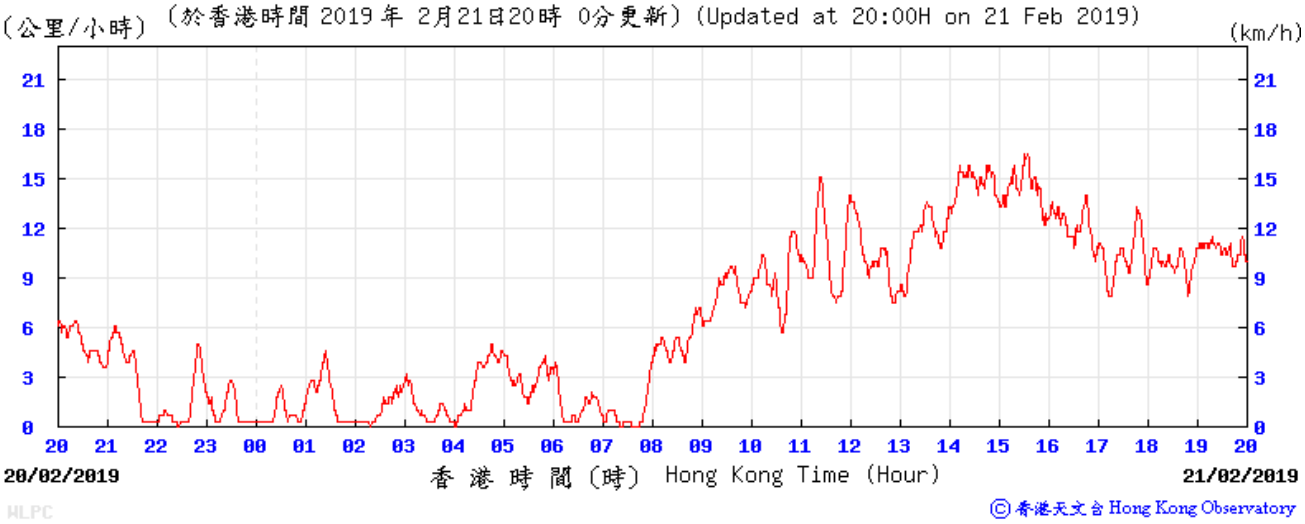


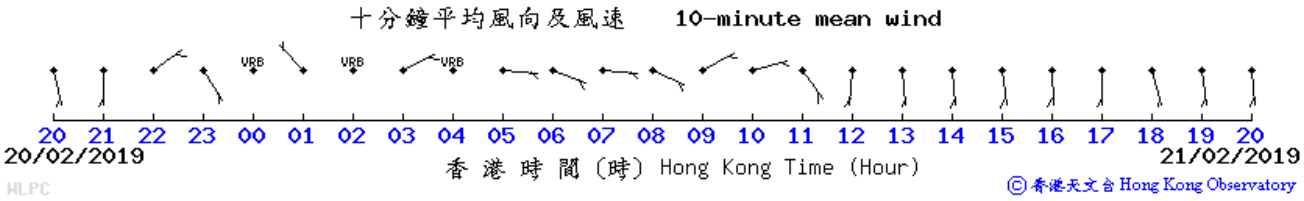


Wind Data for Wetland Park

21 Feb 2019

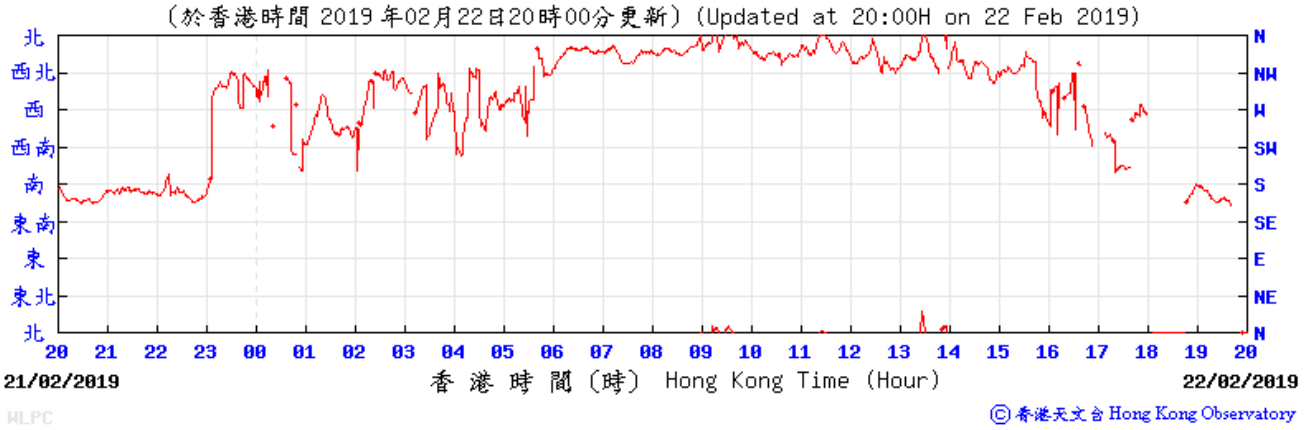


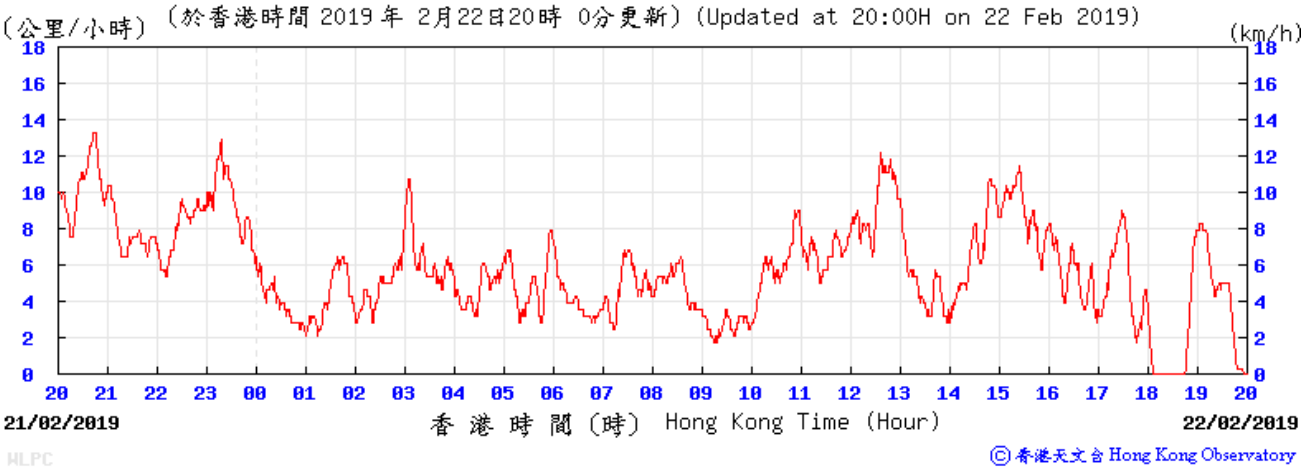


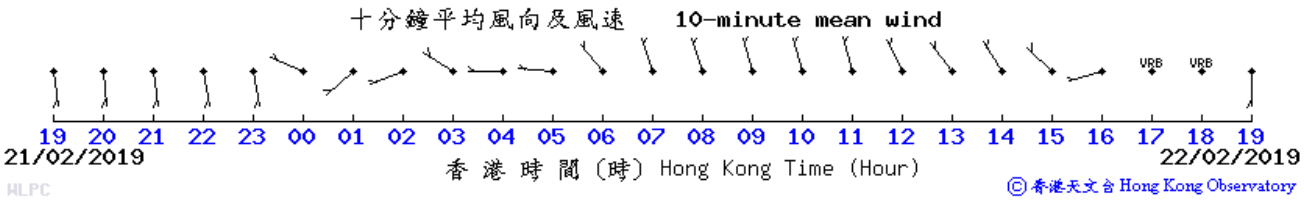


Wind Data for Wetland Park

22 Feb 2019

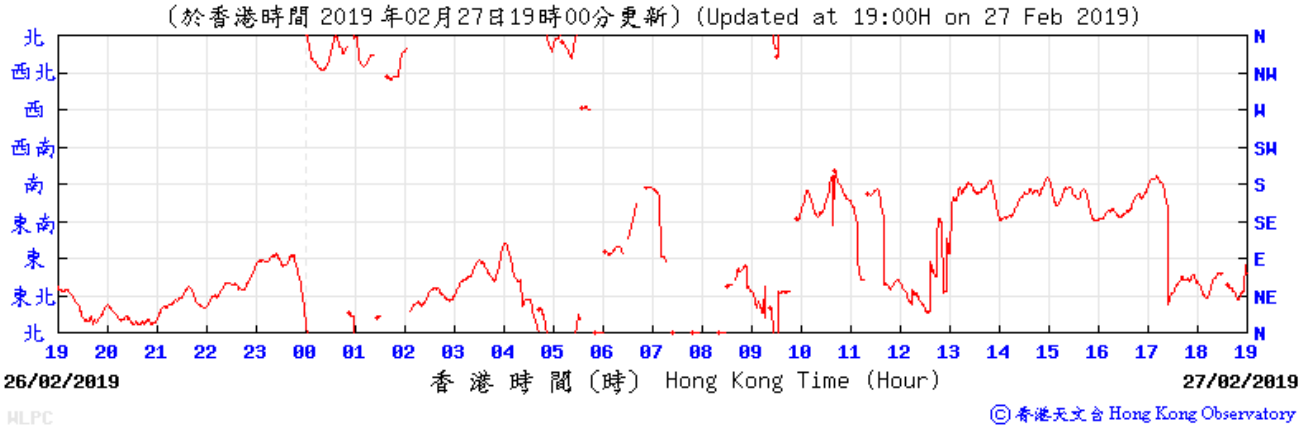


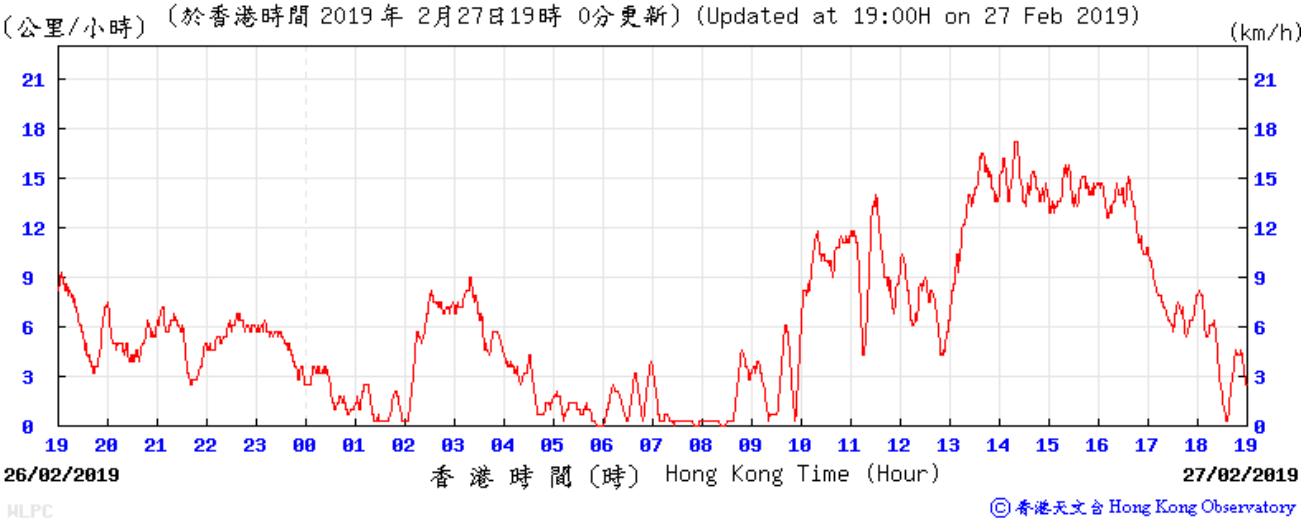


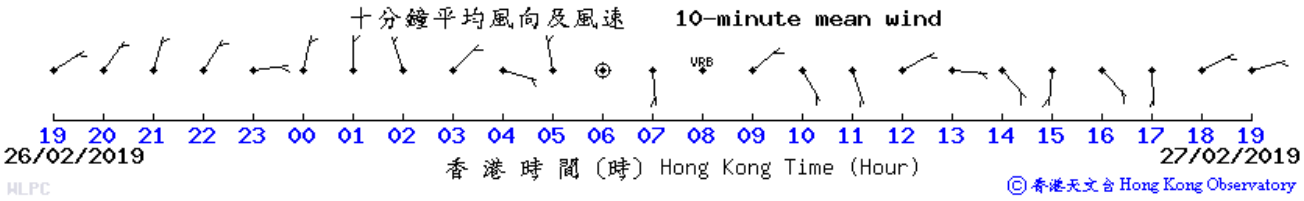


Wind Data for Wetland Park

27 Feb 2019

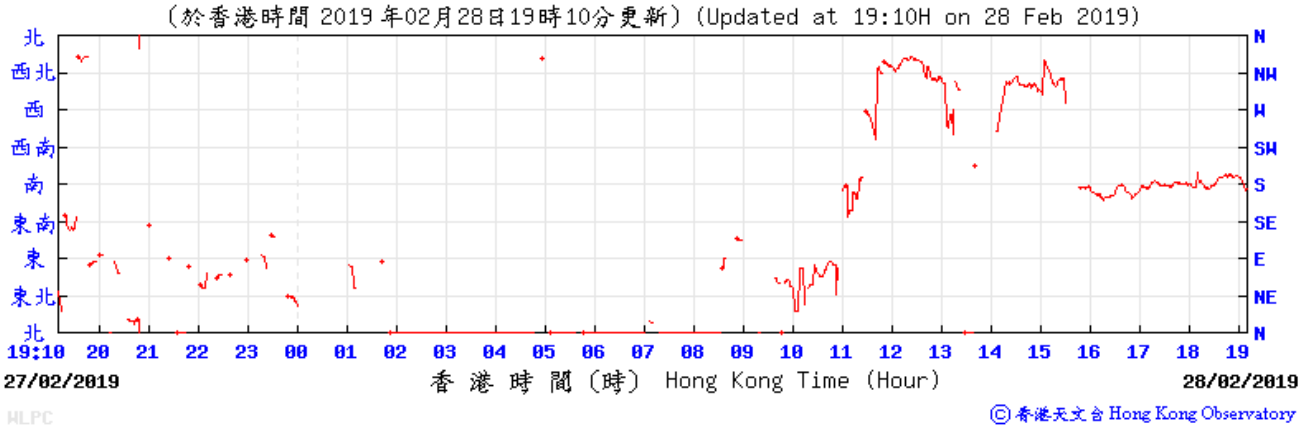


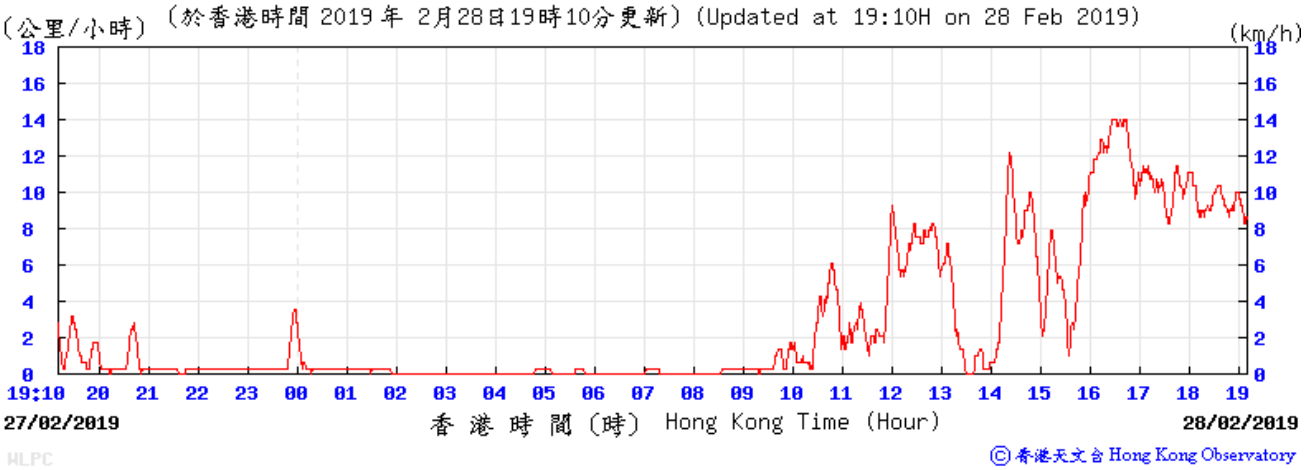


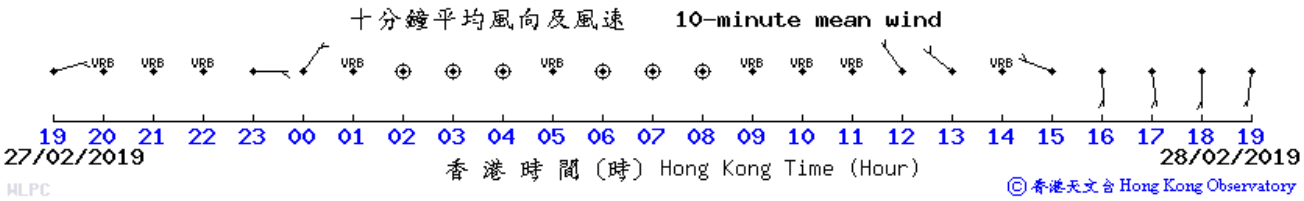


Wind Data for Wetland Park

28 Feb 2019

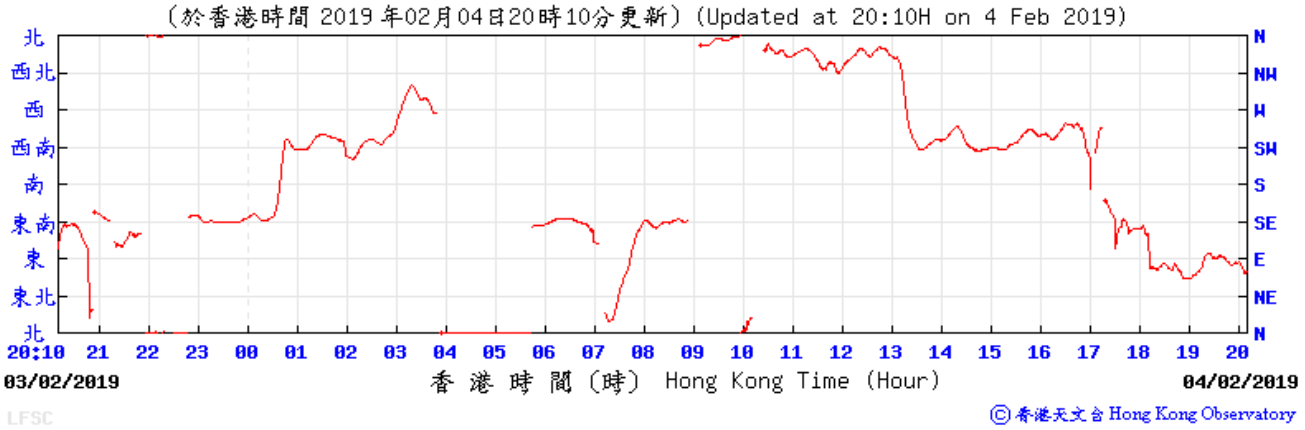


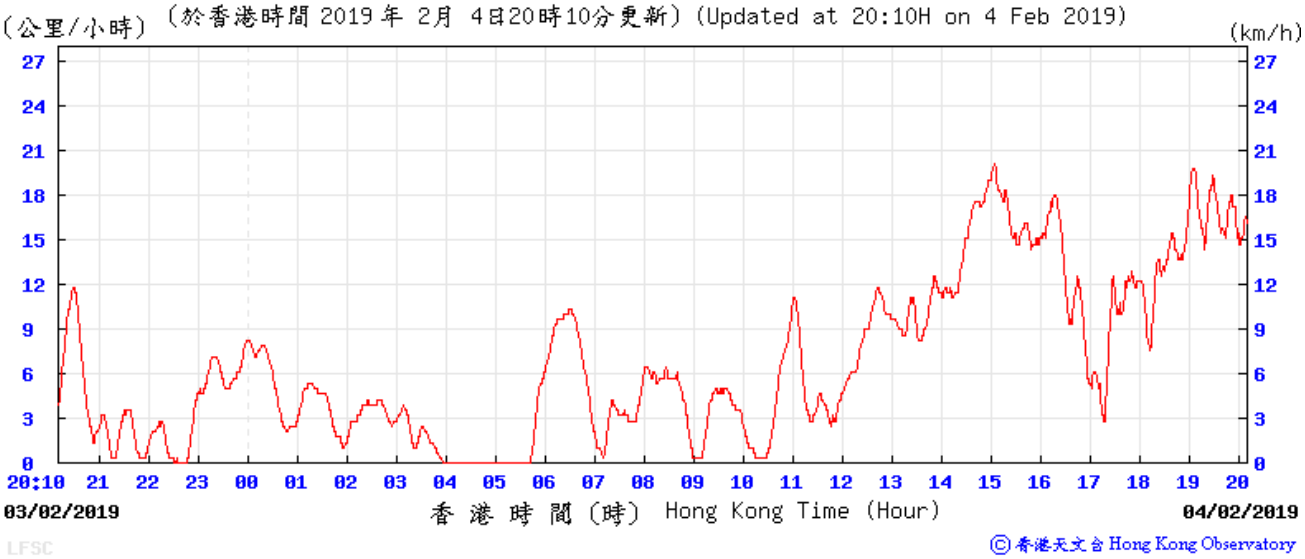


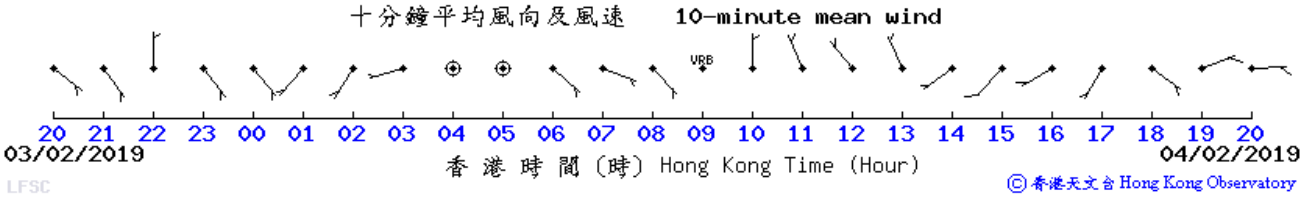


Wind Data for Lau Fau Shan

4 Feb 2019

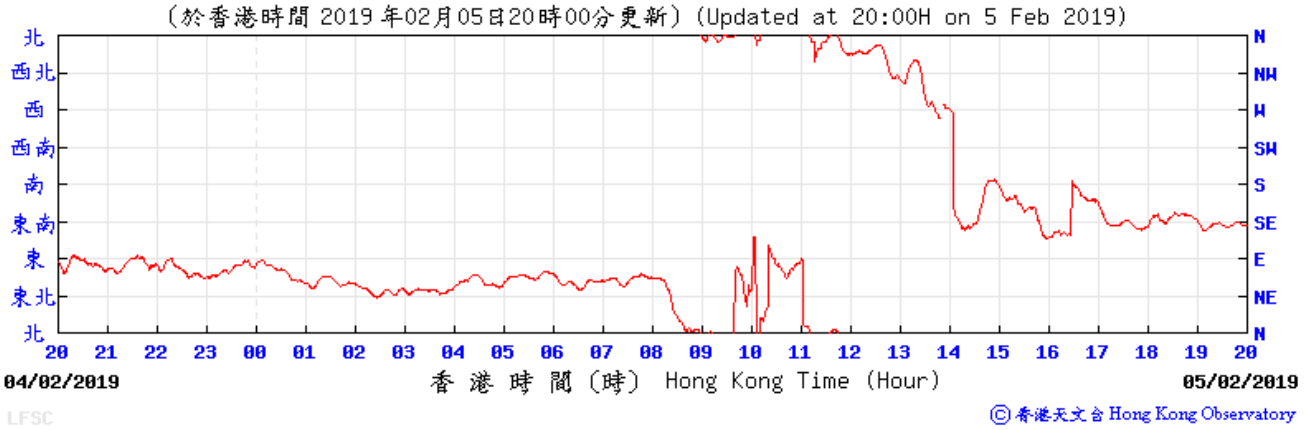


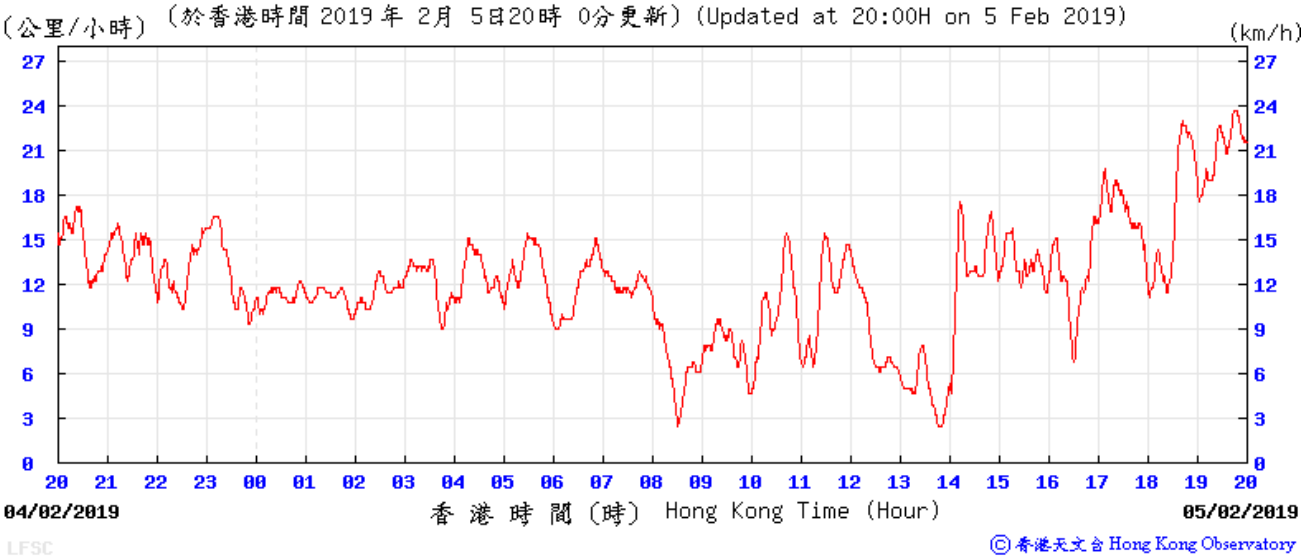


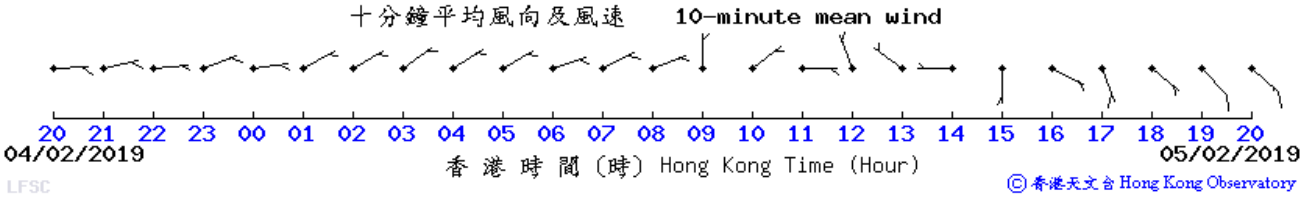


Wind Data for Lau Fau Shan

5 Feb 2019

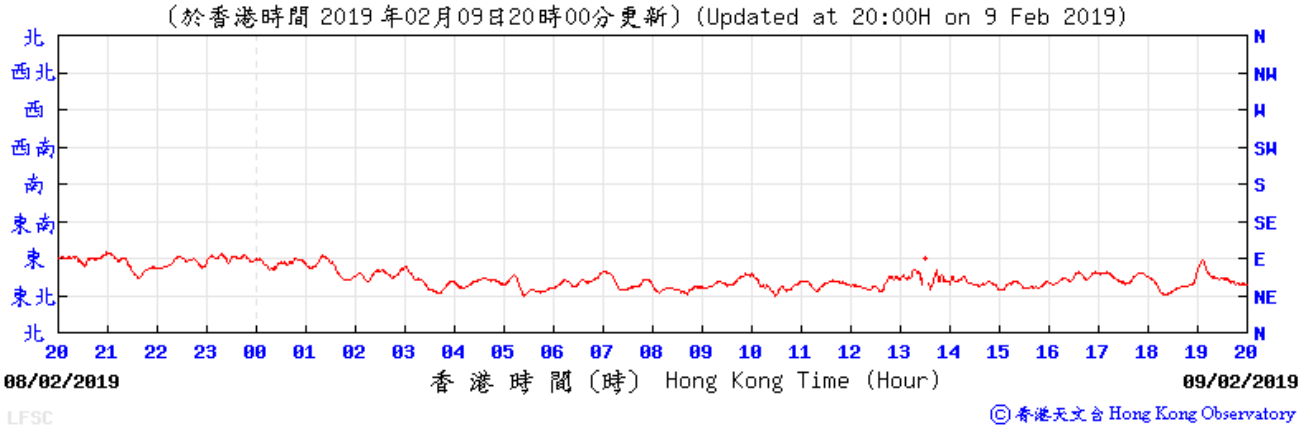


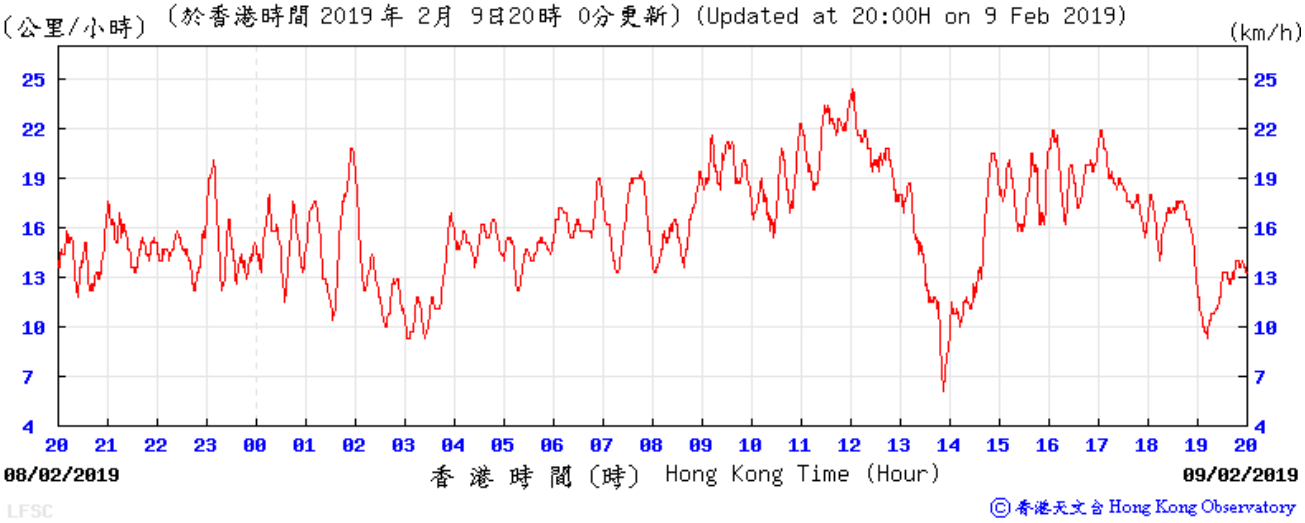


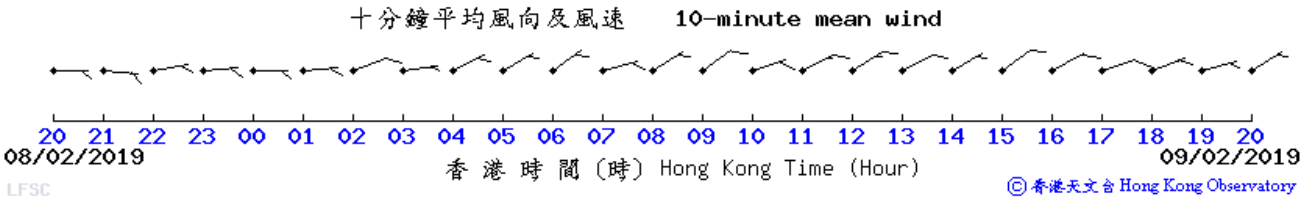


Wind Data for Lau Fau Shan

9 Feb 2019

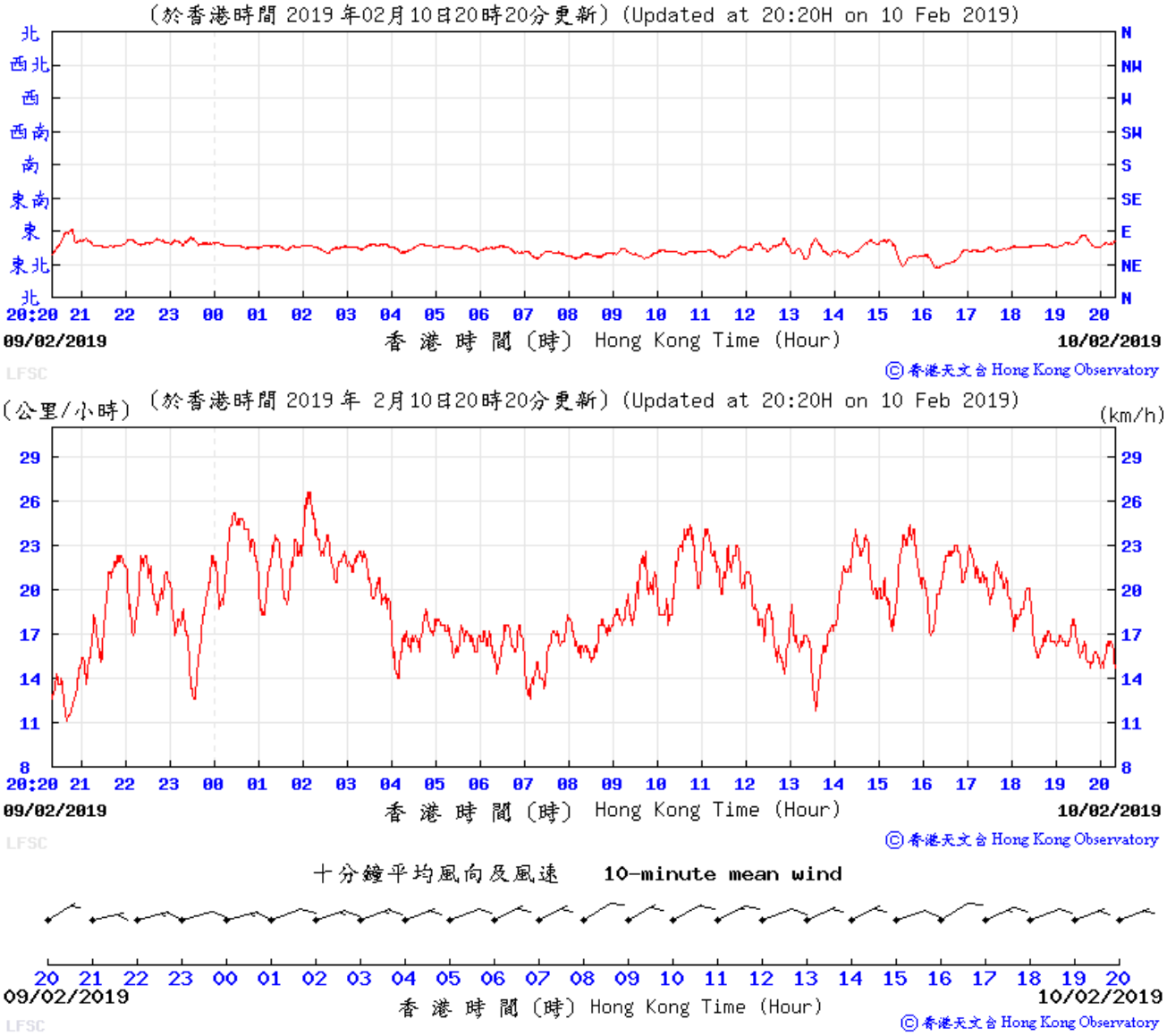






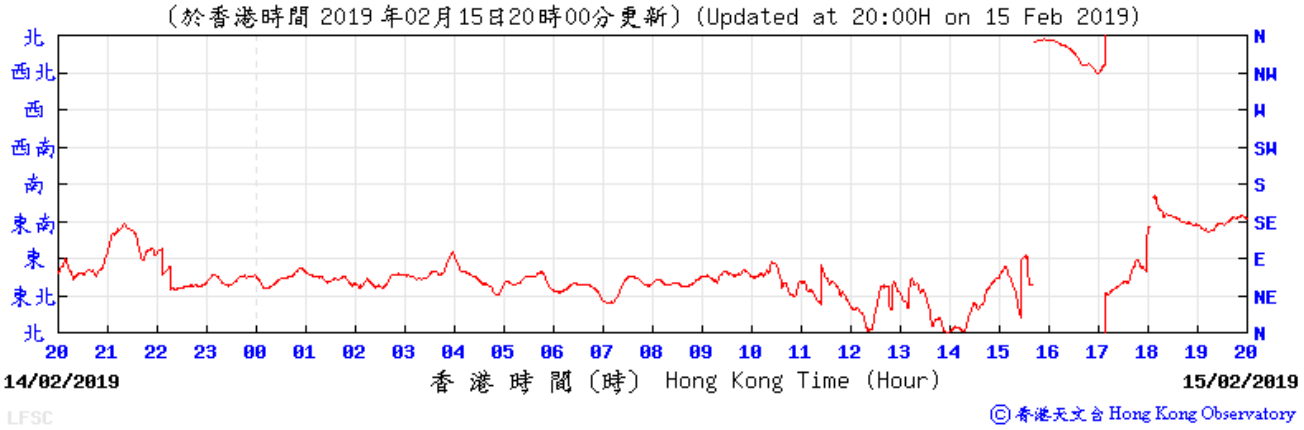
Wind Data for Lau Fau Shan

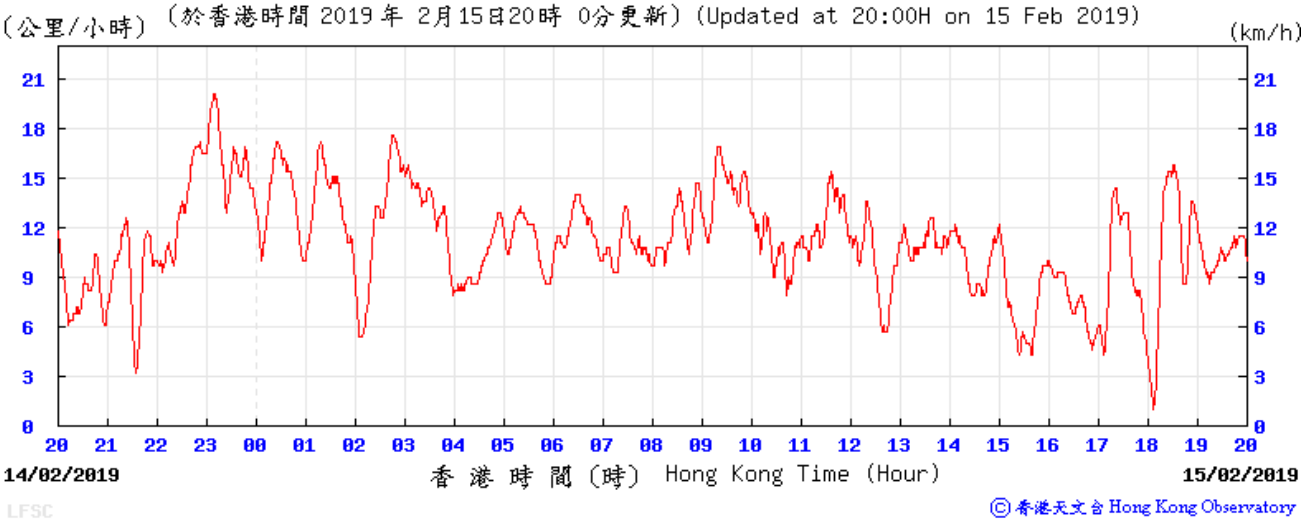
10 Feb 2019

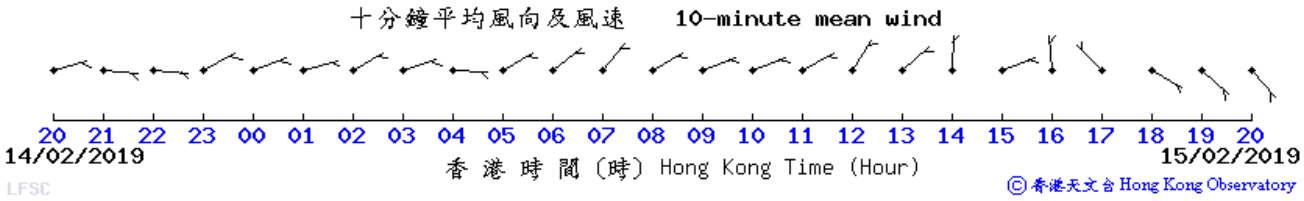


Wind Data for Lau Fau Shan

15 Feb 2019

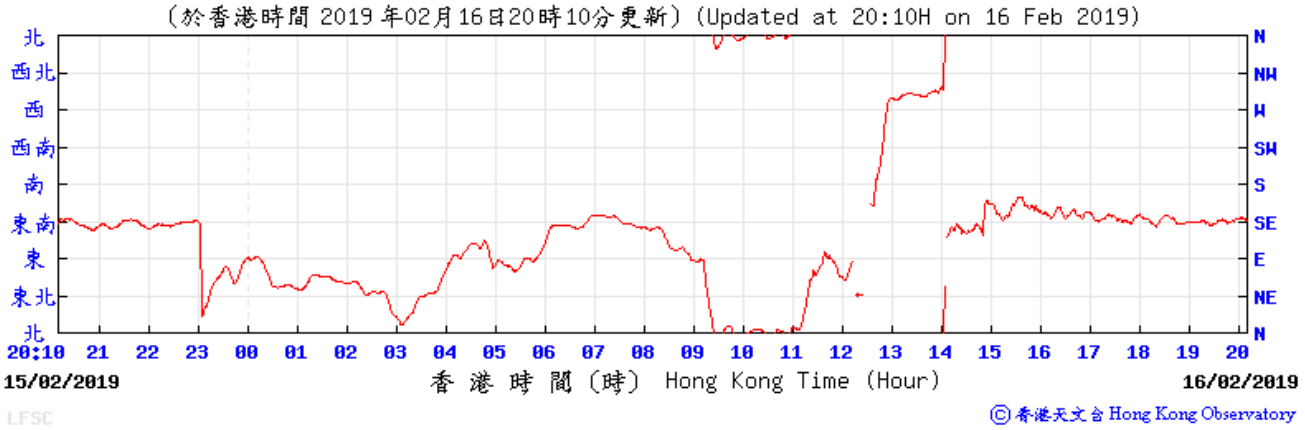


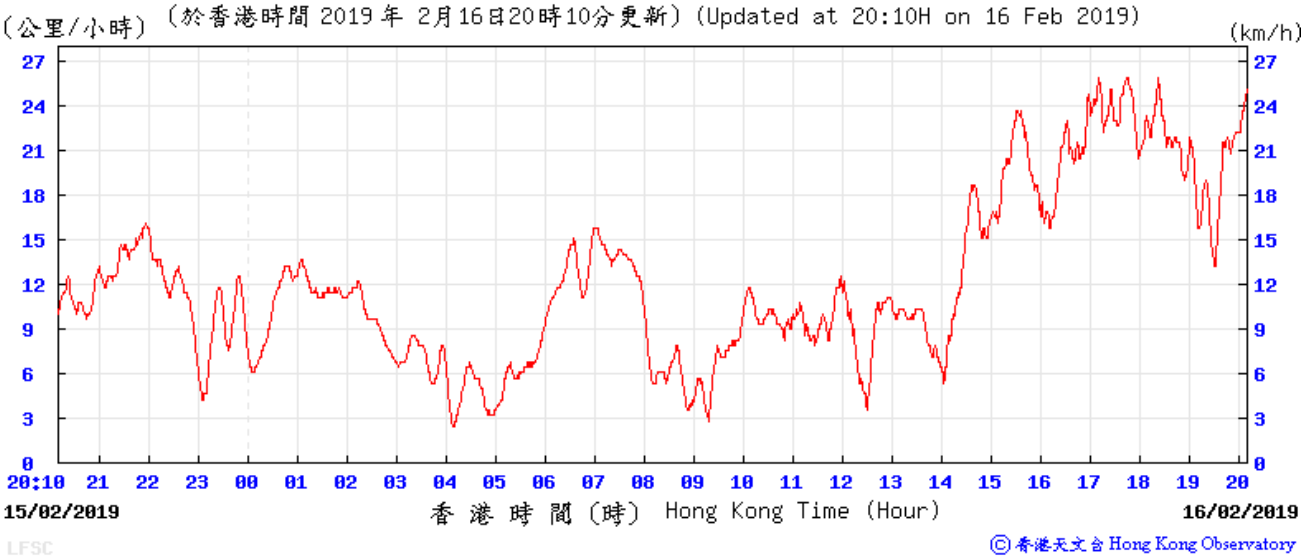


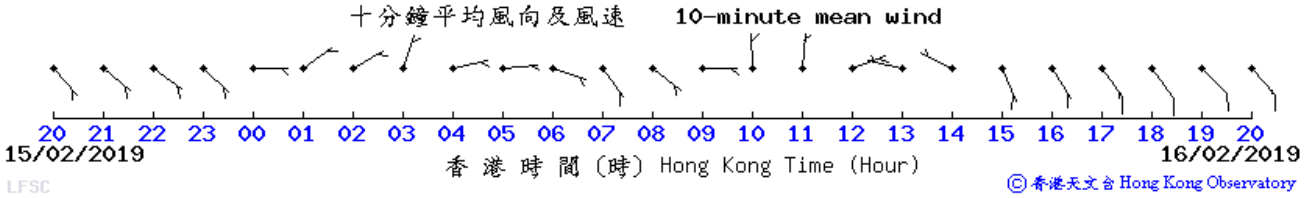


Wind Data for Lau Fau Shan

16 Feb 2019

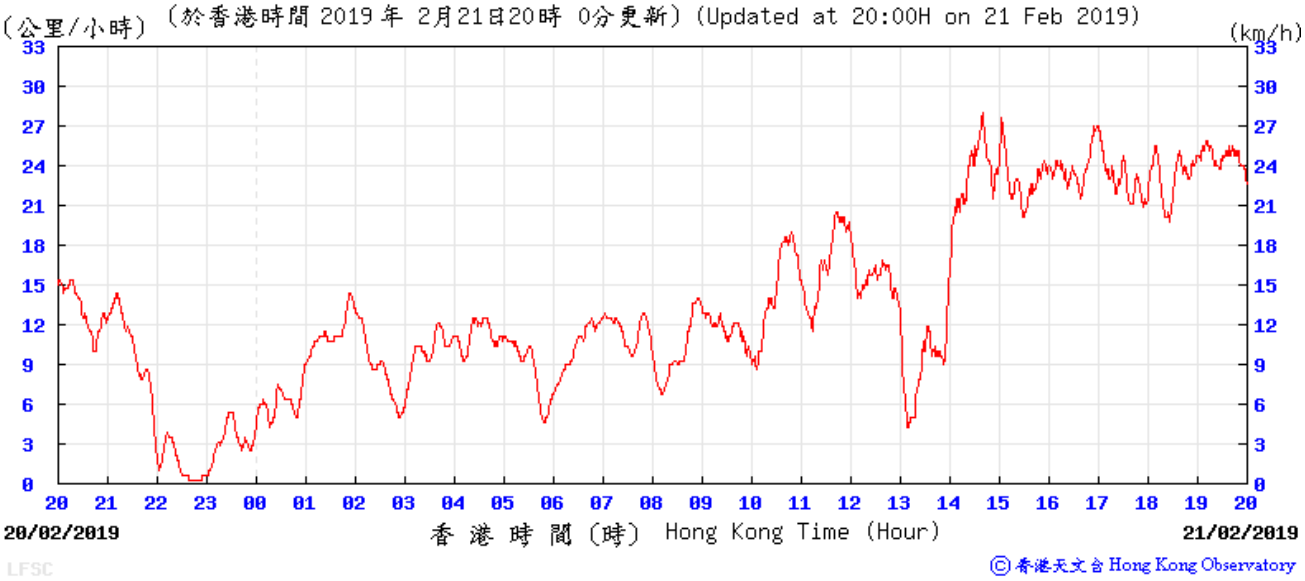


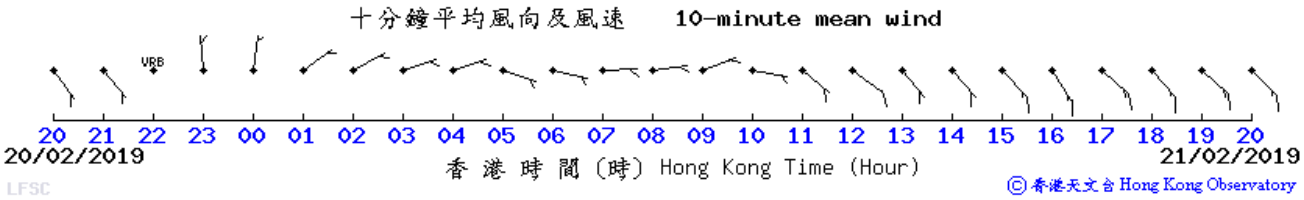




Wind Data for Lau Fau Shan

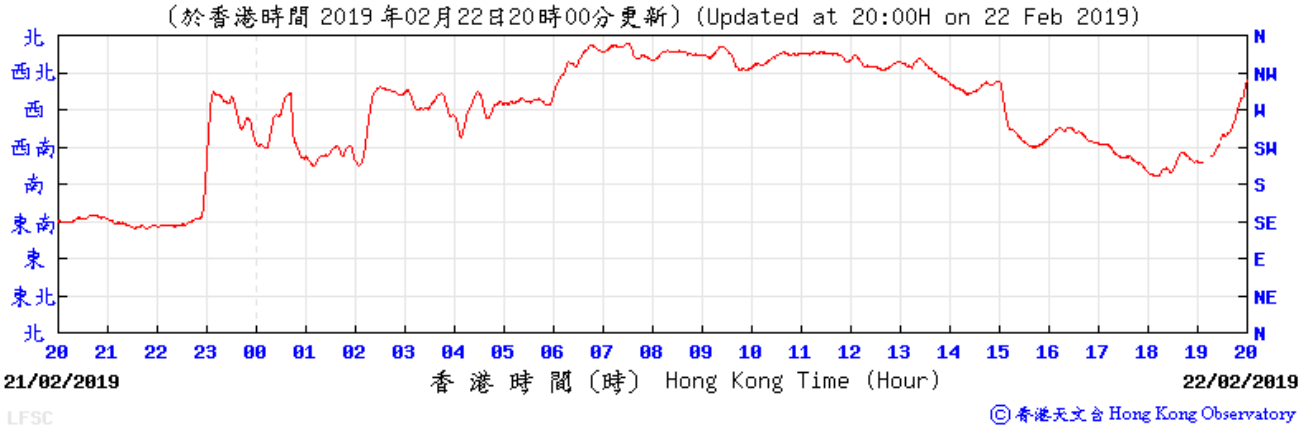
21 Feb 2019

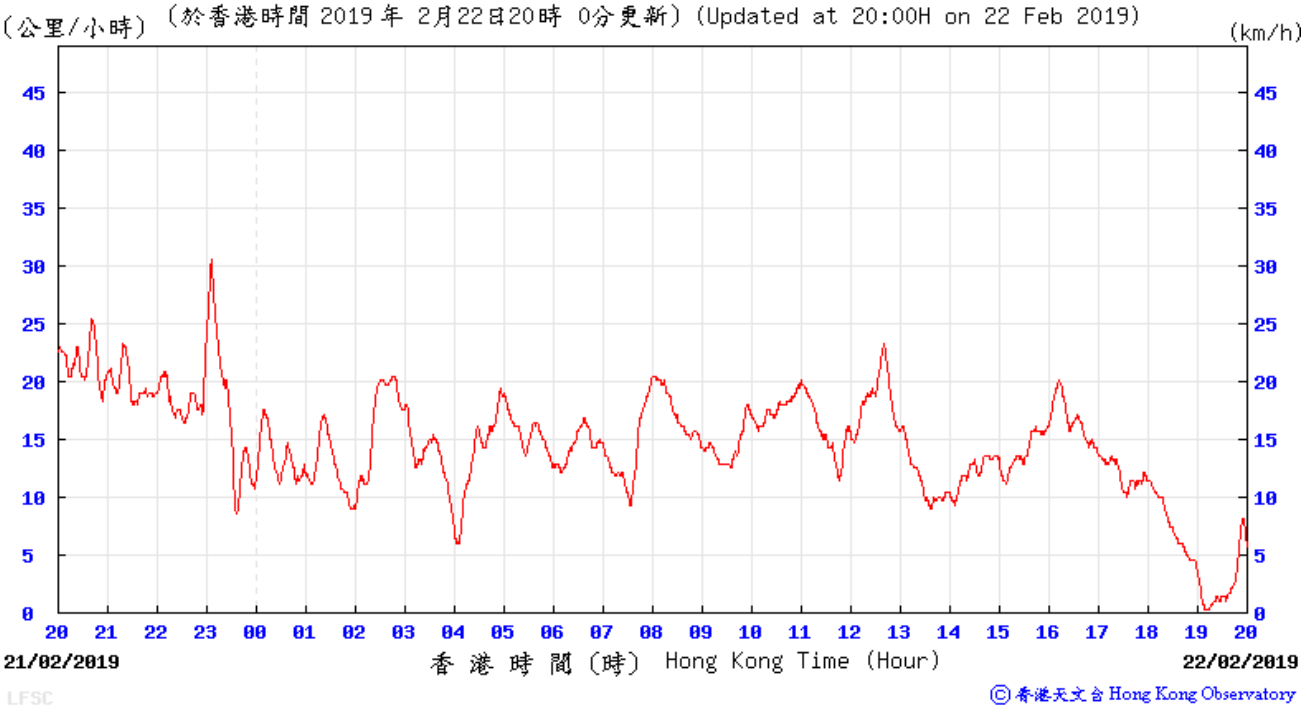


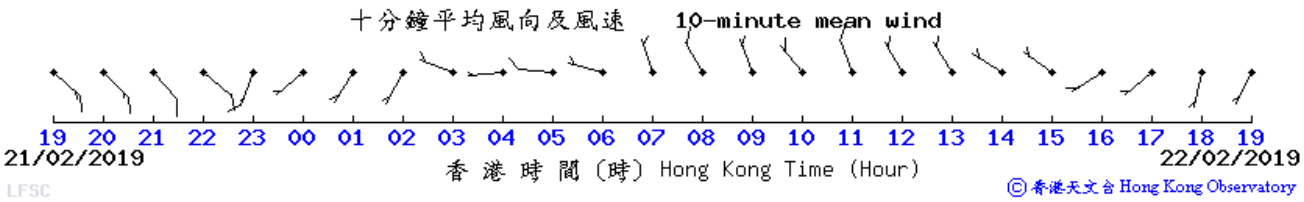


Wind Data for Lau Fau Shan

22 Feb 2019

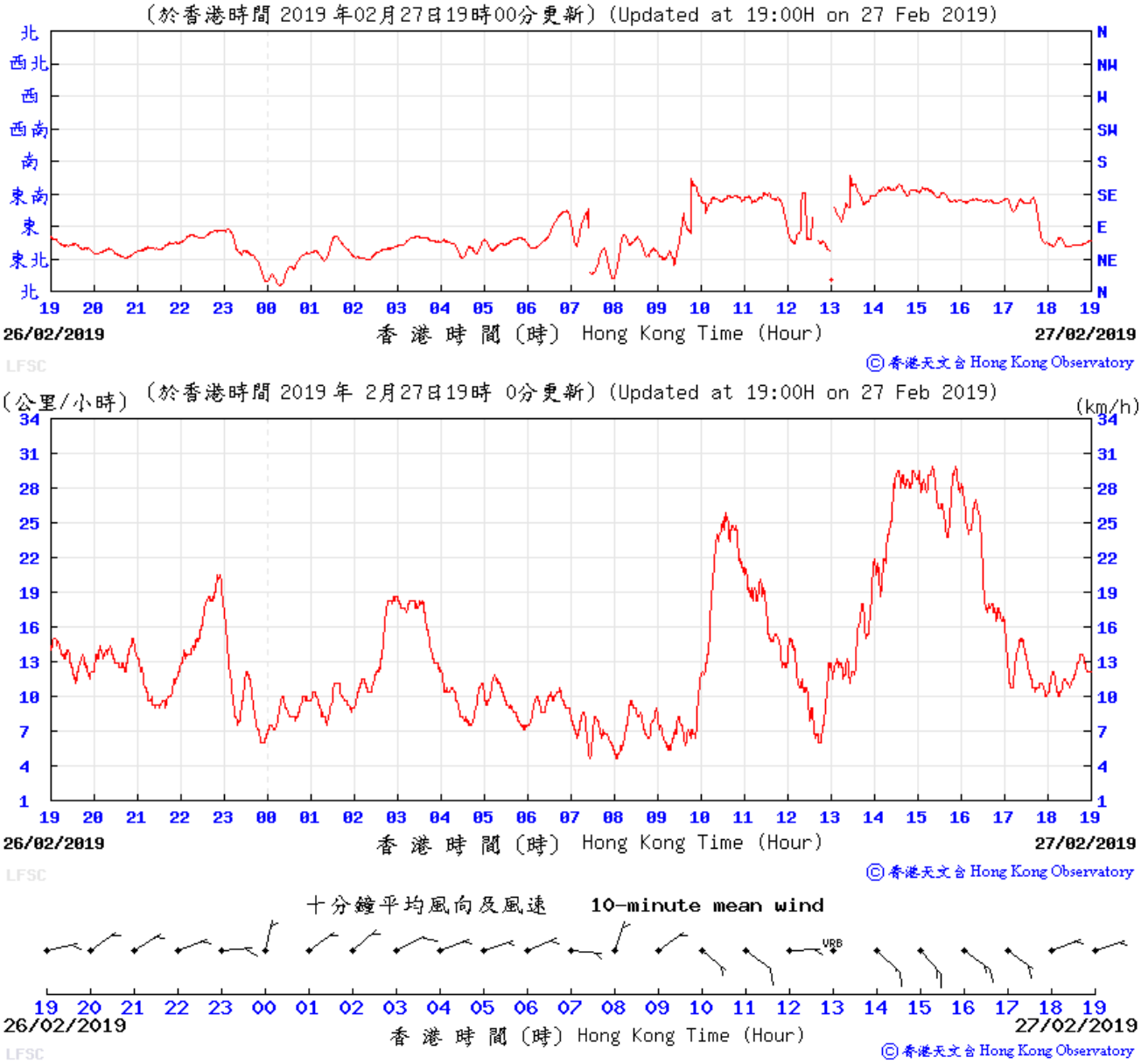






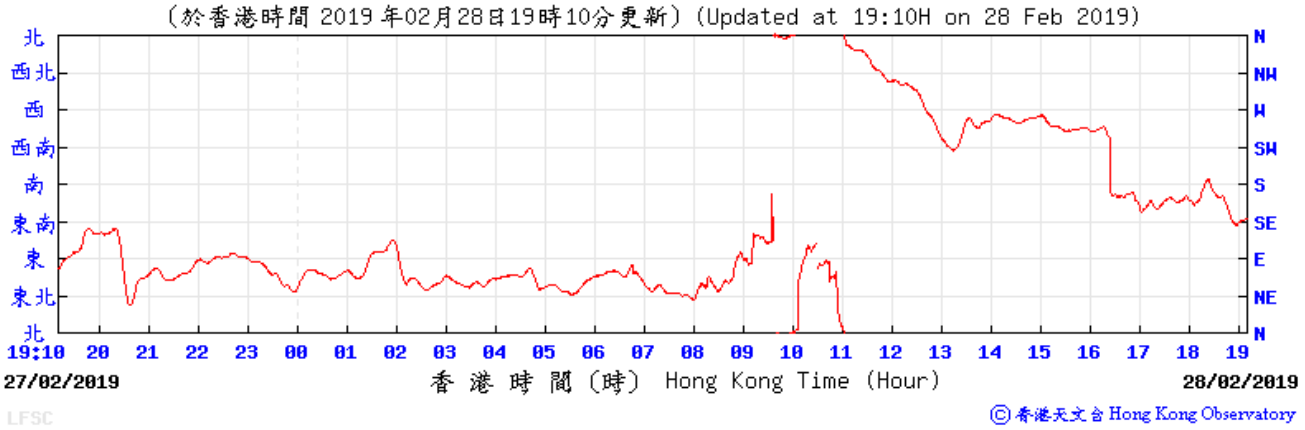
Wind Data for Lau Fau Shan

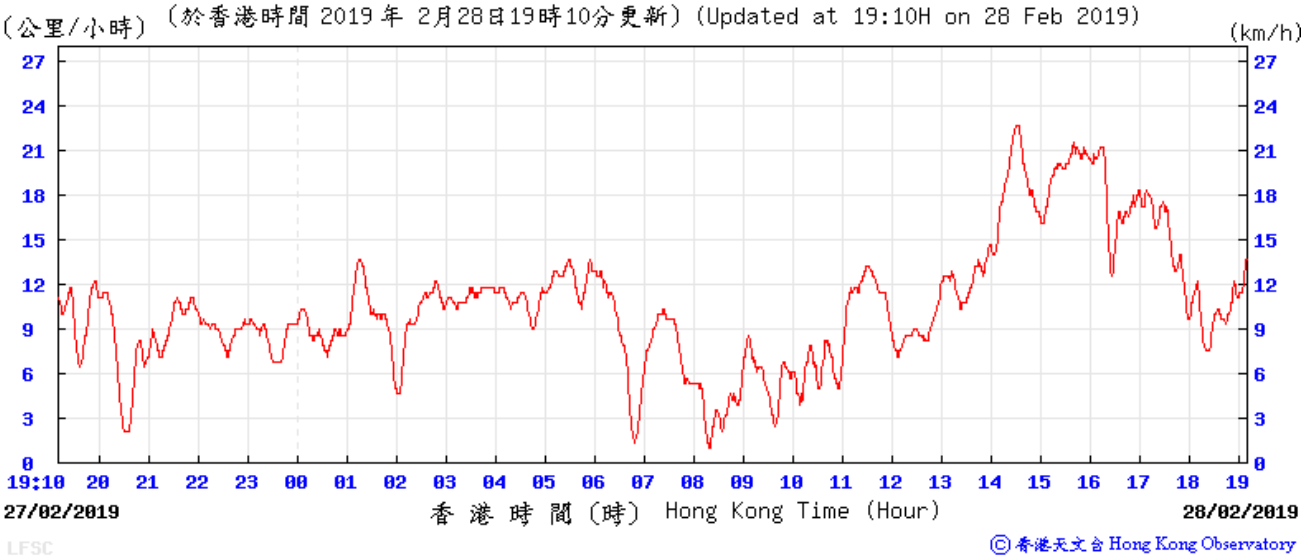
27 Feb 2019

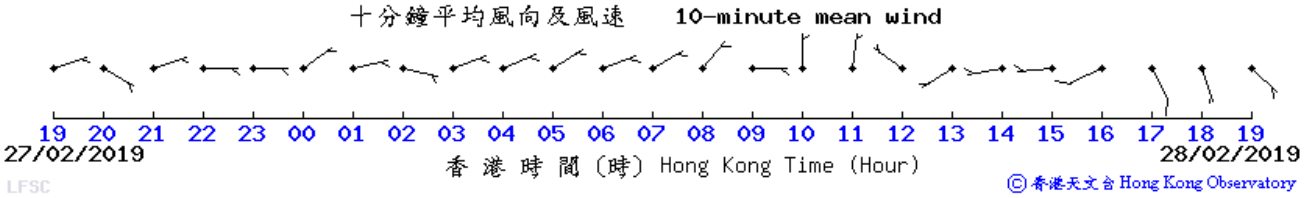


Wind Data for Lau Fau Shan

28 Feb 2019







EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, FEBRUARY 2019 (Table 1)

Date February	Mean Pressure (hPa)	Air Temperature			Mean Dew Point Temperature (deg. C)	Mean Relative Humidity (%)	Mean Amount of Cloud (%)	Total Rainfall (mm)
		Maximum (deg. C)	Mean (deg. C)	Minimum (deg. C)				
1	1021.6	22.0	18.8	17.6	13.1	70	84	-
2	1018.4	20.7	18.6	16.9	15.1	80	84	Trace
3	1017.2	25.3	21.8	19.6	18.7	83	70	Trace
4	1018.1	25.5	21.7	19.5	18.7	83	61	-
5	1017.4	22.3	20.1	18.2	17.3	84	84	-
6	1014.5	24.9	22.1	20.5	19.5	85	83	-
7	1014.8	25.8	23.0	21.3	19.9	83	57	Trace
8	1015.3	25.1	21.7	19.7	19.5	87	78	Trace
9	1017.9	20.1	19.3	18.4	17.6	90	99	0.8
10	1021.7	18.8	18.0	17.4	16.3	90	89	0.8
11	1024.3	19.4	18.4	17.3	15.9	85	94	Trace
12	1024.2	21.9	19.0	16.9	15.8	82	69	0.2
13	1021.8	25.1	21.1	19.0	17.6	80	68	-
14	1020.6	23.2	20.4	18.5	17.5	83	78	Trace
15	1019.9	22.4	20.4	18.8	17.5	84	84	0.2
16	1017.9	26.0	22.4	20.1	18.8	81	72	-
17	1017.8	20.2	18.8	18.0	16.4	86	91	0.1
18	1015.4	19.3	17.9	16.8	16.4	90	91	18.1
19	1016.8	23.8	20.3	18.5	18.8	91	79	31.0
20	1018.5	25.6	22.6	20.8	21.2	92	84	0.2
21	1017.4	23.2	21.4	20.4	20.2	93	88	Trace
22	1017.2	24.3	20.4	18.4	17.2	82	79	1.6
23	1015.8	20.5	18.1	15.6	15.9	87	95	12.3
24	1016.9	19.5	16.9	14.1	14.0	83	88	3.4
25	1017.5	18.9	18.0	16.7	15.4	85	92	Trace
26	1017.6	19.7	18.7	17.6	16.7	88	96	Trace
27	1015.5	23.6	20.7	18.6	18.0	85	82	Trace
28	1014.7	26.7	22.8	20.6	20.0	85	67	-
Mean/Total	1018.1	22.6	20.1	18.4	17.5	85	82	68.7
Normal*	1018.5	18.9	16.8	15.0	13.0	80	74	54.4
Station	Hong Kong Observatory							

EXTRACT OF METEOROLOGICAL OBSERVATIONS FOR HONG KONG, FEBRUARY 2019 (Table 2)

Date February	Number of hours of Reduced Visibility# (hours)	Total Bright Sunshine (hours)	Daily Global Solar Radiation (MJ/m^2)	Total Evaporation (mm)	Prevailing Wind Direction (degrees)	Mean Wind Speed (km/h)
1	0	-	6.77	2.2	010	25.7
2	0	5.1	13.71	1.8	050	28.6
3	4	7.8	14.97	1.8	020	11.3
4	5	7.4	15.35	3.5	070	12.8
5	3	4.3	12.39	1.7	050	23.7
6	0	3.7	10.35	1.6	030	12.3
7	0	7.1	13.80	2.2	170	9.0
8	0	4.4	10.44	2.5	070	22.8
9	0	-	5.99	1.7	070	38.8
10	0	-	4.51	1.2	060	41.6
11	2	-	4.32	1.0	040	27.3
12	0	8.1	17.98	2.7	060	23.8
13	0	3.5	10.77	2.2	030	14.7
14	0	7.3	16.60	3.0	060	28.8
15	0	2.6	12.18	1.9	060	24.9
16	0	9.8	18.50	3.9	070	17.6
17	0	0.8	7.19	1.9	070	43.4
18	0	0.2	2.42	0.7	070	35.3
19	0	3.8	11.47	1.9	030	22.0
20	0	1.2	9.12	1.7	010	13.8
21	2	3.1	12.48	2.7	030	17.6
22	1	4.6	15.79	3.7	360	18.4
23	0	-	3.42	0.7	060	36.5
24	0	0.7	9.39	1.6	010	17.9
25	2	-	4.19	1.1	030	20.0
26	1	0.1	5.26	0.5	060	34.5
27	0	5.7	15.52	1.9	040	20.2
28	1	5.6	12.86	2.5	020	12.7
Mean/Total	21	96.9	10.63	55.8	060	23.4
Normal*	127.6§	94.2	9.39	59.9	070	24.5
Station	Hong Kong International Airport	King's Park			Waglan Island^	

The minimum pressure recorded at the Hong Kong Observatory was 1012.7 hectopascals at 1835 HKT on 6 February.

The maximum air temperature recorded at the Hong Kong Observatory was 26.7 degrees C at 1442 HKT on 28 February.

The minimum air temperature recorded at the Hong Kong Observatory was 14.1 degrees C at 0725 HKT on 24 February.

The maximum gust peak speed recorded at Waglan Island was 70 kilometres per hour from 090 degrees at 1215 HKT on 18 February.

The maximum 1-minute mean rainfall rate recorded at the Hong Kong Observatory was 118 millimetres per hour at 0919 HKT on 19 February.

Reduced visibility refers to visibility below 8 kilometres when there is no fog, mist or precipitation.

- The visibility readings at the Hong Kong International Airport are based on hourly observations by professional meteorological observers in 2004 and before, and average readings over the 10-minute period before the clock hour of the visibility meter near the middle of the south runway from 2005 onwards. The change of the data source in 2005 is an improvement of the visibility assessment using instrumented observations following the international trend.

- Before 10 October 2007, the number of hours of reduced visibility at the Hong Kong International Airport in 2005 and thereafter displayed in this web page was based on hourly visibility observations by professional meteorological observers. Since 10 October 2007, the data have been revised using the average visibility readings over the 10-minute period before the clock hour, as recorded by the visibility meter near the middle of the south runway.

^ In case the data are not available from Waglan Island, observations of Cheung Chau or other nearby weather stations will be incorporated in computing the Prevailing Wind Direction and Mean Wind Speed.

* 1981-2010 Climatlogical Normal, unless otherwise specified

§ 1997-2018 Mean value

H. Ecological Monitoring conducted

February 2019	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mammals	✓			✓								✓			✓
Birds	✓			✓								✓			✓
Herpetofauna															
Dragonflies & butterflies															
Water Quality															
Inspection Visits	✓			✓								✓			✓

February 2019	16	17	18	19	20	21	22	23	24	25	26	27	28
Mammals							✓					✓	
Birds							✓					✓	
Herpetofauna													
Dragonflies & butterflies													
Water Quality					✓		#						
Inspection Visits							✓				✓	✓	

Notes:
Light grey cells indicate public holidays, Saturdays or Sundays
“d” and “n” indicate day-time and night-time herpetofauna surveys respectively
# indicates additional water level monitoring

I. Summary of Bird Surveys conducted

Table I1: Summary of bird species of conservation importance and/or wetland-dependence recorded in the Survey Area (excluding the WRA)

Species Name(4)	Scientific Name(4)	Wetland Dependence	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean(3)	Records outside surveys(5)
Little Grebe	Tachybaptus ruficollis	Y	LC	4	6.8	✓
Great Cormorant	Phalacrocorax carbo	Y	PRC	4	62.0	✓
Grey Heron	Ardea cinerea	Y	PRC	4	4.5	✓
Great Egret	Ardea alba	Y	PRC, (RC)	4	17.3	✓
Little Egret	Egretta garzetta	Y	PRC, (RC)	4	20.3	✓
Chinese Pond Heron	Ardeola bacchus	Y	PRC, (RC)	3	2.8	✓
Black-faced Spoonbill	Platalea minor	Y	PGC, EN	1	0.3	✓
Tufted Duck	Aythya fuligula	Y	LC	4	26.5	✓
White-breasted Waterhen	Amaurornis phoenicurus	Y	-	2	0.8	0
Eurasian Coot	Fulica atra	Y	RC	1	0.3	0
Common Moorhen	Gallinula chloropus	Y	-	1	0.3	0
Black-winged Stilt	Himantopus himantopus	Y	RC	1	0.3	0
Common Sandpiper	Actitis hypoleucos	Y	-	1	0.8	✓
Little Ringed Plover	Charadrius dubius	Y	(LC)	1	0.5	0
White-throated Kingfisher	Halcyon smyrnensis	Y	(LC)	1	0.3	✓
Common Kingfisher	Alcedo atthis	Y	-	2	0.8	✓
Eastern Yellow Wagtail	Motacilla tschutschensis	Y	-	0	0.0	✓
White Wagtail	Motacilla alba	Y	-	4	2.8	✓
White-shouldered Starling	Sturnia sinensis	Y	(LC)	1	0.3	0
Collared Crow	Corvus torquatus	Y	LC, NT	1	0.3	0
			No. of species recorded:	**20**		

Note:
(1) Conservation status follows that of Fellowes *et al.* (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes *et al.* 2002)
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).
(4) Follows HK bird list (dated 2017-09-05).
(5) Includes observations during other surveys and/or site visits.
(6) Four regular surveys and one outside survey were conducted
* Red-billed Starling is considered by Fellowes *et al.* (2002) to be of Global Concern. Since publication, however, the global population estimate has been revised and the species is not now considered globally threatened. A listing of Regional Concern (RC) based on the importance of the large roosts present near Deep Bay, is considered to be more appropriate. (Wetland Restoration Plan, Mott, 2008). Red-billed Starling is now listed as Least Concern by IUCN. (IUCN, 2016)

Table I2: Summary of bird species of conservation importance and/or wetland-dependence recorded in the WRA

Species Name(4)	Scientific Name(4)	Wetland Dependence	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean(3)	Records outside surveys(5)
Little Grebe	*Tachybaptus ruficollis*	Y	LC	3	1.0	✓
Great Cormorant	*Phalacrocorax carbo*	Y	PRC	3	0.8	✓
Grey Heron	*Ardea cinerea*	Y	PRC	4	2.8	✓
Great Egret	*Ardea alba*	Y	PRC, (RC)	4	2.5	0
Little Egret	*Egretta garzetta*	Y	PRC, (RC)	4	8.3	✓
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)	2	2.0	0
Purple Heron	*Ardea purpurea*	Y	RC	2	0.5	✓
Yellow Bittern	*Ixobrychus sinensis*	Y	(LC)	0	0.0	✓
Black Kite	*Milvus migrans*	Y	(RC)	1	0.3	0
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-	1	0.3	✓
Common Moorhen	*Gallinula chloropus*	Y	-	1	0.3	✓
Common Greenshank	*Tringa nebularia*	Y	RC	0	0.0	✓
Wood Sandpiper	*Tringa glareola*	Y	LC	0	0.0	✓
Common Sandpiper	*Actitis hypoleucos*	Y	-	2	0.8	✓
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)	1	0.3	✓
Common Kingfisher	*Alcedo atthis*	Y	-	1	0.5	0
Eastern Yellow Wagtail	*Motacilla tschutschensis*	Y	-	0	0.0	✓
White Wagtail	*Motacilla alba*	Y	-	3	3.0	✓
Collared Crow	*Corvus torquatus*	Y	LC, NT	1	1.0	0
			No. of species recorded:	**19**		

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes *et al*. 2002)
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.
(4) Follows HK bird list (dated 2017-09-05).
(5) Includes observations during other surveys and/or site visits.
(6) Four regular surveys and two outside surveys were conducted
Greater Coucal is listed as vulnerable (VU) in China Red Data Book and it is protected under terrestrial wildlife state protection (category II)
* Red-billed Starling is considered by Fellowes *et al*. (2002) to be of Global Concern. Since publication, however, the global population estimate has been revised and the species is not now considered globally threatened. A listing of Regional Concern (RC) based on the importance of the large roosts present near Deep Bay, is considered to be more appropriate. (Wetland Restoration Plan, Mott, 2008). Red-billed Starling is now listed as Least Concern by IUCN. (IUCN, 2016)

Table I3: Summary of bird species recorded in the Survey Area (excluding the WRA) during the reporting month

Species Name(2)	Scientific Name(2)	Wetland Dependence	Conservation Status(1)
Little Grebe	*Tachybaptus ruficollis*	Y	LC
Great Cormorant	*Phalacrocorax carbo*	Y	PRC
Grey Heron	*Ardea cinerea*	Y	PRC
Great Egret	*Ardea alba*	Y	PRC, (RC)
Little Egret	*Egretta garzetta*	Y	PRC, (RC)
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)
Black-faced Spoonbill	*Platalea minor*	Y	PGC, EN
Tufted Duck	*Aythya fuligula*	Y	LC
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-
Eurasian Coot	*Fulica atra*	Y	RC
Common Moorhen	*Gallinula chloropus*	Y	-
Black-winged Stilt	*Himantopus himantopus*	Y	RC
Little Ringed Plover	*Charadrius dubius*	Y	(LC)
Common Sandpiper	*Actitis hypoleucos*	Y	-
Spotted Dove	*Spilopelia chinensis*	N	-
Eurasian Collared Dove	*Streptopelia decaocto*	N	-
Greater Coucal#	*Centropus sinensis*	N	-
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)
Common Kingfisher	*Alcedo atthis*	Y	-
Barn Swallow	*Hirundo rustica*	N	-
Eastern Yellow Wagtail	*Motacilla tschutschensis*	Y	-
White Wagtail	*Motacilla alba*	Y	-
Olive-backed Pipit	*Anthus hodgsoni*	N	-
Red-whiskered Bulbul	*Pycnonotus jocosus*	N	-
Chinese Bulbul	*Pycnonotus sinensis*	N	-
Daurian Redstart	*Phoenicurus auroreus*	N	-
Stejneger's Stonechat	*Saxicola stejnegeri*	N	-
Dusky Warbler	*Phylloscopus fuscatus*	N	-
Yellow-bellied Prinia	*Prinia flaviventris*	N	-
Scaly-breasted Munia	*Lonchura punctulata*	N	-
Eurasian Tree Sparrow	*Passer montanus*	N	-
Black-collared Starling	*Gracupica nigricollis*	N	-
White-shouldered Starling	*Sturnia sinensis*	Y	(LC)
Common Myna	*Acridotheres tristis*	N	-
Crested Myna	*Acridotheres cristatellus*	N	-
Collared Crow	*Corvus torquatus*	Y	LC, NT
	No. of species recorded:	**36**	

Note:
(1) Conservation status follows that of Fellowes *et al.* (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes *et al.* 2002)
(2) Follows HK bird list (dated 2017-09-05)
(3) Four regular surveys and one outside survey were conducted
\# Greater Coucal is listed as vulnerable (VU) in China Red Data Book and it is protected under terrestrial wildlife state protection (category II)
* Red-billed Starling is considered by Fellowes *et al.* (2002) to be of Global Concern. Since publication, however, the global population estimate has been revised and the species is not now considered globally threatened. A listing of Regional Concern (RC) based on the importance of the large roosts present near Deep Bay, is considered to be

more appropriate. (Wetland Restoration Plan, Mott, 2008). Red-billed Starling is now listed as Least Concern by IUCN. (IUCN, 2016)

Table I4: Summary of bird species recorded in the WRA during the reporting month

Species Name(2)	Scientific Name(2)	Wetland Dependence	Conservation Status(1)
Little Grebe	*Tachybaptus ruficollis*	Y	LC
Great Cormorant	*Phalacrocorax carbo*	Y	PRC
Grey Heron	*Ardea cinerea*	Y	PRC
Purple Heron	*Ardea purpurea*	Y	RC
Great Egret	*Ardea alba*	Y	PRC, (RC)
Little Egret	*Egretta garzetta*	Y	PRC, (RC)
Chinese Pond Heron	*Ardeola bacchus*	Y	PRC, (RC)
Yellow Bittern	*Ixobrychus sinensis*	Y	(LC)
Black Kite	*Milvus migrans*	Y	(RC)
White-breasted Waterhen	*Amaurornis phoenicurus*	Y	-
Common Moorhen	*Gallinula chloropus*	Y	-
Common Greenshank	*Tringa nebularia*	Y	RC
Wood Sandpiper	*Tringa glareola*	Y	LC
Common Sandpiper	*Actitis hypoleucos*	Y	-
Spotted Dove	*Spilopelia chinensis*	N	-
Eurasian Collared Dove	*Streptopelia decaocto*	N	-
Asian Koel	*Eudynamys scolopaceus*	N	-
White-throated Kingfisher	*Halcyon smyrnensis*	Y	(LC)
Common Kingfisher	*Alcedo atthis*	Y	-
Barn Swallow	*Hirundo rustica*	N	-
Eastern Yellow Wagtail	*Motacilla tschutschensis*	Y	-
White Wagtail	*Motacilla alba*	Y	-
Richard's Pipit	*Anthus richardi*	N	-
Red-whiskered Bulbul	*Pycnonotus jocosus*	N	-
Chinese Bulbul	*Pycnonotus sinensis*	N	-
Long-tailed Shrike	*Lanius schach*	N	-
Daurian Redstart	*Phoenicurus auroreus*	N	-
Stejneger's Stonechat	*Saxicola stejnegeri*	N	-
Masked Laughingthrush	*Garrulax perspicillatus*	N	-
Dusky Warbler	*Phylloscopus fuscatus*	N	-
Yellow-bellied Prinia	*Prinia flaviventris*	N	-
Plain Prinia	*Prinia inornata*	N	-
Japanese White-eye	*Zosterops japonica*	N	-
Eurasian Tree Sparrow	*Passer montanus*	N	-
Black-collared Starling	*Gracupica nigricollis*	N	-
Crested Myna	*Acridotheres cristatellus*	N	-
Eurasian Magpie	*Pica pica*	N	-
Collared Crow	*Corvus torquatus*	Y	LC, NT
	No. of species recorded:	**38**	

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and BirdLife International listing (2017). Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence. (Fellowes *et al*. 2002)
(2) Follows HK bird list (dated 2017-09-05)
(3) Four regular surveys and two outside surveys were conducted

Greater Coucal is listed as vulnerable (VU) in China Red Data Book and it is protected under terrestrial wildlife state protection (category II)

* Red-billed Starling is considered by Fellowes *et al* (2002) to be of Global Concern. Since publication, however, the global population estimate has been revised and the species is not now considered globally threatened. A listing of Regional Concern (RC) based on the importance of the large roosts present near Deep Bay, is considered to be more appropriate. (Wetland Restoration Plan, Mott, 2008). Red-billed Starling is now listed as Least Concern by IUCN. (IUCN, 2016)

J. Summary of Herpetofauna, Mammal and Insect Surveys conducted

Table J1: Summary of herpetofauna monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean(3)	Records Outside Surveys(4)
Amphibian	**No. of species recorded:**	**-**			
(No surveys in February 2019)					
Species Name	**Scientific Name**	**Conservation Status(1)**	**Feb 2019 Occurrence(2)**	**Feb 2019 Mean(3)**	**Records Outside Surveys(4)**
Reptile	**No. of species recorded:**	**-**			
(No surveys in February 2019)					

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002), Chan *et al.* (2005) and Karsen *et al.* (1998).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).
(4) Includes observations during other surveys and/or site visits.
(5) No regular surveys nor outside surveys were conducted

Table J2: Summary of herpetofauna monitoring in the WRA

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean(3)	Records Outside Surveys(4)
Amphibian	**No. of species recorded:**	**-**			
(No surveys in February 2019)					
Species Name	**Scientific Name**	**Conservation Status(1)**	**Feb 2019 Occurrence(2)**	**Feb 2019 Mean(3)**	**Records Outside Surveys(4)**
Reptile	**No. of species recorded:**	**-**			
(No surveys in February 2019)					

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002), Chan *et al.* (2005) and Karsen *et al.* (1998).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.
(4) Includes observations during other surveys and/or site visits.
(5) No regular surveys nor outside surveys were conducted

Table J3: Summary of mammal monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Max(3)	Records Outside Surveys(4)
Mammal	**No. of species recorded:**	**0**			
(No records in February 2019)					

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and Shek (2006).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the maximum number of individuals recorded in the reporting period (excluding the WRA).

(4) Includes observations during other surveys and/or site visits.
(5) Four regular surveys and one outside survey were conducted

Table J4: Summary of mammal monitoring in the WRA

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Max(3)	Records Outside Surveys(4)
Mammal	**No. of species recorded:**	**2**			
Bat	*Indet.* sp.	-	0	0.0	✓
Bat	*Indet.* sp. 2	-	0	0.0	✓

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002) and Shek (2006).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the maximum number of individuals recorded in the reporting period in the WRA.
(4) Includes observations during other surveys and/or site visits.
(5) Four regular surveys and two outside surveys were conducted
^Leopard Cat is listed on CITES Appendix II and vulnerable (VU) in China Red Data Book and it is protected under the Wild Animals Protection Ordinance (Cap. 170)

Table J5: Summary of dragonflies (odonata) and butterfly monitoring in the Survey Area (excluding the WRA)

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean (3)	Records Outside Surveys(4)
Odonata	**No. of species recorded:**	**-**			
(No surveys in February 2019)					
Species Name	**Scientific Name**	**Conservation Status(1)**	**Feb 2019 Occurrence(2)**	**Feb 2019 Mean (3)**	**Records Outside Surveys(4)**
Butterfly	**No. of species recorded:**	**-**			
(No surveys in February 2019)					

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002), Lo & Hui (2004), Tam *et al*. (2011) and Young & Yiu (2002).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period (excluding the WRA).
(4) Includes observations during other surveys and/or site visits.
(5) No regular surveys nor outside surveys were conducted

Table J6: Summary of dragonflies (odonata) and butterfly monitoring in the WRA

Species Name	Scientific Name	Conservation Status(1)	Feb 2019 Occurrence(2)	Feb 2019 Mean (3)	Records Outside Surveys(4)
Odonata	**No. of species recorded:**	**-**			
(No surveys in February 2019)					
Species Name	**Scientific Name**	**Conservation Status(1)**	**Feb 2019 Occurrence(2)**	**Feb 2019 Mean (3)**	**Records Outside Surveys(4)**
Butterflies	**No. of species recorded:**	**-**			
(No surveys in February 2019)					

Note:
(1) Conservation status follows that of Fellowes *et al*. (2002), Lo & Hui (2004), Tam *et al*. (2011) and Young & Yiu (2002).
(2) Indicates number of surveys recorded within the reporting period.
(3) Refers to the mean number of individuals recorded in the reporting period in the WRA.
(4) Includes observations during other surveys and/or site visits.
(5) No regular surveys nor outside surveys were conducted

K. Summary of Water Quality Monitoring associated with Ecological Monitoring conducted

Table K1. Water quality at WRA during the reporting month

Cell No.	Temp. (°C)	pH	Salinity (ppt)	Turbidity (NTU)	DO (mg/L)	Water Level (regular monitoring) (cm)	Additional Water Level Monitoring (cm)
1	25.6	7.5	0.08	3.3	8.8	150	**140**
2	25.3	7.3	0.10	4.7	8.6	**130**	**130**
3	24.3	7.3	0.07	4.5	8.2	150	150
4	25.8	7.4	0.08	5.2	8.1	160	150
Action Level	-	<6.5 or >8.0	>2	-	<2	<150 or >250	<150 or >250
Limit Level	-	<6.0 or >8.5	>5	-	<1	-	-

Note: Values highlighted in **bold** indicate that action level is reached; whereas values in **bold and underline** indicate that limit level is reached.

L. Environmental Mitigation Measures - Implementation Status

Air Quality – Recommended Mitigation Measures

Air Quality Mitigation Measures during construction	Implementation Status
access roads should be sprayed with water or dust suppression chemical to maintain the entire road surface wet or paved;	✓
every stock of more than 20 bags of cement or dry PFA should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	N/A
de-bagging, batching or mixing process should be carried out in sheltered areas during the use of bagged cement;	N/A
use of effective dust screens, sheeting or netting to be provided to enclose dry scaffolding which may be provided from the ground floor level of the building or if a canopy is provided at the first-floor level, from the first floor level, up to the highest level (maximum four floors for this Project) of the scaffolding where scaffolding is erected around the perimeter of a building under construction;	N/A
dump trucks for material transport should be totally enclosed using impervious sheeting;	✓
any excavated dusty materials or stockpile of dusty materials should be covered entirely by impervious sheeting or sprayed with water so as to maintain the entire surface wet, and recovered or backfilled or reinstated within 24 hours of the excavation or unloading;	✓
dusty materials remaining after a stockpile is removed should be wetted with water;	✓
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 e.g. concrete, bituminous materials or hardcore or similar;	✓
the portion of road leading only to a construction site that is within 30m of a designated vehicle entrance or exit should be kept clear of dusty materials;	✓
stockpile of dusty materials to be either covered entirely by impervious sheeting, placed in an area sheltered on the top and the 3 sides; or sprayed with water so as to maintain the entire surface wet;	✓
all dusty materials to be sprayed with water prior to any loading, unloading or transfer operation so as to maintain the dusty material wet;	✓
vehicle speed to be limited to 10 kph except on completed access roads;	✓
every vehicle should be washed to remove any dusty materials from its body and wheels before leaving the construction sites;	✓
the load of dusty materials carried by vehicle leaving a construction site should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle; and	✓
the working area of excavation should be sprayed with water immediately before, during and immediately after (as necessary) the operations so as to maintain the entire surface wet.	✓
Odour mitigation measures	
all malodorous excavated material should be placed as far as possible from any ASRs;	N/A
the stockpiled malodorous material should be removed from site as soon as possible; and	N/A
the stockpiled malodorous material should be covered entirely by plastic tarpaulin sheets.	N/A

Noise – Recommended Mitigation Measures

Noise Mitigation Measures during construction	Implementation Status
only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction works;	✓
machines and plant that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;	✓
plant known to emit noise strongly in one direction should, where possible, be orientated to direct noise away from the NSRs;	✓
silencers or mufflers on construction equipment should be utilised and should be properly maintained during the construction period;	✓
mobile plant should be sited as far away from NSRs as possible;	✓
material stockpiles and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities; and	✓
air compressor and hand-held breaker should be fitted with valid noise emission labels during operation; and	N/A
The Contractor shall at all times comply with all current statutory environmental legislation.	✓
Selection of quieter plant and working methods The Contractor shall obtain particular models of plant that are quieter than standards given in GW-TM. The list of assumed quieter plants can be found in the Table 4–14 of the EIA report. The Contractor shall select from the available models achieving the assumed sound levels while making reference to the GW-TM and BS5228: Part 1: 1997	✓
Use of Noise Barriers Noise barriers are proposed along the site boundary to block the direct line of sight from the most affected NSRs to the major noise contribution construction phases. The height of the noise barriers ranged from 9-10m. The noise barriers shall be built before the commencement of construction works in order to ensure protection to nearby NSRs. The noise barrier should have a surface density of at least 10kg/m^2 or material providing equivalent transmission loss. The noise barriers and hoardings should have no gaps and openings to avoid noise leakage.	P

Water Quality – Recommended Mitigation Measures

Water Quality Mitigation Measures during construction	Implementation Status
The site should be confined to avoid silt runoff to the site.	✓
No discharge of silty water into the storm drain and drainage channel within and the vicinity of the site.	✓
Any soil contaminated with chemicals/oils shall be removed from site and the void created shall be filled with suitable materials.	✓
Stockpiles to be covered by tarpaulin to avoid spreading of materials during rainstorms;	N/A
Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport;	✓
Chemical waste containers shall be labelled with appropriate warning signs in English and Chinese to avoid accidents. there shall also be clear instructions showing what action to take in the event of an accidental;	✓
Storage areas shall be selected at safe locations on site and adequate space shall be allocated to the storage area;	✓
Any construction plant which causes pollution to the water system due to leakage of oil or fuel shall be removed off-site immediately;	N/A
Spillage or leakage of chemical waste to be controlled by using suitable absorbent materials;	N/A
Chemicals will always be stored on drip trays or in bunded areas where the volume is 110% of the stored volume;	P
Regular clearance of domestic waste generated in the temporary sanitary facilities to avoid waste water spillage.	✓
Temporary sanitary facilities to be provided for on-site workers during construction.	✓

Water Quality Mitigation Measures during construction	Implementation Status
Temporary drainage channel and associated facilities will be provided to collect the surface runoff generated within the Project Area during the construction phase.	✓
Sandbags or silt traps will need to be placed to avoid silt runoff to the drainage channel draining the water in the northern ditch. Draining of the ditches should avoid rainy weather.	✓
Excavated soil which needs to be temporarily stockpiled should be stored in a specially designated area and provided with a tarpaulin cover to avoid runoff into the drainage channels.	✓

Waste Management – Recommended Mitigation Measures

Waste Management Mitigation Measures during construction	Implementation Status
Site Clearance Waste The major construction works of Wo Shang Wai is in the development of residential buildings and other associated facilities (club house, tennis courts, etc.). The amount of site clearance works will be limited with the exception of the excavated materials. The thin layer of vegetation removed can be stored and reused for landscaping.	✓
Excavated Materials The intention is to maximize the reuse of the excavated materials on-site as fill materials.	✓
Imported Filling Material The excavated/imported filling material may have to be temporarily stockpiled on-site for the construction of road embankment and foundation of viaduct substructure. Control measures should be taken at the stockpiling area to prevent the generation of dust and pollution of stormwater channels. However, to eliminate the risk of blocking drains in the wet season, it is recommended that stockpiling of excavated materials at during wet season should be avoided as far as practicable.	✓
Construction and Demolition Materials Careful design, planning and good site management can minimise over-ordering and generation of waste materials such as concrete, mortars and cement grouts. The design of formwork should maximise the use of standard wooden panels so that high reuse levels can be achieved. Alternatives such as steel formwork of plastic facing should be considered to increase the potential for reuse.	✓
The Contractor should reuse any C&D material on-site. C&D waste should be segregated and stored in different containers to other wastes to encourage the re-use or recycling of materials and their proper disposal.	✓
Chemical Waste For those processes which generate chemical waste, it may be possible to find alternatives which generate reduced quantities or even no chemical waste, or less dangerous types of chemical waste.	N/A
Containers used for the storage of chemical wastes should:	
be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed:	✓
have a capacity of less than 450 litres unless the specification has been approved by the EPD; and	✓
display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations,	✓
The storage area for chemical wastes should:	
be clearly labelled and used solely for the storage of chemical waste;	✓
be enclosed on at least 3 sides;	✓
have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area whichever is the greatest;	✓
have adequate ventilation;	✓
be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and	✓
be arranged so that incompatible materials are adequately separated.	✓
Disposal of chemical waste should:	
be via a licensed waste collector; and	N/A

Waste Management Mitigation Measures during construction	Implementation Status
be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers, or	N/A
to be a reuser of the waste, under approval from the EPD.	N/A
General Refuse Should be stored in enclosed bins or compaction units separate from C&D and chemical wastes. The Contractor should employ a reputable waste collector to remove general refuse from the site, separate from C&D and chemical wastes, on a regular basis to minimise odour, pest and litter impacts. Burning of refuse on construction sites is prohibited by law.	P
Disposal of Excavated Sediment at Sea	
The requirements and procedures for excavated sediment disposal are specified under the ETWB TCW No. 34/2002 and PNAP 252. The management of the excavation, use and disposal of sediment is monitored by Fill Management Committee, whilst the licensing of marine dumping is the responsibility of the Director of Environmental Protection (DEP).	N/A
The excavated sediment would be loaded onto barges or other appropriate vessel and transported to the designated marine disposal site. Category L sediment and Category M sediment passing the biological test would be suitable for disposal at a gazetted open sea disposal ground. Category M sediment failing the biological test and Category H sediment passing the biological test would require confined marine disposal.	N/A
During transportation and disposal of the dredged sediment, the following measures should be taken to minimize potential impacts on water quality: -	N/A
Bottom opening transport vessels should be fitted with tight fitting seals to prevent leakage of material. Excess material should be cleaned from the decks and exposed fittings of vessels before the vessel is moved.	N/A
Monitoring of the barge loading should be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels should be equipped with automatic self-monitoring devices as specified by the DEP.	N/A

Ecology – Recommended Mitigation Measures

Ecology Mitigation Measures during construction	Implementation Status
Clear Definition of Site Limit	
Clear definition of the site limit should be provided in order to minimize and confine the disturbance during the construction period, especially the northern limit of the Site which is adjacent to fishponds within the Conservation Area (CA) zone and are considered to be ecological sensitive receivers.	✓
During wetland construction stage the WRA boundary will be delineated using a temporary hoarding in order to reduce disturbance to off-site habitats and wildlife. During the establishment phase this hoarding will be replaced with a 1 m high chain-link fence in order to reduce disturbance to the WRA through access by humans and dogs, and a hoarding will be established around the residential construction site.	N/A (WRA construction completed)
Dust and Noise Suppression and Avoidance of Water Pollution	
Good site practices of dust and noise suppression should be strictly implemented to ensure that disturbance is minimized to acceptable levels. Mitigation measures for the off-site disturbance impacts on the fishponds in the CA include hoarding at the northern site boundary during construction of the WRA to reduce noise and dust impacts to the adjacent habitats. Through the use of quieter plant and temporary/movable noise barriers, the noise level would be reduced significantly to an acceptable level. Hoarding at the northern boundary should be replaced with a 1 m high chain-link fence following construction and the WRA will then act as a buffer between the existing wetland areas and the residential part of the site until construction is completed. Hoarding will be retained between the WRA and ongoing construction work to avoid visual disturbance and reduce noise and dust emissions. Pollution of watercourses and sedimentary runoff will be minimized by good site practice, especially the containment of water and sediment within the site for removal. These standard noise and air and water quality site practices are considered to be effective measures for minimizing the disturbance impact during the construction period.	✓

Ecology Mitigation Measures during construction	Implementation Status
Planning of Construction Schedule	
The construction of the proposed project should be scheduled in phases. Because mitigation is preferably carried out in advance of the main works rather than after the completion of works, the construction of the WRA will commence at the start of the project. Construction work within the WRA is scheduled to take place in a single wet season, followed by 1.5 years of wetland establishment. During the wetland establishment period no noisy work will be undertaken within the WRA to minimize the disturbance to off-site habitats and wildlife.	N/A (WRA construction completed)
Reusing Onsite Materials	
Soil and plants on-site should be reused (e.g. used as fill material) as far as practical. Stock piles of these reusable materials should be stored in an appropriate area on-site. In particular, the re-use of the wetland soils and topsoil should be considered.	✓
Construction of the Wetland Restoration Area The WRA will be operational within 2.5 yrs from the commencement of construction (1 year for site formation and 1.5 years for establishment) and will compensate for the predicted ecological impacts of the proposed development.	✓

Landscape and Visual – Recommended Mitigation Measures

Landscape and Visual Mitigation Measures during construction	Implementation Status
CM1 - The construction area and contractor's temporary works areas should be minimised to avoid impacts on adjacent landscape.	✓
CM2 - Screening of construction works by hoarding / noise barriers.	✓ (see **Appendix M** Photo 1 & 2 *)
CM3 - Reduction of construction period to practical minimum.	✓
CM4 - Topsoil, where identified, should be stripped and stored for re-use in the construction of the soft landscape works, where the soil material meets acceptable criteria and where practical. The Contract Specification shall include storage and reuse of topsoil as appropriate.	✓
CM5 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material (in earth tone).	✓
CM6 - Advance screen planting of noise barriers	✓ (see **Appendix M** Photo 3 *)
CM7 - Control night-time lighting and glare by hooding all lights.	N/A
CM8 - Ensure no run-off into streams adjacent to the Project Area.	✓
CM9 - Protection of existing trees on boundary of site shall be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification. Under this specification, the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at S16 and Tree Removal Application stage).	✓
CM10 - Trees unavoidably affected by the works shall be transplanted where practical. Trees should be transplanted straight to their destinations and not held in a nursery. A detailed Tree Transplanting Specification shall be provided in the Contract Specification, if applicable. Sufficient time for necessary tree root and crown preparation periods shall be allowed in the project programme.	✓

Legend:
✓ Implemented
× Not implemented
P Partially implemented
N/A Not applicable
* Representative photos showing the implementation of mitigation measures are presented in **Appendix M**

M. Landscape and Visual Audit Photos

Photo 1: The Construction works have been screened by hoarding / noise barriers. (CM2)	Photo 2: The wetland areas are being established, and the ponds are being seasonally filled with rain water. (CM2)
Photo 3: Advance screen planting of noise barrier has been undertaken (CM6)	