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For the attention of Ms. Nicole Wong

27 July 2023

Dear Ms. Wong

**Mai Po Nature Reserve Infrastructure Upgrade
Monthly EM&A Report for June 2023**

Reference is made to Environmental Team's captioned submission by email on 27 July 2023. Pursuant to Condition 3.4 of the Environmental Permit No. EP-598/2022, we are pleased to inform you that we have no comments and verify the captioned monthly EM&A report.

If you require further information, please do not hesitate to contact the undersigned.

Yours sincerely



Ricky Chui
Independent Environmental Checker

**Environmental Team for
EP-598/2022 – Mai Po Nature Reserve
Infrastructure Upgrade Project**

**Monthly Environmental Monitoring and
Audit Report for June 2023**

Certified By Environmental Team Leader: _____



(Joan Choi)

Company: Ka Shing Management Consultancy Ltd.

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

Ka Shing accepts no responsibility for changes made to this report by third parties.

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EXECUTIVE SUMMARY

1. Introduction

This is the 1st monthly Environmental Monitoring and Audit (EM&A) Report for the Mai Po Nature Reserve Infrastructure Upgrade Project No. EP-598/2022. This report was prepared by Ka Shing Management Consultancy Ltd. (Ka Shing) under “Mai Po Nature Reserve Infrastructure Upgrade Project No. EP-598/2022” (hereinafter called the “Service Contract”). This report documents the findings of Environmental Monitoring and Audit (EM&A) work conducted from 1st to 30th June 2023.

2. Environmental Monitoring and Audit Progress

The monthly EM&A programme was undertaken by the ET in accordance with the EM&A Manual. A summary of the monitoring and audit activities during the reporting period is presented below:

Table E 1 Summary Table for EM&A Activities in the Reporting Month

EM&A Activities	Date
Water Quality Monitoring	Please refer to the Appendix E for more details
Weekly Environmental Site Inspection	5,12, 19,26 June 2023

3. Breaches of Action and Limit Levels

Summary of the environmental exceedances of the reporting month is tabulated in Table E2.

Table E 2 Summary Table for Events Recorded in the Reporting Month

Environmental Monitoring	Parameter	No. of non-project related exceedances		Total No. of non-project related exceedances	No. of exceedances related to the project		Total No. of exceedance related to the project
		AL	LL		AL	LL	
Water Quality	SS	2	2	2	0	0	0
	DO	2	2	2	0	0	0
	Turbidity	4	4	4	0	0	0

4. Water Quality

All water quality monitoring was conducted as scheduled in the reporting period. During the reporting month, exceedances of the Action Level and Limit Level of Suspended Solid, Dissolved Oxygen and Turbidity. were observed. As the site work carried out on the aforesaid dates did not involve any wet trade works, the exceedances were not considered to be related to the construction activities. The exceedances may be due to external factors which were not project-related.

5. Complaint Log

No environmental complaint was received in the reporting period.

6. Notification of Summons and Successful Prosecutions

No notification of summons or successful prosecutions was received in the reporting period.

7. Reporting Changes

There was no reporting change in the reporting period.

8. Future Key Issues

The major site activities for the coming three months include:

- 1) Tower Hide – Structure building by pre-fabrication module assemble, Roof covering. Flooring slab.
- 2) Ramp path – Foundation Excavation, Blinding Concreting, Footing Setting-out Form work to footing, Steel reinforcement, cast in bolt fixing, Structure building.
- 3) Footpath – Protection and Safety signage caution, Pedestal footing work, Pedestal installation, Wood decking installation.

1. INTRODUCTION

1.1 Background

- 1.1.1 The Mai Po Nature Reserve has served Hong Kong as one of the most valuable ecological assets in the city, and is managed by the World Wide Fund for Nature Hong Kong (“WWF”). WWF proposes to update of an existing concrete footpath of about 1.5m wide to a raised wooden boardwalk of about 1.65m wide, construction of a new three-storey tower hide (TH2) and the associated access wooden boardwalk of about 156m long and 1.65m wide; and construction of a new three-storey tower hide (TH3) and the associated access wooden boardwalk of about 85m long and 1.65m wide. The location of the Project as shown in the **Appendix A** of this report.
- 1.1.2 The project site is located in Mai Po Nature Reserve (MPNR) where has been managed by World Wide Fund for Nature Hong Kong (“WWF”) since 1984. More than 20,000 people per year visiting the MPNR and growing in visitor numbers is anticipated. Most of the existing facilities have been in use for more than 20 years, in order to cater for an increasing number of visitors and providing the good condition of facilities in the future, the upgrade of infrastructure is proposed. The WWF had completed an Environmental Impact Assessment (EIA) and is the Permit Holder.
- 1.1.3 The Project under Mai Po Nature Reserve Infrastructure Upgrade Project (Register No. AEIAR-233/2022) is approved by the EIA report and later granted an EP. The approved EIA report described both the construction phase and operational phase.
- 1.1.4 Ka Shing Management Consultancy Ltd. has been commissioned by the WWF to undertake the assignment as the Environmental Team (ET) for the Designated Project of Mai Po Nature Reserve Infrastructure Upgrade Project.
- 1.1.5 In accordance with the Project EM&A Manual requirements, water quality monitoring, and site inspections should be covered in this Contract. Overall, the EM&A works follows the demarcation of monitoring responsibilities.

1.2 Purpose of the report

- 1.2.1 This is the 1st EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 1st to 30th June 2023.

1.3 Project Organization

- 1.3.1 Different parties with different levels of involvement in the Project organization under EP no.: EP-598/2022 include:
- Project Proponent – WWF Hong Kong
 - Contractor– Mak Ko Kee Building Construction Ltd
 - Environmental Team (ET) – Ka Shing Management Consultancy Ltd.

- Independent Environmental Checker (IEC) – Ove Arup & Partners Hong Kong Limited

1.3.2 The key personnel contact names and numbers under Mai Po Nature Reserve Infrastructure Upgrade Project and the other contact names and numbers under WWF (Hong Kong) are summarised in Table 1.1.

Table 1. 1 Key Contacts of the Project

Party	Role	Contact Person	Phone No.	Fax No.
WWF Hong Kong	Project Proponent	Mr. Alex WONG	2526 1011	2161 9628
Contractor (Mak Ko Kee Building Construction Ltd)	Site Agent	Mr. Kin Hung LAM	2649 1883	2647 7389
Ka Shing Management Consultancy Ltd.	ETL	Ms. Joan CHOI	2618 2166	2120 7752
Ove Arup & Partners Hong Kong Limited	IEC	Mr. Ricky CHUI	2268 3437	2268 3380

1.4 Summary of Construction Works Undertaken During Reporting Month

1.4.1 The major site activities undertaken in the reporting month included:

- Tower Hide – Site set-up, Hoarding Erection, Setting-out, Excavation for Foundation, Blinding laying, Formwork Erection for Foundation and Steel Reinforcement Fixing for Foundation.
- Ramp path – Setting-out.
- Foot path – No works during reporting month.

1.5 Construction Programme

1.5.1 A copy of Contractors' construction programmes is provided in **Appendix K**.

1.5.2 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in Table 1.2.

Table 1. 2 Status of Environmental Licences, Notifications and Permits

Permit / Licence No.	Valid Period		Status
	From	To	
1. Environmental Permit (EP)			
EP-598/2022	16 Feb 2022	N/A	Valid
2. Air Pollution Control (Construction Dust) Regulation			
Notification no. 439298	02 June 2023	N/A	Notified

1.6 Summary of EM&A Requirement

1.6.1 The EM&A programme requires water quality monitoring as well as environmental site audits.

The EM&A requirements are described in the following sections, including:

- All monitoring parameters;
- Action and Limit levels for all environmental parameters;
- Event / Action Plans;
- Environmental mitigation measures, as recommended in the Project EIA study final report;
and
- Environmental requirements in contract documents.

2 WATER QUALITY

2.1 Monitoring Requirements

2.1.1 The Environmental Monitoring and Audit requirements are set out in the approved EM&A Manual. Water quality was identified as key environmental issues during the construction phase. A summary of the requirements (Monitoring Parameters, Time and Frequency) for conducting impact water quality monitoring is presented in the sub-sections below.

Table 2.1 Summary of Monitoring Parameters

Environmental Aspect	Parameters	Frequency and period
Water Quality	<ul style="list-style-type: none"> • Water depth • pH • Temperature in °C • Salinity in mg/L • Turbidity in NTU • Dissolved Oxygen (DO) in % saturation and mg/L • Suspended Solids (SS) in mg/L • Oil and Grease (O&G) in mg/L 	3 times per week, with a minimum interval of 36 hours, when foundation works are carried out at TH2 and TH3

2.1.2 According to the approved EM&A Manual, water quality monitoring should be performed at designated monitoring stations. Layout plans showing the approved monitoring locations are attached in **Appendix B**. Details regarding the two designated water quality monitoring stations are shown in Table 2.2 below:

Table 2.2 Water Quality Monitoring Locations

LOCATION	EASTING	NORTHING
Sluice Gate 7	822107	839868
Sluice Gate 19	821344	838681

2.2 Monitoring Equipment

2.2.1 DO and water temperature should be measured in-situ by a DO/temperature meter. The equipment should be portable and weather proof using a DC power source. It should have a membrane electrode with automatic temperature compensation complete with a cable. The equipment should be capable of measuring:

- A DO level in the range of 0-20 mg/l and 0-200% saturation; and
- A temperature of between 0 and 45 degree Celsius.

- 2.2.2 A portable pH meter capable of measuring a range between 0.0 and 14.0 should be provided to measure pH under the specified conditions (e.g. Orion Model 250A or an approved similar instrument) according to the Standard Methods, APHA.
- 2.2.3 Turbidity should be measured in situ by the nephelometric method. The instrument should be portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment should be capable of measuring turbidity between 0-1000 NTU.
- 2.2.4 A water sampler, consisting of a transparent PVC or glass cylinder of a capacity of not less than two litres which can be effectively sealed with cups at both ends should be used.
- 2.2.5 In-situ monitoring instruments should be checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals.

Table 2.3 Action/Limit Levels for Water Quality Monitoring

Parameter	Performance Criteria	Monitoring Location	
		Sluice Gate 7	Sluice Gate 19
Dissolved Oxygen (mg/L)	Action Level	2.85	2.47
	Limit Level	2.83	2.45
Suspended Solids (mg/L)	Action Level	99.6	120.3
	Limit Level	107.9	121.7
Turbidity (NTU)	Action Level	47.1	122.2
	Limit Level	47.2	122.8

- 2.2.6 Equipment used in water quality monitoring is summarized in Table below. Calibration certificates of equipment used are attached in **Appendix C**.

Table 2.4 Equipment Used in water impact Monitoring

Environmental Aspect	Equipment	Model
Water Quality	Multifunctional Meter	Pro DSS

2.3 Monitoring Procedure

- 2.3.1 Field measurement procedures for each set of the water quality measurement are as follows:
- i. The DO probe of the multifunctional meter is checked by wet bulb method; the pH and turbidity probes are checked against standard solutions. Record the checking result;

- ii. Record the field condition including weather conditions and any other potential source of interference;
- iii. Lower the sampler into water body and rinse it with water in the target water body;
- iv. Fill the sampler until adequate sample is collected. Replicate sample at each monitoring location is required;
- v. Rinse the bottles by the sample before transferring samples into containing bottles;
- vi. Rinse the probe of multimeter with distilled water;
- vii. Measure and record temperature, turbidity, pH value and DO of each bottle of sample;
- viii. Bottles containing sample is stored temporarily in insulation box with ice until reaching the laboratory.

2.3.2 The water samples shall be delivered to a HOKLAS laboratory as soon as possible for analysis, which shall start the next working day after the collection of samples. Analyses shall follow standard methods as described in APHA Standard Methods for the Examination of Water and Wastewater, 19th Edition, unless otherwise specified (APHA 2540D for SS and APHA 5520C for O&G). The QA/QC details shall be in accordance with the requirements of HOKLAS.

2.4 Data Management and QA/QC

2.4.1 The baseline monitoring data were handled by the ET's in-house data recording and management system. Laboratory responsible for laboratory analysis would follow QA/QC requirements as set out under HOKLAS scheme.

2.5 Discussion and Recommendations

- 2.5.1 The monitoring of water quality was conducted during typical wet season in Hong Kong.
- 2.5.2 Review of the conditions may need to be conducted regularly, in particular during weather condition changes. If the changes in baseline conditions are evident, the environmental performance criteria should be re-established by agreement of the ER and IEC and submitted to EPD for endorsement.

2.6 Results and Observations

- 2.6.1 All water quality monitoring was conducted as scheduled in the reporting month. The water quality monitoring schedule for this reporting month is shown in **Appendix D**.
- 2.6.2 The monitoring results and graphical presentation of water quality monitoring at the monitoring stations are shown in **Appendix E**.

2.6.3 During the reporting month, exceedances of the Action Level and Limit Level of Dissolved Oxygen, Suspended Solids and Turbidity were observed. Detail is summarized as below:

Table 2. 5 Summary of exceedances of the Action Level

Environmental Monitoring	Parameter	No. of non-project related exceedances		Total No. of non-project related exceedances
		AL	LL	
Water Quality	SS	2	2	2
	DO	2	2	2
	Turbidity	4	4	4

Table 2. 6 Detail information of exceedances of the Action Level and Limit Level

Date	Parameter of Exceedances	Monitoring Location	
		Sluice Gate 7	Sluice Gate 19
15 June 2023	Suspended Solids	130, 170	Not Applicable
17 June 2023	Suspended Solids	160, 160	Not Applicable
17 June 2023	Turbidity	211, 213	Not Applicable
21 June 2023	Turbidity	73.3, 73.4	Not Applicable
28 June 2023	Turbidity	52.7, 52.8	Not Applicable
30 June 2023	Turbidity	79.6, 79.7	Not Applicable
30 June 2023	Dissolved Oxygen	2.13, 2.15	2.21, 2.19

2.6.4 As the site work carried out on the aforesaid dates did not involve any wet trade works, the exceedances were not considered to be related to the Project. The exceedances may be due to external factors which were not project-related. Details of the site work refer to **Appendix H**.

3 ENVIRONMENTAL SITE INSPECTION

3.1 Solid and Liquid Waste Management Status

- 3.1.1 In accordance with the EM&A Manual, waste management was audited during weekly site audit to determine if wastes are being managed in accordance with the Waste Management Plan (WMP) prepared for the Project and the relevant legislative and contractual requirements. Waste management practice including waste handling, storage, transportation and disposal were audited.
- 3.1.2 Proactive measures have been undertaken to make use of construction and demolition (C&D) materials to minimize the waste generated. On-site sorting and screening of excavated materials have been carried out to recover any recyclable portions. Inert C&D materials were used on-site for backfilling works.
- 3.1.3 The Contractor is advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the EM&A Manual and waste management plans shall be fully implemented. The status of waste flow generation are summarised in **Appendix G**.

3.2 Site Audits

- 3.2.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures on the Contract site.
- 3.2.2 Site audits were conducted by ET with the representative of the client's Representative and the Contractor on 5, 19 June 2023 in the reporting month. Joint site audits with the representative of the Client representative, the Contractor and IEC were carried out on 12 and 26 June 2023.
- 3.2.3 During site inspections in the reporting month, no non-compliance was identified. The observations and recommendations made during the audit sessions are summarised in **Table 3.1**.

Table 3.1 Observations and Follow Up Action of Site Audit

Parameters	Date	Observations	Follow Up Action
Air Quality	5/6/2023	The NRMM label for the excavator is missing. Please ensure the label is properly demonstrated.	The NNRM label has been displayed for the excavator.
	12/6/2023	Imposition of speed controls for vehicles on Site.	Imposition of speed controls for vehicles on Site.

	12/6/2023	Use of approved non-road mobile machinery (NRMM) for all site works areas.	The NNRM label has been displayed for the excavator.
	19/6/2023	Imposition of speed controls for vehicles on Site.	Imposition of speed controls for vehicles on Site.
	19/6/2023	Use of approved non-road mobile machinery (NRMM) for all site works areas.	The NNRM label has been display for the excavator.
	26/6/2023	Use of approved non-road mobile machinery (NRMM) for all site works areas.	The NNRM label has been display for the excavator.
Construction Noise Impact	--	No environmental deficiency was identified during the reporting month.	--
Water Quality	12/6/2023	Perimeter channels at site boundaries shall be provided to intercept storm runoff from outside the works areas so that it will not wash across the works areas and to direct all site runoff only into adjacent drained geiwai.	Perimeter channels at site boundaries has been provided to intercept storm runoff from outside the works areas so that it will not wash across the works areas and to direct all site runoff only into adjacent drained geiwai.
	12/6/2023	A perimeter bund has been constructed around the work sites for TH2 and TH3 to ensure that any runoff generated from within these sites is discharged only into the adjacent drained geiwai.	A perimeter bund has been constructed around the work sites for TH2 and TH3 to ensure that any runoff generated from within these sites is discharged only into the adjacent drained geiwai.
	12/6/2023	Tarpaulin covering the perimeter bund to prevent construction site runoff leakage through sand bags.	Tarpaulin has been covering the perimeter bund to prevent construction site runoff leakage through sand bags.
	19/6/2023	Perimeter channels at site boundaries shall be provided to intercept storm runoff from outside the works areas so that it will not wash across the works areas and to direct all site runoff only into adjacent drained geiwai.	Perimeter channels at site boundaries has been provided to intercept storm runoff from outside the works areas so that it will not wash across the works areas and to direct all site runoff only into adjacent drained geiwai.
	19/6/2023	Tarpaulin covering the perimeter bund to prevent construction site runoff leakage through sand bags.	Tarpaulin has been covering the perimeter bund to prevent construction site runoff leakage through sand bags.
Waste/ Chemical Management	12/6/2023	The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets.	The Contractor has been ensured that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets.
	19/6/2023	The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of	The Contractor has been ensured that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate

		waste and, as the last resort, disposal at different outlets.	reuse/recycling of waste and, as the last resort, disposal at different outlets.
Landscape and Visual	--	No environmental deficiency was identified during the reporting month.	--
Ecology	5/6/2023	Install a 2m-high solid, opaque screen around works areas.	Install a 2m-high solid, opaque screen around works areas.
Permit /Licences	--	No environmental deficiency was identified during the reporting month.	--
Others	--	--	--

3.3 Implementation Status of Environmental Mitigation Measures

- 3.3.1 According to the EIA Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is provided in **Appendix F**.
- 3.3.2 During site inspections in the reporting month, the Contractor's readiness with the mitigation measures during dry season against dust emission was found generally satisfactory despite some observations/recommendations as detailed above were raised.
- 3.3.3 Waste generated from this Project includes inert C&D materials and non-inert C&D materials. Non-inert C&D materials are made up of general refuse and waste that cannot be reused or recycled and has to be disposed of at the designated landfill sites. The amount of wastes generated by the construction works of the Project during the reporting month is shown in **Appendix G**.

4 ENVIRONMENTAL NON-COMPLIANCE

4.1 Summary of Exceedances

4.1.1 All water quality monitoring was conducted as scheduled in the reporting period. During the reporting month, exceedances of the Action Level and Limit Level of Suspended Solids, Dissolved Oxygen and Turbidity, were observed. As the site work carried out on the aforesaid dates did not involve any wet trade works, the exceedances were not considered to be related to the Project. The exceedances may be due to external factors which were not project-related.

4.1.2 Should the monitoring results of the environmental monitoring parameters at any designated monitoring stations indicate that the Action / Limit Levels are exceeded which are suspected to be project related events, the actions in accordance with the Event and Action Plans will be carried out. The summary of exceedance record in reporting month is shown in **Appendix H**.

4.2 Summary of Environmental Non-Compliance

4.2.1 No environmental non-compliance was recorded in the reporting month.

4.3 Summary of Environmental Complaint

4.3.1 In accordance with the EM&A Manual, complaints should be referred to the ET for action. During the complaint investigation works, the ET and IEC as established according to EP can carry out Ad-hoc site inspections to identify the source of the complaint, review the effectiveness of the Contractor's remedial measures and the updated situation once received the complaint. In addition, additional monitoring and audit can also be arranged immediately to verify the situation if necessary. ET and IEC will also oversee the circumstances that leading to the complaint do not recur. Moreover, ET and IEC can cooperate efficiently with the Contractor on site for completion of the investigation.

4.3.2 There was no environmental complaint received in the reporting month.

4.4 Summary of Environmental Summon and Successful Prosecution

4.4.1 There was no successful environmental prosecution or notification of summons received since the Project commencement.

5 FUTURE KEY ISSUES

5.1 Key Issues in the Coming Three Months

- 5.1.1 The tentative construction programmes for the Project are provided in **Appendix K**. The major construction activities undertaken in the coming three months will include:
- Water Quality Monitoring
 - Construction of footings
 - Construction of wooden boardwalk
 - Installation of prefabricated panels and structural frames of TH2 and TH3
- 5.1.2 With reference to the tentative construction programmes including the indication of coming three months construction site activities in **Appendix K**, potential environmental impacts arising from the above construction activities are mainly associated with water quality, waste management, landscape and visual and ecology. The foreseeable environmental impacts were taken into consideration of the planned mitigation measures in the coming months.

5.2 Monitoring Schedule for the Next Month

- 5.2.1 The tentative environmental monitoring schedule for the next month is shown in **Appendix D**.

6 CONCLUSIONS AND RECOMMENDATIONS

6.1 Conclusions

- 6.1.1 This Monthly EM&A Report presents the EM&A work undertaken in June 2023 in accordance with EM&A Manual.
- 6.1.2 Environmental site inspections were conducted on 5,12,19,26 June 2023 by ET in the reporting month. No environmental non-compliance was recorded in the reporting month.
- 6.1.3 No environmental complaint, notification of summons or successful prosecutions was received in the reporting month.
- 6.1.4 The ET would keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

6.2 Recommendations

- 6.2.1 According to the environmental audits performed in the reporting month, the following recommendations were made:

1. *Water Impact*

- To maintain the cover for open stockpile of and exposed slope;
- To keep reviewing and updating temporary drainage system;
- To maintain the earth bunds or sand bag barriers on site to direct stormwater to silt removal facilities;
- To maintain and ensure the silt removal facilities are functioning properly;
- To maintain the wheel washing facilities provided at every construction site exit where practicable are functioning properly; and
- To divert the muddy water at the retention pond to the wetsep for treatment before discharging out.

2. *Waste/Chemical Management*

- To check for any accumulation of waste materials or rubbish on site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site;
- To maintain the drip tray well to prevent oil and chemical leakage; and
- To avoid improper handling, storage and disposal of oil drums or chemical containers on site.

3. *Ecology*

- To erect and maintain the protection fence around the retained trees / conservation species;
- To keep the tree protection zone large enough to protect the trees; and
- To remove the construction materials within the tree protection zone.

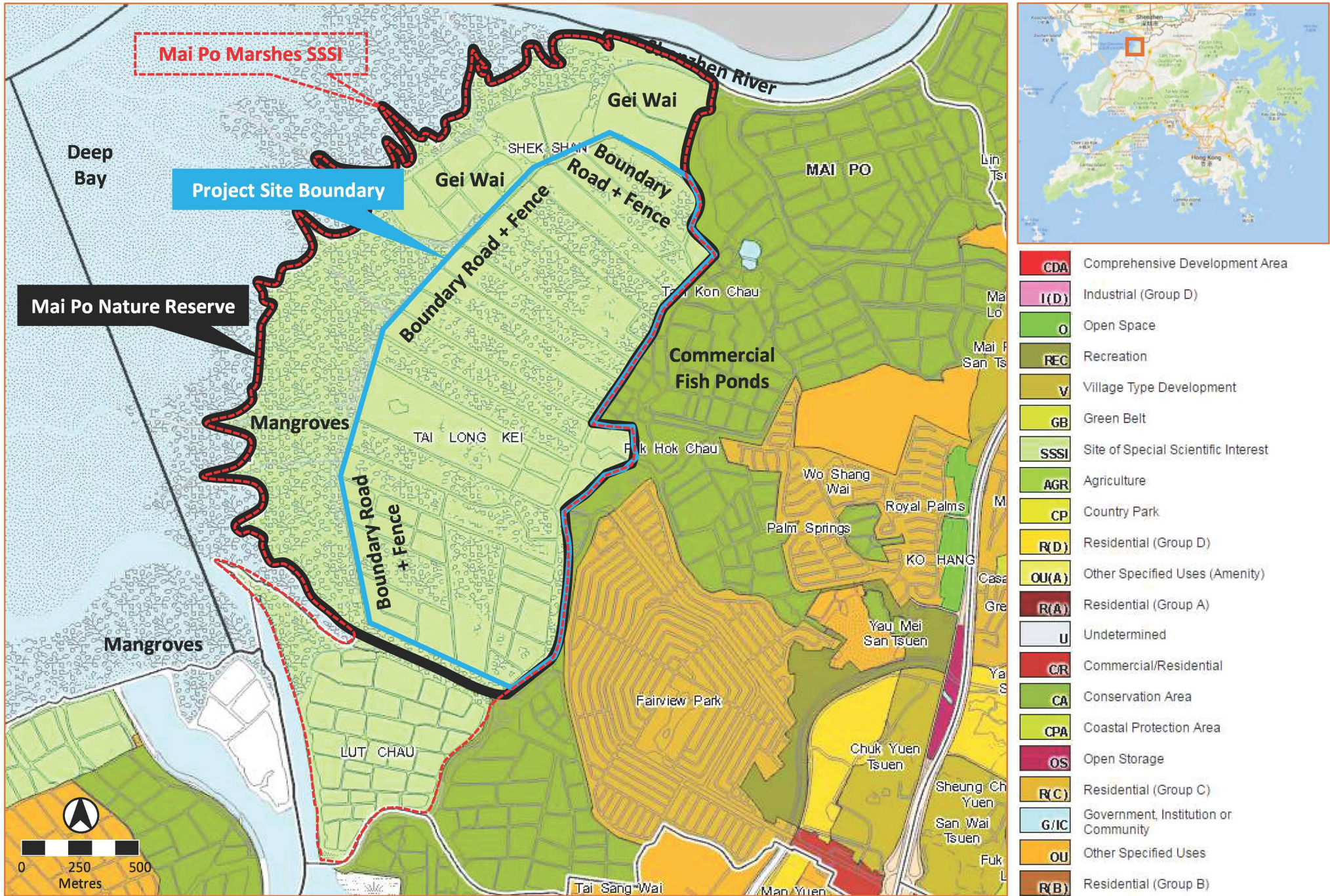
4. *Landscape and Visual*

- To erect and maintain the protection fencing and tree protection zone around the preserved trees;
- To remove the construction materials within the tree protection zone; and
- To keep the tree protection zone large enough to protect the trees.

APPENDIX A

Location of the Project

Statutory Plan Showing Location of Project and its Environments



Source: Extract from the approved Mai Po and Fairview Park OZP No. S/YL-MP/6, from PlanD Statutory Planning Portal 2.

APPENDIX B
Locations for Water Quality Monitoring

Locations for Water Quality Monitoring



Source: approved EM&A Manual

APPENDIX C
Calibration certificates of equipment



Performance Check / Calibration of Multiparameter Water Quality Meter

Equipment Ref. No. : ET/EW/008/010
Model No. : Pro DSS
Date of Calibration : 2/6/2023

Manufacturer : YSI
Serial No. : 18E105421
Calibration Due Date : 1/9/2023

Results

1. Temperature

(Method Reference: Section 6 of international Accreditation New Zealand Technical Guide no. 3 Second edition March 2008: Working Thermometer Calibration Procedure)

Reading of Reference Thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)
15.6	15.7	0.1
25.1	25.2	0.1
29.3	29.2	-0.1

Tolerance Limit (°C): ± 2.0

2. pH

(Method Reference: APHA 19ed 4500-H⁺ B)

Expected Reading (pH unit)	Displayed Reading (pH unit)	Tolerance (pH unit)
4.00		
6.86		
9.18		

Tolerance Limit (pH unit): ± 0.10

3. Conductivity

(Method Reference: APHA 19ed 2510 B)

Expected Reading ($\mu\text{S}/\text{cm}$)	Displayed Reading ($\mu\text{S}/\text{cm}$)	Tolerance (%)
145.2	145.6	+0.3
1414	1423	+0.6
12892	13004	+0.8
56761	56393	-0.6

Tolerance Limit ($\mu\text{S}/\text{cm}$): $\pm 10.0\%$

4. Salinity

(Method Reference: APHA 19ed 2520 B)

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)
10.0	9.97	-0.3
20.0	19.68	-1.6
30.0	30.04	0.1

Tolerance Limit (g/L): $\pm 10.0\%$



Performance Check / Calibration of Multiparameter Water Quality Meter

Equipment Ref. No. : ET/EW/008/010
 Model No. : Pro DSS
 Date of Calibration : 2/6/2023

Manufacturer : YSI
 Serial No. : 18E105421
 Calibration Due Date : 1/9/2023

5. Dissolved Oxygen
 (Method Reference: APHA 19ed 4500-O G)

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.73	1.81	+0.08
4.62	4.49	-0.13
5.91	5.86	-0.05

Tolerance Limit (mg/L): ± 0.20

6. Turbidity
 (Method Reference: APHA 19ed 2130 B)

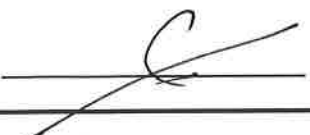
Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
10	10.2	+2.0
40	40.7	+1.75
100	102.5	+2.5
400	397.2	-0.70

Tolerance Limit (NTU): $\pm 10.0\%$

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

[#] Delete as appropriate

Calibrated by : 

Approved by : 

APPENDIX D
Environmental Monitoring Schedules

**Mai Po Nature Reserve Infrastructure Upgrade Project
Impact Water Quality Monitoring (WQM) Schedule
June-2023**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28-May	29-May	30-May	31-May	1-Jun	2-Jun	3-Jun
		WQM x 2 station		WQM x 2 station		WQM x 2 station
4-Jun	5-Jun	6-Jun	7-Jun	8-Jun	9-Jun	10-Jun
		WQM x 2 station		WQM x 2 station		WQM x 2 station
11-Jun	12-Jun	13-Jun	14-Jun	15-Jun	16-Jun	17-Jun
		WQM x 2 station		WQM x 2 station		WQM x 2 station
18-Jun	19-Jun	20-Jun	21-Jun	22-Jun	23-Jun	24-Jun
	WQM x 2 station		WQM x 2 station			WQM x 2 station
25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul
	WQM x 2 station		WQM x 2 station		WQM x 2 station	

**Mai Po Nature Reserve Infrastructure Upgrade Project
Impact Water Quality Monitoring (WQM) Schedule
July-2023**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25-Jun	26-Jun	27-Jun	28-Jun	29-Jun	30-Jun	1-Jul
2-Jul	3-Jul	4-Jul	5-Jul	6-Jul	7-Jul	8-Jul
		WQM x 2 station		WQM x 2 station		WQM x 2 station
9-Jul	10-Jul	11-Jul	12-Jul	13-Jul	14-Jul	15-Jul
		WQM x 2 station		WQM x 2 station		WQM x 2 station
16-Jul	17-Jul	18-Jul	19-Jul	20-Jul	21-Jul	22-Jul
		WQM x 2 station		WQM x 2 station		WQM x 2 station
23-Jul	24-Jul	25-Jul	26-Jul	27-Jul	28-Jul	29-Jul
		WQM x 2 station		WQM x 2 station		WQM x 2 station
30-Jul	31-Jul	1-Aug	2-Aug	3-Aug	4-Aug	5-Aug

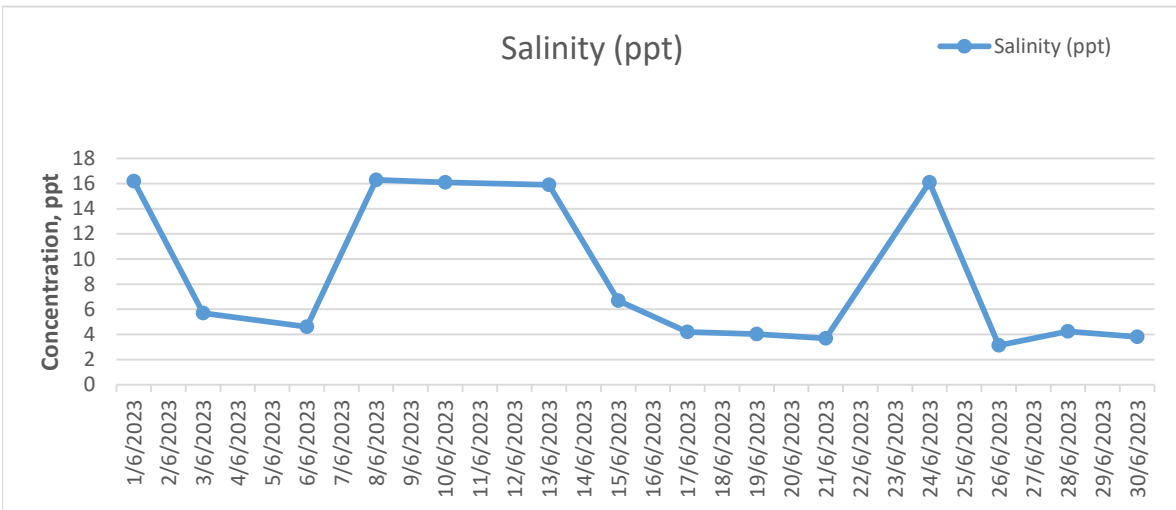
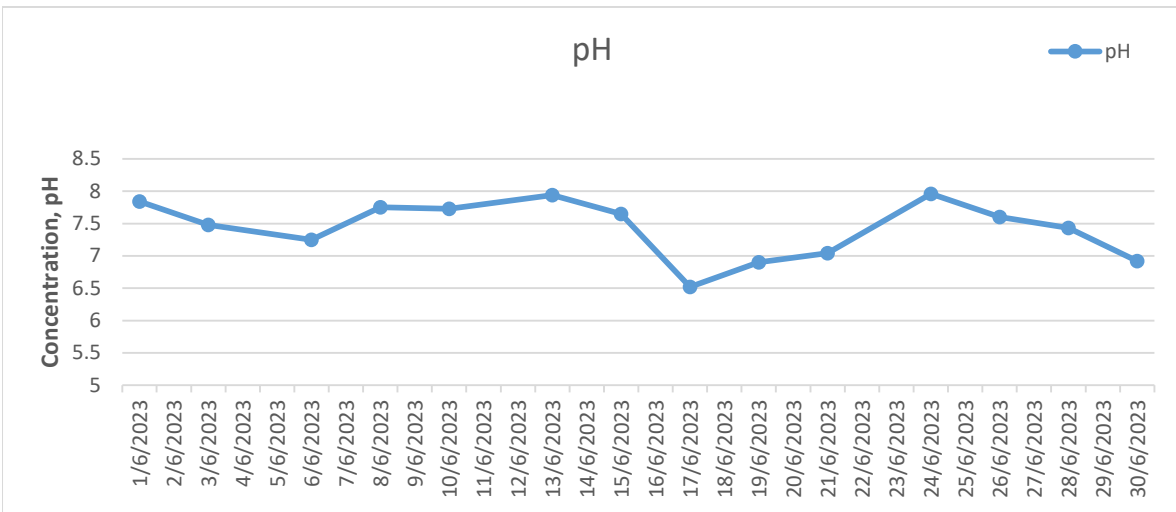
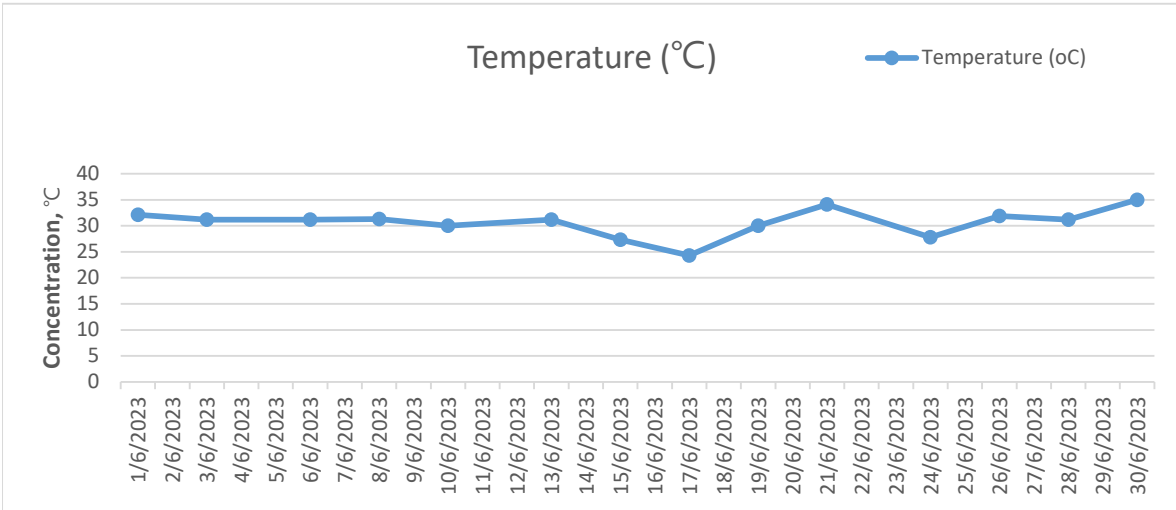
APPENDIX E
**The graphical presentation of water quality
monitoring**

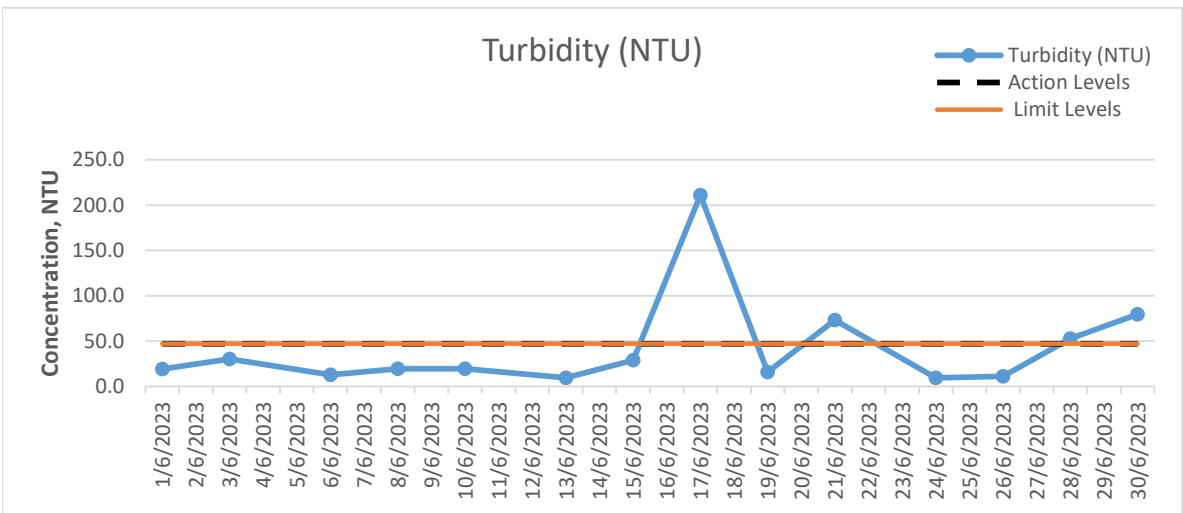
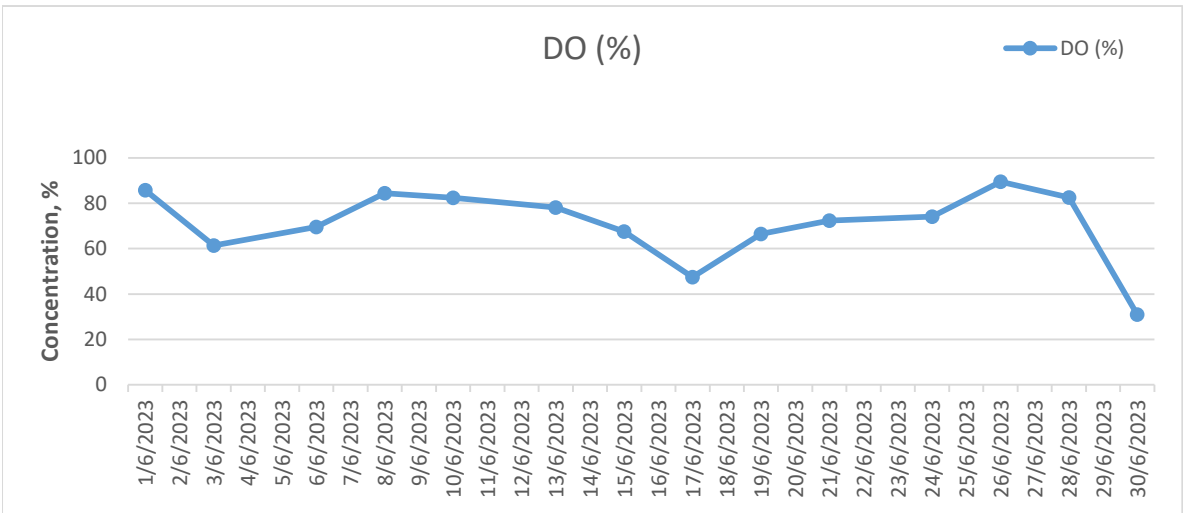
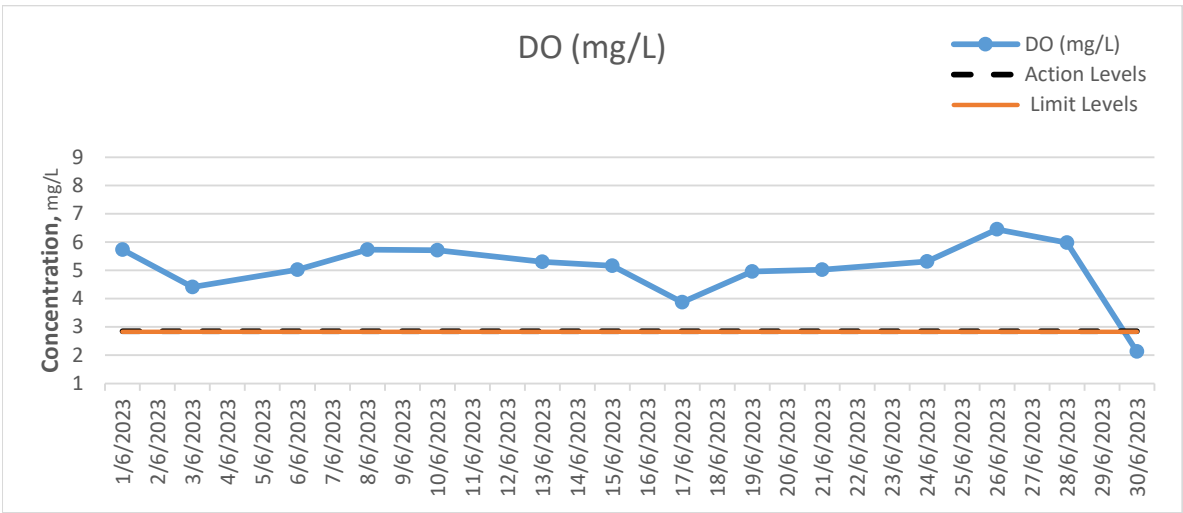
Mai Po WQM Result

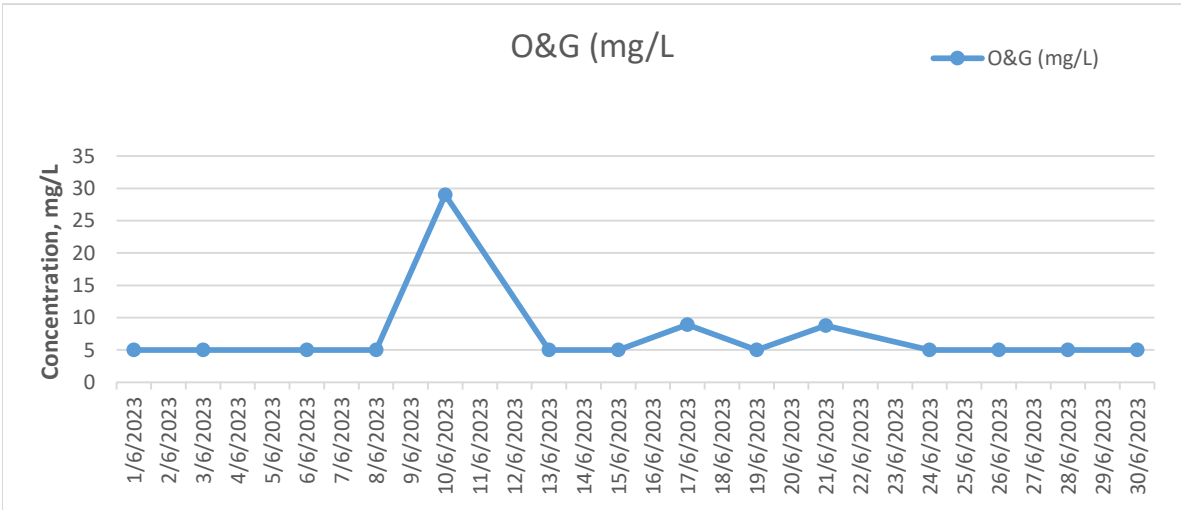
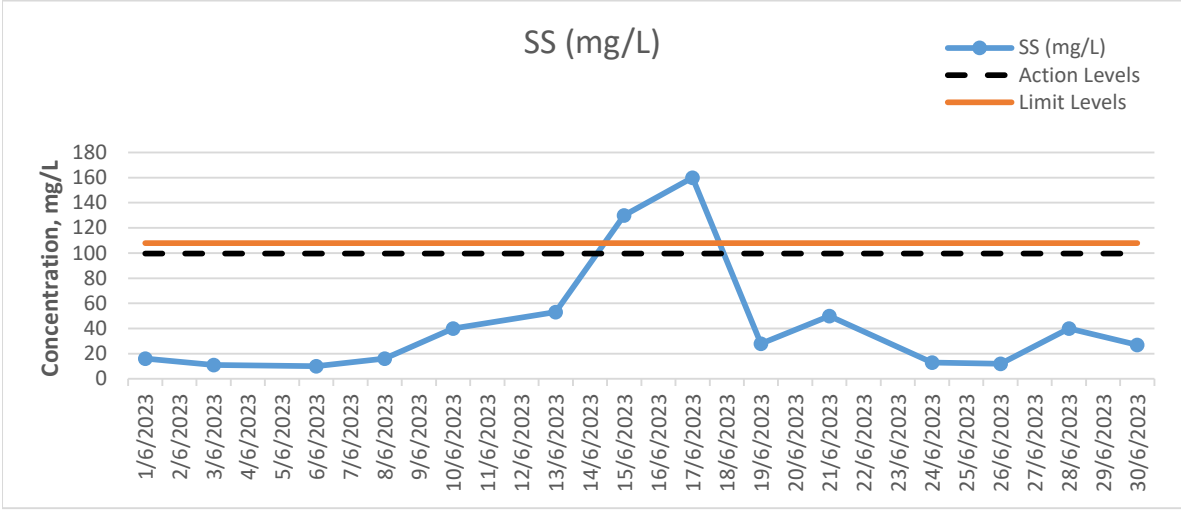
Location: Sluice Gate 7

Date	Time	Weather Condition	Water Depth	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	DO (%)	Turbidity (NTU)	SS (mg/L)	O&G (mg/L)
1/6/2023	14:00	Fine	1.3	32.1	7.84	16.2	5.73	85.8	19.2	16	<5
			1.4	32.1	7.83	16.2	5.69	85.2	19.5	14	<5
3/6/2023	8:50	Fine	1.4	31.2	7.48	5.7	4.41	61.4	30.3	11	<5
			1.4	31.2	7.49	5.8	4.38	61.0	30.4	21	<5
6/6/2023	15:30	Rain	1.3	31.2	7.25	4.6	5.03	69.5	12.7	10	<5
			1.3	31.2	7.24	4.9	5.11	70.9	12.6	7.9	<5
8/6/2023	15:40	Fine	1.2	31.3	7.75	16.3	5.73	84.4	19.6	16	<5
			1.2	31.3	7.76	16.3	5.72	83.9	19.7	14	<5
10/6/2023	13:00	Fine	1.4	30	7.73	16.1	5.71	82.5	19.5	40	29
			1.3	30	7.73	16.1	5.69	82.2	19.1	39	23
13/6/2023	13:00	Fine	1.2	31.2	7.94	15.9	5.31	78.2	9.59	53	<5
			1.3	31.1	7.94	15.8	5.27	77.4	9.51	72	<5
15/6/2023	15:00	Rain	1.4	27.3	7.65	6.7	5.16	67.6	28.9	130	<5
			1.4	27.4	7.61	6.4	5.14	67.3	29.5	168	<5
17/6/2023	12:20	Rain	1.2	24.3	6.52	4.2	3.88	47.4	211	158	8.9
			1.2	24.4	6.52	4.2	3.84	46.9	213	162	8.8
19/6/2023	10:50	Cloudy	1.0	30.0	6.90	4.0	4.96	66.5	16.0	28	<5
			1.0	29.9	6.89	4.0	4.91	65.8	15.9	21	<5
21/6/2023	10:30	Fine	0.8	34.1	7.04	3.7	5.03	72.4	73.3	50	8.8
			0.9	34.1	7.05	3.7	5.06	72.8	73.4	55	8.6
24/6/2023	12:30	Fine	1.3	27.8	7.96	16.1	5.32	74.1	9.61	13	<5
			1.3	27.0	7.98	16.2	5.35	73.5	9.62	16	<5
26/6/2023	15:05	Cloudy	1.0	31.9	7.6	3.1	6.45	89.5	11.1	12	<5
			1.0	31.9	7.62	3.2	6.40	88.9	11.3	12	<5
28/6/2023	12:00	Cloudy	1.0	31.2	7.43	4.2	5.98	82.6	52.7	40	<5
			1.0	31.3	7.44	4.3	5.95	82.2	52.8	43	<5
30/6/2023	13:30	Cloudy	0.8	35	6.92	3.8	2.13	30.9	79.6	27	<5
			0.8	35	6.94	3.8	2.15	31.2	79.7	66	<5

Location: Sluice Gate 7





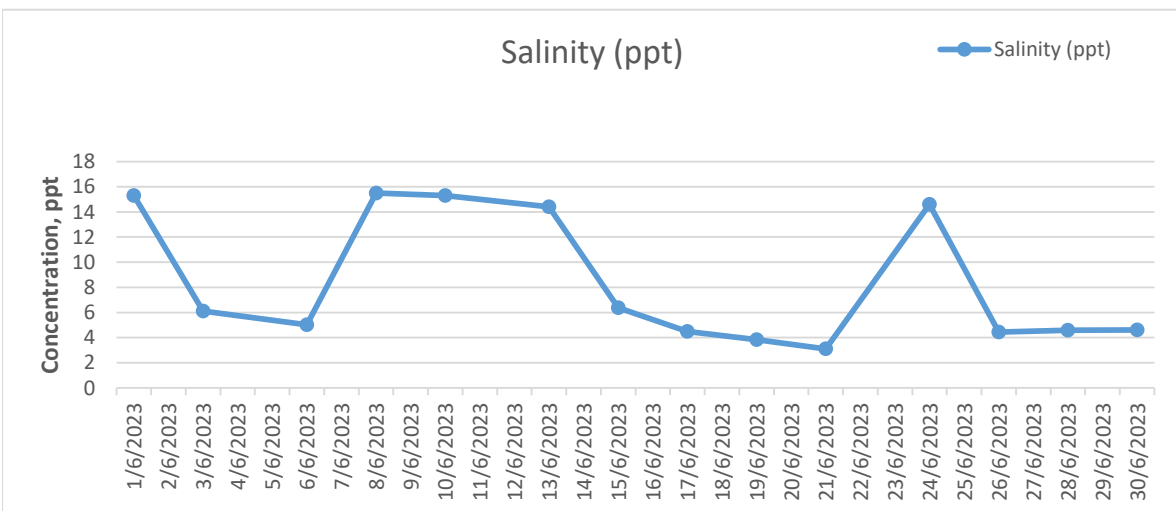
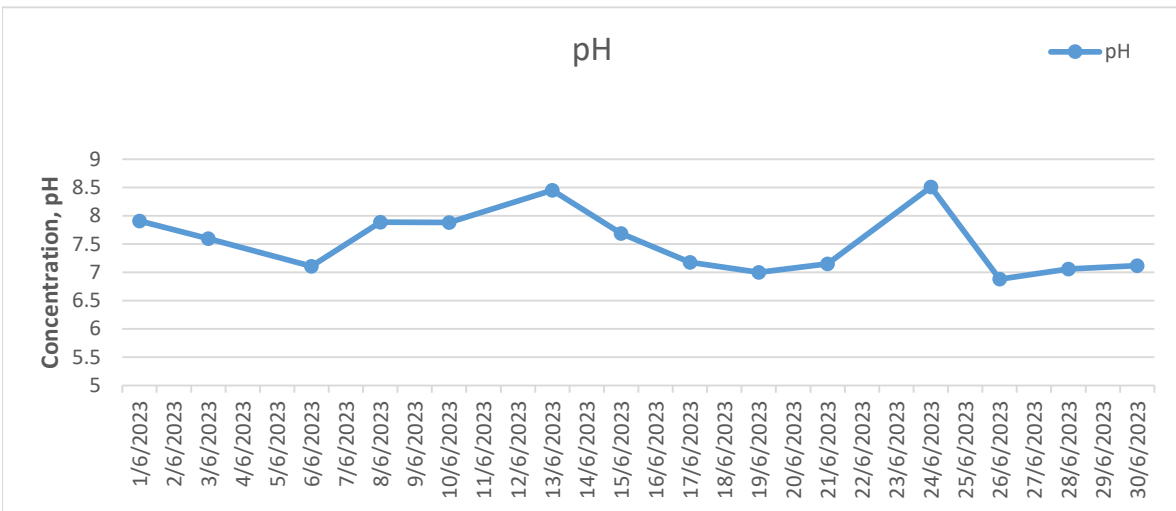
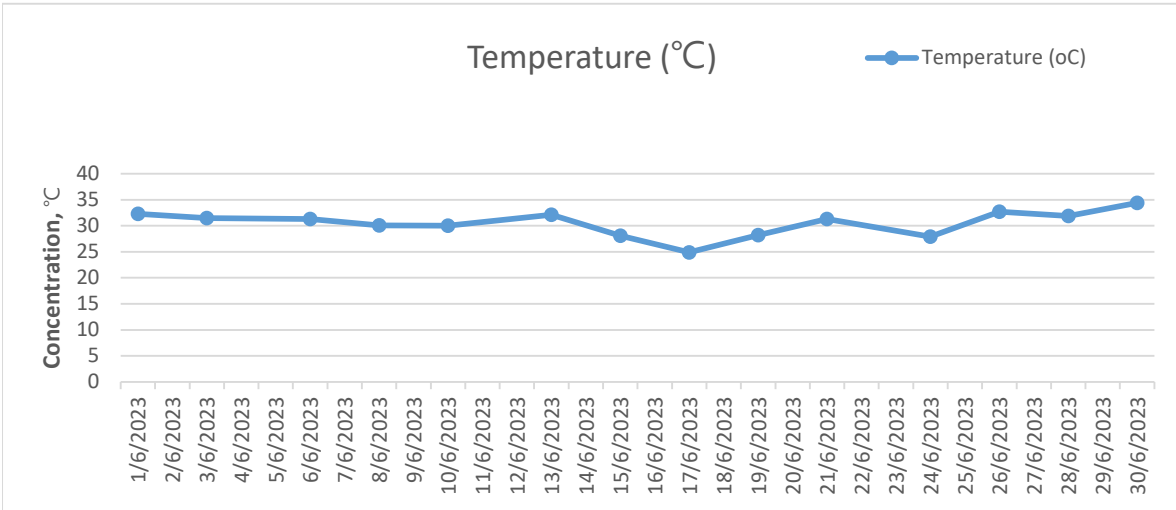


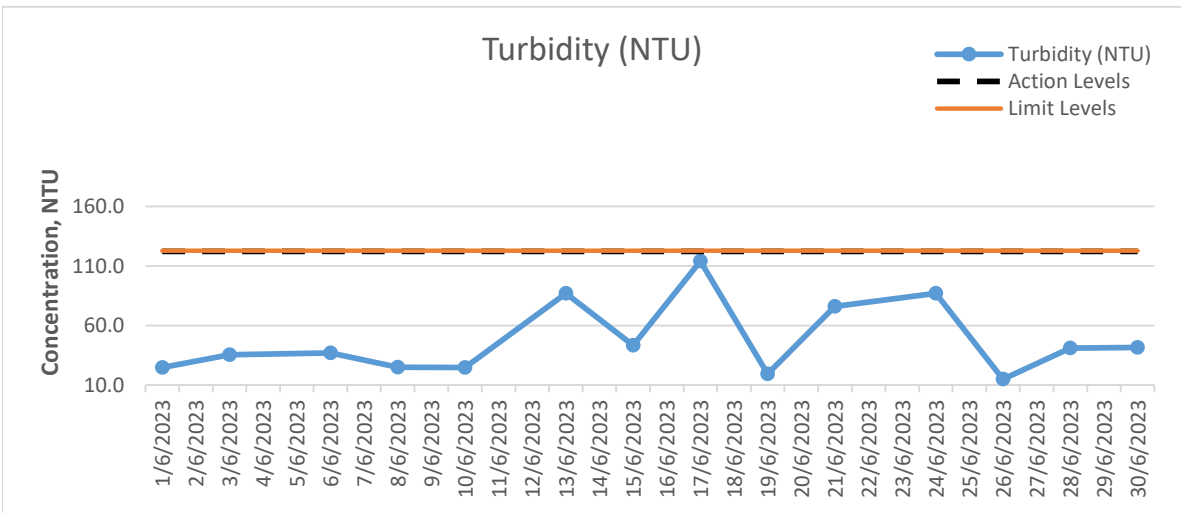
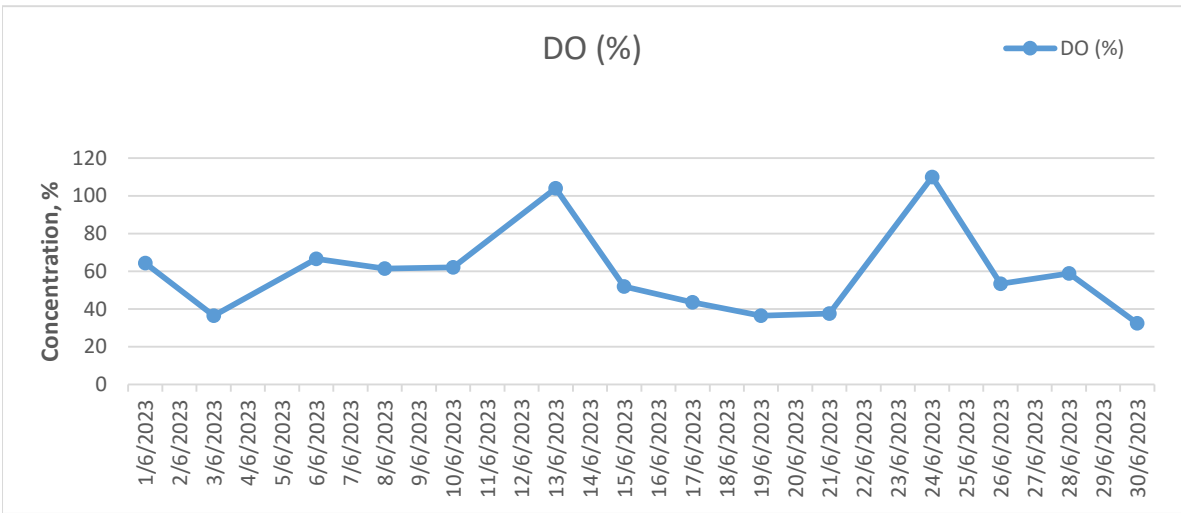
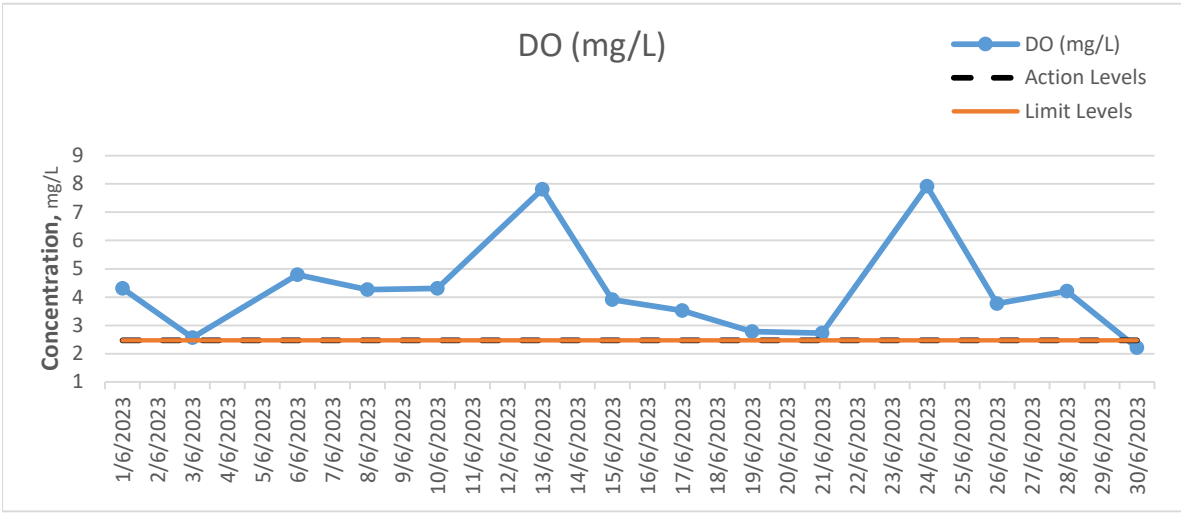
Mai Po WQM Result

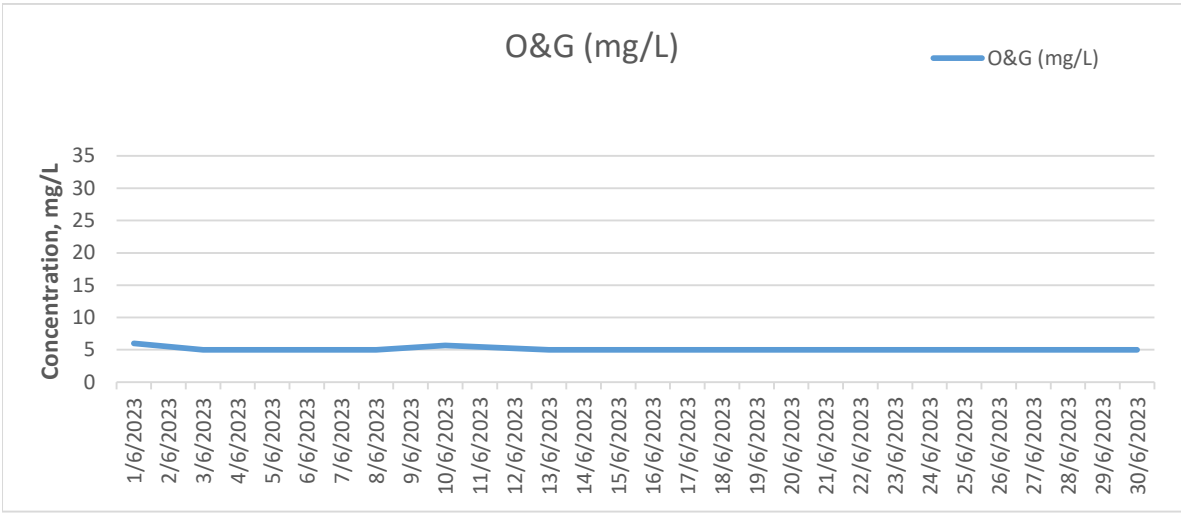
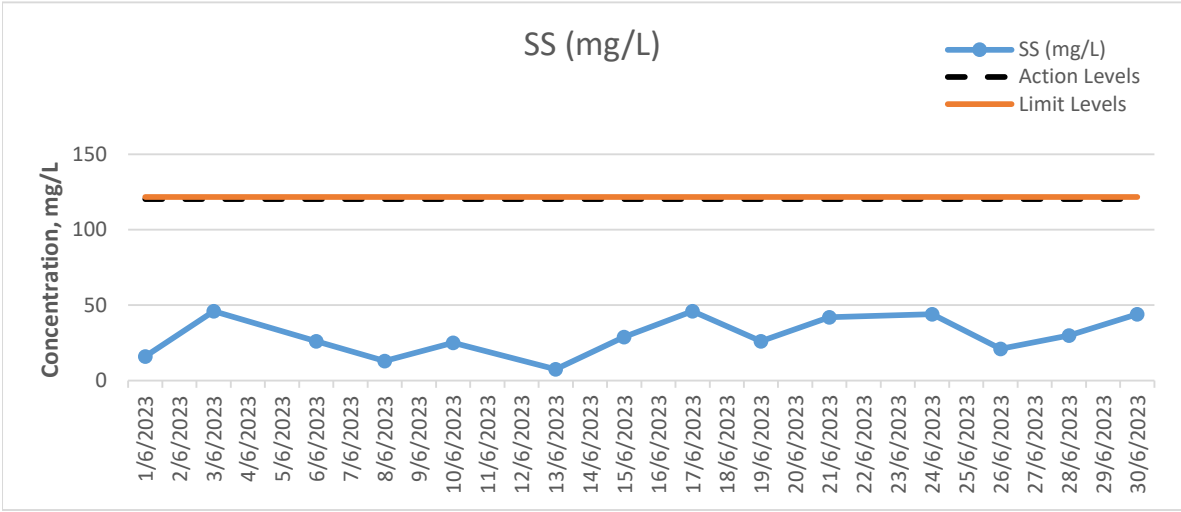
Location: Sluice Gate 19

Date	Time	Weather Condition	Water Depth	Temperature (°C)	pH	Salinity (ppt)	DO (mg/L)	DO (%)	Turbidity (NTU)	SS (mg/L)	O&G (mg/L)
1/6/2023	14:30	Fine	1.5	32.3	7.91	15.3	4.31	64.4	24.8	16	6.0
			1.4	32.3	7.88	15.4	4.28	64.0	24.8	18	5.1
3/6/2023	9:15	Fine	1.2	31.5	7.60	6.10	2.57	36.4	35.4	46	<5
			1.2	31.4	7.63	6.10	2.59	36.7	35.7	40	<5
6/6/2023	16:00	Rain	1.2	31.3	7.11	5.03	4.79	66.6	36.9	26	<5
			1.2	31.3	7.12	5.08	4.83	67.2	36.4	24	<5
8/6/2023	16:30	Fine	1.2	30.1	7.89	15.5	4.26	61.5	24.9	13	<5
			1.3	30.1	7.93	15.6	4.29	61.9	24.9	13	<5
10/6/2023	13:30	Fine	1.2	30.0	7.88	15.3	4.31	62.0	24.8	25	5.7
			1.3	30.0	7.85	15.4	4.32	62.2	24.6	28	5.2
13/6/2023	13:30	Fine	1.3	32.1	8.45	14.4	7.81	104.0	86.9	7.5	<5
			1.1	32.0	8.31	14.2	7.82	103.8	86.4	3.6	<5
15/6/2023	15:30	Rain	1.2	28.1	7.69	6.38	3.91	51.9	43.2	29	<5
			1.2	28.1	7.72	6.35	3.96	52.5	43.8	40	<5
17/6/2023	12:50	Rain	1.3	24.9	7.18	4.50	3.52	43.6	114	46	<5
			1.4	25	7.19	4.50	3.49	43.2	115	58	<5
19/6/2023	11:14	Cloudy	1.0	28.2	7.00	3.84	2.78	36.4	19.2	26	<5
			0.8	28.2	7.01	3.83	2.79	36.6	19.1	26	<5
21/6/2023	10:45	Fine	0.8	31.3	7.15	3.10	2.73	37.6	75.9	42	<5
			0.8	31.2	7.17	3.10	2.71	37.3	75.8	57	<5
24/6/2023	13:00	Fine	1.1	27.9	8.51	14.6	7.92	110	86.9	44	<5
			1.3	27.0	8.44	14.4	7.91	108	86.4	31	<5
26/6/2023	15:25	Cloudy	0.9	32.7	6.88	4.43	3.77	53.4	14.9	21	<5
			0.9	32.7	6.89	4.44	3.73	52.8	14.8	24	<5
28/6/2023	12:20	Cloudy	0.9	31.9	7.06	4.58	4.21	58.9	41.0	30	<5
			0.9	32	7.08	4.6	4.19	58.6	41.1	30	<5
30/6/2023	13:50	Cloudy	0.9	34.4	7.12	4.6	2.21	32.4	41.5	44	<5
			0.9	34.3	7.14	4.6	2.19	32.1	41.6	21	<5

Location: Sluice Gate 19







APPENDIX F
The Environmental Mitigation
Implementation Schedule (EMIS)

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
AIR QUALITY									
3.2.6	A.1	Use of approved Non-road Mobile Machinery (NRMM) for all site works areas	To minimise pollutants from exhaust emissions of mobile plant and equipment	All works areas	Construction Contractor		✓		Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation
3.6.2	A.2	Off-site Pre-fabrication of key elements for TH2 and TH3	To reduce air quality impacts associated with construction of new buildings	TH2 and TH3	Engineer + Construction Contractor	✓	✓		Additional measure for minimisation of detrimental impacts to wildlife and the local community
3.7.2	A.3	<ol style="list-style-type: none"> 1. Regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather 2. Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty materials storage piles near ASRs. 3. Side enclosure of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, spraying with water shall be carried out 4. Tarpaulin covering of all dusty vehicle loads transported to and from the Site 5. Use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry weather 6. Imposition of speed controls for vehicles on Site 7. Establishment and use of vehicle wheel and body washing facilities at the exit of the Site to minimise the fugitive dust emissions generated 8. Site layout should be carefully planned such that machinery and dust causing activities (e.g. 	To reduce fugitive dust emissions from works areas	All works areas	Construction Contractor		✓		Air Pollution Control (Construction Dust) Regulation

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
		<ul style="list-style-type: none"> haul roads and stockpiling areas) could be located away from the ASR as far as possible 9. Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs 10. Solid screens are recommended to be erected around any dusty construction activities 							
NOISE									
4.6.3	N.1	Prohibition of works during Restricted Hours	To restrict and reduce noise nuisance during restricted hours.	All works areas	Construction Contractor		✓		NCO
4.6.3	N.2	Prohibition of percussive piling	To restrict and reduce noise nuisance from the use of noisy and heavy piling equipment.	All works areas	Construction Contractor		✓		TM on Noise from Percussive Piling
4.9.1	N.3	<ul style="list-style-type: none"> 1. Adopt <i>Code of Practice on Good Management Practice to Prevent Violation of the NCO</i> 2. Before commencing work, the Contractor shall submit to the Project Engineer the method of working, equipment and noise mitigation measures intended to be used at the Site 3. Devise and execute working methods to minimise the noise impact on the surrounding sensitive uses, and provide experienced personnel with suitable training to ensure that those methods are implemented 4. PME should be kept to a minimum and the parallel use of noisy equipment/ machinery should be avoided 5. Turn off unused equipment 6. Regular maintenance (off-site) of all plant and equipment 	To restrict and reduce noise nuisance from works areas.	All works areas	Construction Contractor		✓		Mai Po Inner Deep Bay Ramsar Site Management Plan Code of Practice on Good Management Practice to Prevent Violation of the NCO (for Construction Industry)

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?	
						D	C	O		
WATER QUALITY										
5.4.17	WQ.1	Foundation works at TH2 and TH3 shall be aligned with the schedule of draining the adjacent gei wai set out in the <i>MPNR Management Plan 2019-2024</i> .	Making use of hydraulic isolation of adjacent gei wai to avoid pollution of other gei wai and Deep Bay	TH2 and TH3 for foundation works	Engineer + Construction Contractor	✓	✓		MPNR Management Plan 2019-2024	
5.4.27	WQ.2	A perimeter bund will be constructed around the work sites for TH2 and TH3 to ensure that any runoff generated from within these sites is discharged only into the adjacent drained gei wai	To ensure pollutants cannot discharge into other water-filled gei wai and so provide a pathway for pollutants to enter Deep Bay	TH2 and TH3 for foundation works	Engineer + Construction Contractor	✓	✓		Additional measure for minimisation of detrimental impacts to wildlife and the local community	
5.4.27	WQ.3	The majority of construction components shall be pre-fabricated off-site to avoid any impacts associated with construction on-site	To achieve zero polluted runoff from works areas by minimising on-site construction of building components	Off-site	Engineer + Construction Contractor	✓	✓			
5.4.27	WQ.4	All concrete will be mixed off-site and brought into each works area only when needed and only in the quantities required, so that there is no need to store (or dispose of) any surplus concrete	To achieve zero polluted runoff from works areas by avoiding concrete mixing, storage and/or disposal on site	Off-site	Construction Contractor		✓			
5.4.27	WQ.5	Any concrete spilled within the works area will be immediately cleaned up and removed from the area	To achieve zero polluted runoff from works areas by immediate cleaning up and removal of spilled concrete	All works areas	Construction Contractor		✓			
5.4.27	WQ.6	Plant, equipment and vehicles shall not be maintained or repaired within any works area in the Project Site	To achieve zero polluted runoff from works areas by handling and treating any resulting oil, chemical waste or other polluting substances off-site in an appropriate manner	Off-site	Construction Contractor		✓			
5.4.27	WQ.7	During re-fuelling, drip trays shall be provided at any fuel connection point. Any spilled fuel shall be collected and taken off-site for proper treatment/disposal	To achieve zero polluted runoff from works areas by carrying out the refuelling with extreme care	All works areas	Construction Contractor		✓			Good Site Practice
5.4.27	WQ.8	Materials, plant or equipment that could give rise to contaminated runoff during extreme rainfall will be	To minimise the quantity of contaminated runoff during	All works areas	Construction Contractor		✓			

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
		protected by being covered, either by tarpaulin or by small gazebos that can be erected within minutes	extreme rainfall						
5.4.27	WQ.9	Each works area will be provided with at least one chemical toilet for use by workers. Sewage collected in these chemical toilets will be treated off-site	To ensure sewage is collected and treated off-site properly	All works areas	Construction Contractor		✓		
5.4.27	WQ.10	Each works area will be provided one bunded and covered area for the temporary storage of C&D material – one section for inert C&D material and one area for C&D waste. These areas will be emptied frequently, using construction material delivery vehicles that are empty on their return journey	To ensure proper storage of C&D material to avoid polluting adjacent gei wai or fishponds	All works areas	Construction Contractor		✓		
5.4.27	WQ.11	Each works area will be provided with at least one set of waterproof waste receptacles – one for recyclable waste and one for non-recyclable waste. These areas will be emptied frequently	To ensure proper storage of wastes to avoid polluting adjacent gei wai or fishponds	All works areas	Construction Contractor		✓		
5.6.2	WQ.12	<ol style="list-style-type: none"> 1. Perimeter channels at site boundaries shall be provided to intercept storm runoff from outside the works areas so that it will not wash across the works areas and to direct all site runoff only into adjacent drained gei wai 2. For the purpose of preventing soil erosion, exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel 3. Intercepting channels shall be provided (e.g. along the crest/edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place to ensure that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm 4. Earthworks final surfaces shall be well compacted and subsequent permanent works 	To minimise the quantity of contaminated runoff and muddy water from works areas by following the good site practice	All works areas	Construction Contractor		✓		ProPECC PN 1/94 Construction Site Drainage

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
		<p>or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion. Appropriate drainage like intercepting channels shall be provided where necessary</p> <p>5. Measures shall be taken to minimise the ingress of rainwater into trenches – they shall be dug and backfilled in short sections</p>							
5.5.1	WQ.13	The two new tower hides will not be provided with toilets or washrooms. Runoff from the roof of the tower hides and from the boardwalks will not be contaminated	No wastewater will be generated during operation.	TH2 and TH3	Construction Contractor			✓	Additional measure for minimisation of detrimental impacts to wildlife and the local community
WASTE MANAGEMENT									
6.6.2	WM.1	Preparation of a WMP to manage waste on site	To identify potential environmental impacts from the generation of waste; to recommend appropriate waste handling, collection, sorting, disposal and recycling measures; and to categorise and permit segregation of C&D material (i.e. inert C&D materials, C&D waste, etc.) for off-site reuse, recycling, treatment and/or disposal	All works areas	Construction Contractor		✓		ETWB TC(W) No. 19/2005, Env Mgmt on Construction Sites
6.6.3	WM.2	Waste storage areas should be well maintained and cleaned regularly	To adopt good housekeeping practices and prevent waste materials being blown around by wind, flushed or leached into nearby waters, or creating odour nuisance or pest and vermin problems	All works areas	Construction Contractor		✓		Good Site Practice
6.6.4	WM.3	Store refuse pending removal in receptacles provided with close fitting covers and remove and properly dispose of refuse daily	To avoid waste materials be flushed or leached during inclement weather conditions such as heavy rainfall	All works areas	Construction Contractor		✓		PNRC No. 17 Control of Env Nuisance from Construction Sites

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
6.6.4	WM.4	Dump trucks shall be fitted with covered box type dump bed and such dump trucks shall comply with the particular specification listed in Part B of Annex 2 to Appendix C of ETWB TC(W) No. 19/2005	To ensure C&D Material will be delivered to the appropriate designated outlets and dump trucks to minimise potential nuisance during transportation of waste	All works areas	Construction Contractor		✓		Part B of Annex 2 to Appendix C of ETWB TC(W) No. 19/2005
6.6.5	WM.5	Establishment of a Trip Ticket System to monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping	To monitor the disposal of public fill and solid wastes at public filling facilities and landfills, and to control fly-tipping	Off-site	Construction Contractor		✓		DevB TC(W) No. 6/2010 and Waste Disposal (Charges for Disposal of Constr. Waste) Reg
6.6.6	WM.6	General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the construction contractor to remove general refuse from the Site, separately from C&D materials	To separate general refuses from C&D material and ensure proper disposal	All works areas	Construction Contractor		✓		Good Site Practice
6.6.7	WM.7	<ol style="list-style-type: none"> The Contractor shall observe and comply with the WDO and its subsidiary regulations The Contractor shall submit to the Engineer a WMP with appropriate mitigation measures including allocation of an area for waste segregation and shall ensure that day-to-day site operations comply with the approved WMP The Contractor shall minimise the generation of waste from his work. Avoidance and minimisation of waste can be achieved through changing or improving design and practices, careful planning and good site management The Contractor shall ensure that different types of wastes are segregated on-site and stored in different containers, skips or stockpiles to facilitate reuse/recycling of waste and, as the last resort, disposal at different outlets 	To further minimise the environmental impacts related to waste arising from the Project	All works areas	Construction Contractor		✓		Good Site Practice Waste Disposal (Chemical Waste) (General) Regulation

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						D	C	O	
		<p>5. The reuse and recycling of waste shall be practised as far as possible. The recycled materials shall include paper/cardboard, timber and metal, etc.</p> <p>6. The Contractor shall ensure that C&D materials are sorted into public fill (inert portion) and C&D waste (non-inert portion). Public fill, which comprises soil, rock, concrete, brick, cement plaster/mortar, inert building debris, aggregates and asphalt, shall be reused in earth filling, reclamation or site formation works. C&D waste, which comprises metal, timber, paper, glass, junk and general refuse, shall be reused, recycled or, as the last resort, disposed of at landfill</p> <p>7. The Contractor shall record the amount of waste generated, recycled and disposed of</p> <p>8. The Contractor shall use a trip ticket system for the disposal of C&D materials to any designated PFRFs and/or landfill</p> <p>9. Training shall be provided for workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycling</p> <p>10. The Contractor shall not permit any sewage, wastewater or effluent containing sand, cement, silt or any other suspended or dissolved material to flow from the Site onto any adjoining land or allow any waste matter that is not part of the final product from waste processing plants to be deposited anywhere within the Site or onto any adjoining land. He shall arrange removal of such matter from the site in a proper manner to the satisfaction of the Engineer</p>							

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						D	C	O	
		11. The Contractor shall observe and comply with the Waste Disposal (Chemical Waste) (General) Regulation							
6.6.8	WM.8	<ol style="list-style-type: none"> Construction material, stockpiles, chemical and waste storage/recycling facilities should be immediately moved to secured area Construction material, stockpiles and waste storage/recycling facilities should be covered by an impermeable sheeting, if necessary Intercepting channels will be provided at the edge of the excavated area to prevent storm runoff from washing across the exposed surface 	To adopt additional control measures when inclement weather (e.g. heavy rain, typhoon, etc.) is forecast	All works areas	Construction Contractor		✓		Good Site Practice
6.6.9	WM.9	Visitors will be encouraged to bring their own reusable water bottles and food containers, rather than single-use containers, and free drinking water for visitors will be provided at the MPEC. No waste receptacles are provided within MPNR and visitors will be encouraged to take their waste home with them	To minimise the amount of waste generated by visitors to MPNR	Throughout MPNR	WWF			✓	Additional measure for minimisation of detrimental impacts to wildlife and the local community
Table 6-3	WM.10	Inert C&D Material: PFRF at Tuen Mun Area 38	To ensure proper management and treatment of inert C&D material	Off-site	Construction Contractor		✓		
Table 6-3	WM.11	C&D Waste (non-inert): Segregation + recycling by local recyclers / residual waste to NENT Landfill	To ensure proper management and treatment of C&D waste (non-inert)	Off-site	Construction Contractor		✓		
Table 6-3	WM.12	C&D Waste (vegetation): Vegetation shall be composted on-site	To ensure proper management and treatment of C&D waste (veg)	On-site	WWF		✓		
Table 6-3	WM.13	General Refuse: Segregation + off-site recycling by local recyclers/residual waste to NWNT RTS	To ensure proper management and treatment of general refuse	Off-site	Construction Contractor		✓		
ECOLOGY									
7.9.3	E.1	The three project elements will be assembled/constructed over a two-month period between mid-April and mid-October	To avoid impacts on the high number of waterbirds and wetland-dependent species present in the dry season	All works areas	Construction Contractor		✓		Additional measure for minimisation of detrimental impacts to wildlife and the

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						D	C	O	
7.9.4	E.2	Adequate site checks in the works area and in the vicinity of the footprint of all project elements will be conducted by a suitably qualified ecologist prior to commencement of works to search for substantive usage of the habitat by flora and/or fauna of conservation concern, e.g. the presence of an otter holt	To avoid impacts on mammals, in particular Eurasian Otter	All works areas	ET		✓		local community
7.9.6	E.3	Install a 2m-high solid, opaque screen around works areas	To mitigate disturbance to species using adjacent habitats	All works areas	Construction Contractor		✓		
7.9.6	E.4	Provide screen planting using native bamboo species <i>Bambusa tuldooides</i> (青稈竹, 花眉竹) to the access path to the new Tower Hides to reduce disturbance during the construction and operational phase (see also LV.6, below)	To mitigate disturbance to species using adjacent habitats	Access to THs	Construction Contractor +WWF		✓	✓	
7.9.7	E.5	All construction activity for TH2 and its associated access path, including the passage of construction vehicles, will cease two hours before sunset, this means 4pm in the wet season construction period	To avoid impacts on nocturnal roost sites and associated pre-roost gatherings of Collared Crow in the vicinity of Pond 20	TH2	Construction Contractor		✓		
7.9.8	E.6	Ahead of construction, ET checks will be conducted during the breeding season. These checks should be carried out two weeks prior to construction commencing and the day before. Should any egret be discovered in the vicinity of works areas, the need for mitigation measures shall be assessed in consultation with AFCD	To check for the presence of breeding ardeids within 500m of the footprint of project elements	All works areas	ET		✓		
7.9.9	E.7	All construction activity for footpath and TH3 will cease one hour before sunset	To prevent disturbance to nearby ardeid pre-roost and roost activities	TH3 and footpath	Construction Contractor		✓		
7.9.11	E.8	Adequate site checks along haul roads and in the works area and in the immediate vicinity should be conducted prior to the commencement of works at TH2 and TH3	To detect substantive use of adjacent habitat by species of conservation concern. If roosts or breeding species are found,	TH2 and TH3	ET		✓		

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EIA REPORT REF.	EM&A ACTION REF.	RECOMMENDED MITIGATION MEASURES	OBJECTIVES OF THE MEASURE AND MAIN CONCERNS TO ADDRESS	LOCATION OF MEASURE	WHO TO IMPLEMENT MEASURE?	WHEN TO IMPLEMENT MEASURE?*			STANDARD OR REQUIREMENTS FOR MEASURE TO ACHIEVE?
						D	C	O	
			appropriate measures should be taken to avoid adverse impact, including adjustments to the timing of works						
7.9.12	E.9	Prior to any tree pruning or felling works, a careful check should be conducted by an experienced ecologist to ensure that bats or active bird nests are not present	To avoid disturbance to bat and bird species nesting in trees	All works areas	ET		✓		
7.9.14	E.10	Desilting channels at gei wai 19, reconnecting gei wai 19a with gei wai 19b, and merging the six sub-ponds (20a to 20f) of gei wai 20 (for TH2); and enhancement of gei wai 8a through reprofiling and connection of gei wai 8a with gei wai 7 (for TH3).	To provide habitat enhancement to offset the loss of very small areas of gei wai bund and pond bund due to construction of the new TH2, TH3 and boardwalk path	TH2 and TH3	Construction Contractor +WWF		✓		
FISHERIES									
8.3.19	F.1	Contingency plan when construction works are in the vicinity of commercial fish ponds: 1. Identification of potential emergency situations – consult with WWF and owners of the ponds. 2. Emergency response team 3. Emergency response procedures 4. List of emergency telephone hotlines 5. Location and type of emergency equipment 6. Training plan and testing for effectiveness	To prevent perforated liner and damaged/destabilized pond bunds	In the vicinity of commercial fish ponds	Construction Contractor		✓		Additional measure for minimisation of detrimental impacts to wildlife and the local community
LANDSCAPE AND VISUAL									
9.7.4	LV.1	CM1: Construction lighting control: to ensure no night time lighting at all works areas.	To restrict and reduce light pollution during night time.	All works areas	Construction Contractor		✓		Additional measure for minimisation of detrimental impacts to wildlife and the local community
9.7.4	LV.2	CM2: All existing trees and vegetation outside the works footprints shall be properly preserved and	To protect the landscape quality of the existing trees and vegetation.	All works areas	Construction Contractor		✓		DevB TCW No. 7/2015

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						D	C	O	
		protected.							
9.7.4	LV.3	CM3: All the construction materials shall be properly stored at the designated locations within the works areas.	To ensure proper storage of construction materials and enhance tidiness on site.	All works areas	Construction Contractor		✓		Good Site Practice
9.7.4	LV.4	CM4: Erection of screen hoarding for TH2 and TH3 (where appropriate, hoardings with surface treatment/ colour suitable to the rural context shall be used).	To minimise potential impact on landscape / visual quality during construction of TH2 and TH3.	All works areas	Construction Contractor		✓		Additional measure for minimisation of detrimental impacts to wildlife and the local community
9.7.5	LV.5	OM1: Suitable/responsive design of the proposed Boardwalks and Bird-watching Hides	To enhance overall landscape / visual quality by fitting in with the surrounding natural landscapes.	TH2 and TH3, New Boardwalks	Design Consultant/ WWF	✓			
9.7.5	LV.6	OM2: Provide screen planting using native bamboo species <i>Bambusa tuldooides</i> (青稈竹, 花眉竹) to the access to the new Tower Hides to soften the appearance of the hard elements of the Project.	To enhance overall landscape / visual quality by fitting in with the surrounding natural landscapes.	Access to THs	Construction Contractor		✓	✓	

Note: * D = Deign Stage | C = Construction Stage | O = Operation Stage

APPENDIX G
Waste Generation in the Reporting Month

Monthly Summary Waste Flow Table for 2023 (year)

Project : EP-598/2022 – Mai Po Nature Reserve Infrastructure Upgrade Project

Month	Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Bituminous Material	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m ³)
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020
Jul												
Aug												
Sep												
Oct												
Nov												
Dec												
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.020

- Notes:
- (1) The performance targets are given in the Particular Specification on Environmental Management Plan.
 - (2) The waste flow table shall also include construction waste that are specified in the Contract to be imported for use at the site.
 - (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
 - (4) Broken concrete for recycling into aggregates.
 - (5) If necessary, use the conversion factor: 1 full load of dumping truck being equivalent to 6.5 m³ by volume.

APPENDIX H
The Summary of Exceedance Record

Appendix H Exceedance Report

Exceedance Report for Water Quality

1. Summary of exceedances of the Action Level

Environmental Monitoring	Parameter	No. of non-project related exceedances		Total No. of non-project related exceedances
		AL	LL	
Water Quality	SS	2	2	2
	DO	2	2	2
	Turbidity	4	4	4

2. Detail information of exceedances of the Action Level and Limit Level

Date	Parameter of Exceedances	Monitoring Location	
		Sluice Gate 7	Sluice Gate 19
15 June 2023	Suspended Solids	130, 170	Not Applicable
17 June 2023	Suspended Solids	160, 160	Not Applicable
17 June 2023	Turbidity	211, 213	Not Applicable
21 June 2023	Turbidity	73.3, 73.4	Not Applicable
28 June 2023	Turbidity	52.7, 52.8	Not Applicable
30 June 2023	Turbidity	79.6, 79.7	Not Applicable
30 June 2023	Dissolved Oxygen	2.13, 2.15	2.21, 2.19

3. Site activity during the date with exceedances:

Date	Site Activity
15 June 2023	<ol style="list-style-type: none"> TH2 – Formation works to access road. TH2 – Setting out to footing. TH3 – Formation works to access road. TH3 – Geogrid fixing
17 June 2023	<ol style="list-style-type: none"> TH2 – Formation works to access road. TH3 – Formation works to access road.
21 June 2023	<ol style="list-style-type: none"> TH2 – Excavation to footing. TH2 – Formation works to access road. TH2 – Cleaning to access road.
28 June 2023	<ol style="list-style-type: none"> TH2 – Compaction to footing. TH3 – Setting out to footing.
30 June 2023	<ol style="list-style-type: none"> TH2 – Steel Reinforcement to footing. TH2 – Formwork to footing.

As the site work carried out on the aforesaid dates did not involve any wet trade works, the exceedances were not considered to be related to the Project. The exceedances may be due to external factors which were not project-related.

APPENDIX I
Complaint Log

Complaint Log

Reporting month: June 2023

Complaint Log Ref.	EPD Log Ref.	Location	Received Date	Details of Complaint	Investigation/ Mitigation Action Status	Status
N.A.	N.A.	N.A.	N.A.	N.A.	N.A.	N.A.

Cumulative Complaint Log

Complaint Log Reporting Period	Total no. of Complaint Received
This reporting month	0
From 1th June 2023 to end of the reporting month	0

APPENDIX J
Summary of Successful Prosecution

Summary of Successful Prosecution

Date of Successful Prosecution	Details of the Successful Prosecution	Status	Follow Up	Total no. Received in this Reporting Month	Total no. Received since Project Commencement
-	-	-	-	-	-

APPENDIX K
The Tentative Construction Programmes

Major Activities	Start	Finish	Year 2023																																			
			Mar				Apr				May				June				Jul				Aug				Sep				Oct				Nov			
			W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4	W1	W2	W3	W4				
<u>Tower Hide 2 & 3 Works</u>			Bird Season																																			
<u>External Works</u>																																						
Mobilization and site setup	17-Apr-23	29-May-23																																				
Foundation construction	30-May-23	21-Jun-23																																				
Steel structure installation	28-Jun-23	24-Jul-23																																				
External ramp installation	3-Jul-23	8-Aug-23																																				
External facade installation	18-Jul-23	31-Aug-23																																				
<u>Internal works</u>																																						
Door installation	17-Aug-23	20-Aug-23																																				
Mechincal ventilation works	17-Aug-23	21-Sep-23																																				
Electrical works	17-Aug-23	6-Oct-23																																				
Drainage works	17-Aug-23	6-Oct-23																																				
Cleaning and defect rectification	7-Oct-23	14-Oct-23																																				
<u>Footpath Works</u>																																						
Floor decking installation (Section 1s)	3-Jul-23	17-Jul-23																																				
Floor decking installation (Section 2s)	18-Jul-23	1-Aug-23																																				
Floor decking installation (Section 3s)	2-Aug-23	16-Aug-23																																				
Floor decking installation (Section 4s)	17-Aug-23	31-Aug-23																																				
Floor decking installation (Section 5s)	1-Sep-23	15-Sep-23																																				
Floor decking installation (Section 6s)	16-Sep-23	30-Sep-23																																				
Cleaning and defect rectification	1-Oct-23	8-Oct-23																																				