



# **Expansion of Hong Kong International Airport into a Three-Runway System**

Construction Phase Monthly EM&A Report No.55  
(For July 2020)

August 2020

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**This Monthly EM&A Report No. 55 has been reviewed and certified by**

**the Environmental Team Leader (ETL) in accordance with**

**Condition 3.5 of Environmental Permit No. EP-489/2014.**

**Certified by:**

A handwritten signature in black ink, appearing to read 'Terence Kong', written in a cursive style.

---

Terence Kong  
Environmental Team Leader (ETL)  
Mott MacDonald Hong Kong Limited

**Date**

14 August 2020



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**By Email**

Airport Authority Hong Kong  
HKIA Tower, 1 Sky Plaza Road  
Hong Kong International Airport  
Lantau, Hong Kong

Attn: Mr. Lawrence Tsui, Principal Manager

14 August 2020

Dear Sir,

**Contract No. 3102**  
**3RS Independent Environmental Checker Consultancy Services**

**Submission of Monthly EM&A Report No. 55 (July 2020)**

Reference is made to the Environmental Team's submission of the Monthly EM&A Report No. 55 under Condition 3.5 of the Environmental Permit No. EP-489/2014 certified by the ET Leader on 14 August 2020.

We write to verify the captioned submission in accordance with the requirement stipulated in Condition 3.5 of EP-489/2014.

Should you have any query, please feel free to contact the undersigned at 3922 9376.

Yours faithfully,  
AECOM Asia Co. Ltd.

Jackel Law  
Independent Environmental Checker

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# Abbreviations

3RS	Three-Runway System
AAHK	Airport Authority Hong Kong
AECOM	AECOM Asia Company Limited
AFCD	Agriculture, Fisheries and Conservation Department
AIS	Automatic Information System
ANI	Encounter Rate of Number of Dolphins
APM	Automated People Mover
AW	Airport West
BHS	Baggage Handling System
C&D	Construction and Demolition
CAP	Contamination Assessment Plan
CAR	Contamination Assessment Report
CNP	Construction Noise Permit
CWD	Chinese White Dolphin
DCM	Deep Cement Mixing
DEZ	Dolphin Exclusion Zone
DO	Dissolved Oxygen
EAR	Ecological Acoustic Recorder
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring & Audit
EP	Environmental Permit
EPD	Environmental Protection Department
ET	Environmental Team
FCZ	Fish Culture Zone
HDD	Horizontal Directional Drilling
HKBCF	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities
HKIA	Hong Kong International Airport
HOKLAS	Hong Kong Laboratory Accreditation Scheme
HSF	High Speed Ferry
HVS	High Volume Sampler
IEC	Independent Environmental Checker
LKC	Lung Kwu Chau
MTCC	Marine Traffic Control Centre
MMHK	Mott MacDonald Hong Kong Limited
MMWP	Marine Mammal Watching Plan
MSS	Maritime Surveillance System
MTRMP-CAV	Marine Travel Routes and Management Plan for Construction and Associated Vessel
NEL	Northeast Lantau
NWL	Northwest Lantau
PAM	Passive Acoustic Monitoring
SC	Sha Chau

SCLKCMP	Sha Chau and Lung Kwu Chau Marine Park
SS	Suspended Solids
SSSI	Site of Special Scientific Interest
STG	Encounter Rate of Number of Dolphin Sightings
SWL	Southwest Lantau
T2	Terminal 2
The Project	The Expansion of Hong Kong International Airport into a Three-Runway System
The SkyPier Plan	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier
The Manual	The Updated EM&A Manual
TSP	Total Suspended Particulates
WL	West Lantau
WMP	Waste Management Plan

# Executive Summary

The “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) serves to meet the future air traffic demands at Hong Kong International Airport (HKIA). On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the Project was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual (the Manual).

This is the 55<sup>th</sup> Construction Phase Monthly EM&A Report for the Project which summarises the monitoring results and audit findings of the EM&A programme during the reporting period from 1 to 31 July 2020.

## **Key Activities in the Reporting Period**

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included deep cement mixing (DCM) works, marine filling, seawall and facilities construction, together with runway and associated works. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for Automated People Mover (APM) and Baggage Handling System (BHS), and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition, piling, and excavation works.




## **EM&A Activities Conducted in the Reporting Period**

The monthly EM&A programme was undertaken in accordance with the Manual of the Project. Summary of the monitoring activities during this reporting period is presented as below:

<b>Monitoring Activities</b>	<b>Number of Sessions</b>
1-hour Total Suspended Particulates (TSP) air quality monitoring	30
Noise monitoring	16
Water quality monitoring	13
Vessel line-transect surveys for Chinese White Dolphin (CWD) monitoring	2
Land-based theodolite tracking survey effort for CWD monitoring	2

Environmental auditing works, including weekly site inspections of construction works conducted by the ET and bi-weekly site inspections conducted by the Independent Environmental Checker (IEC), audit of SkyPier High Speed Ferries (HSF), audit of construction and associated vessels, and audit of implementation of Marine Mammal Watching Plan (MMWP) and Dolphin Exclusion Zone (DEZ) Plan, were conducted in the reporting period. Based on information including ET’s observations, records of Maritime Surveillance System (MSS), and contractors’ site records, it is noted that environmental pollution control and mitigation measures were properly implemented and construction activities of the Project in the reporting period did not introduce adverse impacts to the sensitive receivers.

### **Snapshots of EM&A Activities in the Reporting Period**

		
<p>Small Vessel Line-transect Survey of CWD Conducted by ET</p>	<p>Dump Truck with Mechanical Truck Cover adopted by Contractor for Delivering C&amp;D Materials</p>	<p>Enhanced Design of Wheel Washing Facility to prevent Run-off of Wash Water</p>

### **Results of Impact Monitoring**

The monitoring works for construction dust, construction noise, water quality, construction waste, landscape & visual, and CWD were conducted during the reporting period in accordance with the Manual.

Monitoring results of construction dust, construction noise, construction waste, and CWD did not trigger the corresponding Action and Limit Levels in the reporting period.

The water quality monitoring results for all parameters, except dissolved oxygen (DO), obtained during the reporting period were within the corresponding Action and Limit Levels stipulated in the EM&A programme. Relevant investigation and follow-up actions will be conducted according to the EM&A programme if the corresponding Action and Limit Levels are triggered. For dissolved oxygen (DO), some testing results triggered the relevant Action and Limit Levels, and the corresponding investigations were conducted accordingly. Further investigations for cases recorded between 11 and 25 June 2020 were also provided in this Construction Phase Monthly EM&A Report. The investigation findings indicated that the cases recorded in June and July 2020 were not related to the Project. To conclude, the construction activities did not introduce adverse impact to all water quality sensitive receivers.

### **Summary of Upcoming Key Issues**

#### **Reclamation Works:**

##### **Contract 3205 DCM works**

- DCM works

##### **Contract 3206 Main Reclamation Works**

- Land-based ground improvement works;
- Seawall construction;
- Marine filling; and
- Sorting and reuse of inert waste from other 3RS contracts.

#### **Airfield Works:**

##### **Contract 3301 North Runway Crossover Taxiway**

- Cable ducting works; and
- Subgrade compaction and paving works.

##### **Contract 3302 Eastern Vehicular Tunnel Advance Works**

- Cable laying and ducting works;
- Trench excavation works;
- Backfilling and reinstatement works;
- Piling and structure works;
- King Post Construction; and
- Site establishment.

**Contract 3303 Third Runway and Associated Works**

- Footing and utilities work;
- Preparation works for box culvert construction;
- Bored piling work; and
- Cable laying and ducting works.

**Contract 3307 Fire Training Facility**

- Site establishment

**Third Runway Concourse:****Contract 3403 New Integrated Airport Centres Building and Civil Works**

- Piling works and
- Installation of cable and lightning pit.

**Contract 3405 Third Runway Concourse Foundation and Substructure Works**

- Plant mobilisation;
- Bored piling work; and
- Laying of pipes.

**Terminal 2 Expansion:****Contract 3503 Terminal 2 Foundation and Substructure Works**

- T2 re-configuration;
- Excavation works;
- Utilities, drainage, and road work; and
- Piling and structure works.

**Automated People Mover (APM) and Baggage Handling System (BHS):****Contract 3601 New Automated People Mover System (TRC Line)**

- Construction of site office.

**Contract 3602 Existing APM System Modification Works**

- Modification works at APM depot.

**Construction Support (Facilities):****Contract 3721 Construction Support Infrastructure Works**

- Excavation and backfilling; and
- Laying of drainage pipes and ducts.

**Contract 3722 Construction Support Facilities**

- Formboard erecting and concreting;
- Foundation works;
- Erection of superstructure; and

- Site Establishment.

#### **Airport Support Infrastructure:**

##### **Contract 3801 APM and BHS Tunnels on Existing Airport Island**

- Construction of box culvert;
- Cofferdam installation for shaft;
- King Post;
- Backfilling work; and
- Site clearance.

##### **Contract 3802 APM and BHS Tunnels and Related Works**

- Site establishment;
- Set up storage area and temporary haul road; and
- Ground investigation.

#### **Construction Support (Services / Licences):**

##### **Contract 3901A/ B Concrete Batching Facility**

- Erection of superstructure;
- Concreting; and
- Foundation work.

#### **Summary Table**

The following table summarises the key findings of the EM&A programme during the reporting period:

	Yes	No	Details	Analysis / Recommendation / Remedial Actions
Breach of Limit Level <sup>^</sup>		√	No breach of Limit Level was recorded.	Nil
Breach of Action Level <sup>^</sup>		√	No breach of Action Level was recorded.	Nil
Complaint Received	√		A complaint regarding suspected improper chemical waste disposal at the pier near Marina Garden, Tuen Mun was received on 6 Jul 2020.	ET requested the concerned Contractor for details on the complaint. Based on information provided by Contractor, no chemical waste has been generated from the Contractor. The case was considered closed.
			A complaint regarding the discharge of muddy water from the construction site which was near Aviation Fuel Supply Company (AFSC) Operation Limited premise to the surrounding surface water channel was received on 13 Jul 2020.	ET investigated the related work contracts that carried out construction activities at or near the alleged area. Based on information provided by contractors and ET's inspection findings, no malpractices were observed. The case was considered closed.
Notification of any summons and status of prosecutions		√	No notification of summons or prosecution was received.	Nil
Change that affect the EM&A		√	There was no change to the construction works that may affect the EM&A.	Nil

Note:

<sup>^</sup> Only triggering of Action or Limit Level found related to Project works is counted as Breach of Action or Limit Level.

# 1 Introduction

## 1.1 Background

On 7 November 2014, the Environmental Impact Assessment (EIA) Report (Register No.: AEIAR-185/2014) for the “Expansion of Hong Kong International Airport into a Three-Runway System” (the Project) was approved and an Environmental Permit (EP) (Permit No.: EP-489/2014) was issued for the construction and operation of the Project.

Airport Authority Hong Kong (AAHK) commissioned Mott MacDonald Hong Kong Limited (MMHK) to undertake the role of Environmental Team (ET) for carrying out the Environmental Monitoring & Audit (EM&A) works during the construction phase of the Project in accordance with the Updated EM&A Manual (the Manual) submitted under EP Condition 3.1<sup>1</sup>. AECOM Asia Company Limited (AECOM) was employed by AAHK as the Independent Environmental Checker (IEC) for the Project.

The Project covers the expansion of the existing airport into a three-runway system (3RS) with key project components comprising land formation of about 650 ha and all associated facilities and infrastructure including taxiways, aprons, aircraft stands, a passenger concourse, an expanded Terminal 2, all related airside and landside works and associated ancillary and supporting facilities. The submarine aviation fuel pipelines and submarine power cables also require diversion as part of the works.

Construction of the Project is to proceed in the general order of diversion of the submarine aviation fuel pipelines, diversion of the submarine power cables, land formation, and construction of infrastructure, followed by construction of superstructures.

The updated overall phasing programme of all construction works was presented in Appendix A of the Construction Phase Monthly EM&A Report No. 7 and the contract information was presented in Appendix A of Construction Phase Monthly EM&A Report No. 54.

## 1.2 Scope of this Report

This is the 55<sup>th</sup> Construction Phase Monthly EM&A Report for the Project which summarises the key findings of the EM&A programme during the reporting period from 1 to 31 July 2020.

## 1.3 Project Organisation

The Project’s organisation structure presented in Appendix B of the Construction Phase Monthly EM&A Report No.1 remained unchanged during the reporting period. Contact details of the key personnel are presented in **Table 1.1**.

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<sup>1</sup> The Manual is available on the Project’s dedicated website (accessible at: <http://env.threerunwaysystem.com/en/index.html>).

**Table 1.1: Contact Information of Key Personnel**

Party	Position	Name	Telephone
Project Manager's Representative (Airport Authority Hong Kong)	Principal Manager, Environment	Lawrence Tsui	2183 2734
Environmental Team (ET) (Mott MacDonald Hong Kong Limited)	Environmental Team Leader	Terence Kong	2828 5919
	Deputy Environmental Team Leader	Heidi Yu	2828 5704
	Deputy Environmental Team Leader	Daniel Sum	2585 8495
Independent Environmental Checker (IEC) (AECOM Asia Company Limited)	Independent Environmental Checker	Jackel Law	3922 9376
	Deputy Independent Environmental Checker	Roy Man	3922 9141

**Reclamation Works:**

Party	Position	Name	Telephone
Contract 3205 DCM (Package 5) (Bachy Soletanche - Sambo Joint Venture)	Deputy Project Director	Min Park	9683 0765
	Environmental Officer	William Chan	5408 3045
Contract 3206 Main Reclamation Works (ZHEC-CCCC-CDC Joint Venture)	Project Manager	Alan Mong	3763 1352
	Environmental Officer	Kwai Fung Wong	3763 1452

**Airfield Works:**

Party	Position	Name	Telephone
Contract 3301 North Runway Crossover Taxiway (FJT-CHEC-ZHEC Joint Venture)	Deputy Project Director	Kin Hang Chung	9800 0048
	Environmental Officer	Joe Wong	6182 0351
Contract 3302 Eastern Vehicular Tunnel Advance Works (China Road and Bridge Corporation)	Project Manager	Dickey Yau	5699 4503
	Environmental Officer	Dennis Ho	5645 0563
Contract 3303 Third Runway and Associated Works (SAPR Joint Venture)	Project Manager	Andrew Keung	6277 6628
	Environmental Officer	Max Chin	6447 5707
Contract 3307 Fire Training Facility (Paul Y. Construction Company Limited)	Project Manager	Steven Meredith	6109 1813
	Environmental Officer	Albert Chan	9700 1083

**Third Runway Concourse:**

Party	Position	Name	Telephone
Contract 3402 New Integrated Airport Centres Enabling Works (Wing Hing Construction Co., Ltd.)	Contract Manager	Michael Kan	9206 0550
	Environmental Officer	Lisa He	5374 3418
Contract 3403 New Integrated Airport Centres Building and Civil Works (Sun Fook Kong Construction Limited)	Project Manager	Alice Leung	9220 3162
	Environmental Officer	Alpha Chia	9626 1114
Contract 3405 Third Runway Concourse Foundation and Substructure Works (China Road and Bridge Corporation – Bachy Soletanche Group Limited – LT Sambo Co., Ltd. Joint Venture)	Project Manager	Francis Choi	9423 3469
	Environmental Officer	Cecilia Choi	9265 9352

**Terminal 2 (T2) Expansion:**

Party	Position	Name	Telephone
Contract 3503 Terminal 2 Foundation and Substructure Works (Leighton – Chun Wo Joint Venture)	Project Manager	Eric Wu	3973 1718
	Environmental Officer	Malcolm Leung	3973 0850

**Automated People Mover (APM) and Baggage Handling System (BHS):**

Party	Position	Name	Telephone
Contract 3601 New Automated People Mover System (TRC Line) (CRRP Puzhen Bombardier Transportation Systems Limited and CRRP Nanjing Puzhen Co., Ltd. Joint Venture)	Project Manager	Hongdan Wei	158 6180 9450
	Environmental Officer	K F Li	9086 1793
Contract 3602 Existing APM System Modification Works (Niigata Transys Co., Ltd.)	Project Manager	Kunihiro Tatecho	9755 0351
	Environmental Officer	Yolanda Gao	5399 3509
Contract 3603 3RS Baggage Handling System (VISH Consortium)	Project Manager	K C Ho	9272 9626
	Environmental Officer	Eric Ha	9215 3432

**Construction Support (Facilities):**

Party	Position	Name	Telephone
Contract 3721 Construction Support Infrastructure Works (China State Construction Engineering (Hong Kong) Ltd.)	Site Agent	Thomas Lui	9011 5340
	Environmental Officer	Xavier Lam	9493 2944

Party	Position	Name	Telephone
Contract 3722 Western Support Area – Construction Support Facilities (Tapbo Construction Company Limited and Konwo Modular House Limited Joint Venture)	Deputy Project Director	Philip Kong	9049 3161
	Environmental Officer	Sampson Lo	9752 9118

#### Airport Support Infrastructure:

Party	Position	Name	Telephone
Contract 3801 APM and BHS Tunnels on Existing Airport Island (China State Construction Engineering (Hong Kong) Ltd.)	Project Manager	Tony Wong	9642 8672
	Environmental Officer	Federick Wong	9842 2703
Contract 3802 APM and BHS Tunnels and Related Works (Gammon Construction Limited)	Project Director	John Adams	6111 6989
	Environmental Officer	Andy Leung	9489 0035

#### Construction Support (Services / Licences):

Party	Position	Name	Telephone
Contract 3901A Concrete Batching Facility (K. Wah Concrete Company Limited)	Project Manager	Benedict Wong	9553 2806
	Environmental Officer	C P Fung	9874 2872
Contract 3901B Concrete Batching Facility (Gammon Construction Limited)	Senior Project Manager	Gabriel Chan	2435 3260
	Environmental Officer	Rex Wong	2695 6319

## 1.4 Summary of Construction Works

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS systems, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition of existing facilities, piling, and excavation works.

The locations of key construction activities are presented in **Figure 1.1**.

## 1.5 Summary of EM&A Programme Requirements

The status for all environmental aspects are presented in **Table 1.2**. The EM&A requirements remained unchanged during the reporting period and details can be referred to Table 1.2 of the Construction Phase Monthly EM&A Report No. 1.

**Table 1.2: Summary of status for all environmental aspects under the Updated EM&A Manual**

Parameters	Status
Air Quality	

<b>Parameters</b>	<b>Status</b>
Baseline Monitoring	The baseline air quality monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
<b>Noise</b>	
Baseline Monitoring	The baseline noise monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
<b>Water Quality</b>	
General Baseline Water Quality Monitoring for reclamation, water jetting and field joint works	The baseline water quality monitoring result has been reported in Baseline Water Quality Monitoring Report and submitted to EPD under EP Condition 3.4.
General Impact Water Quality Monitoring for reclamation, water jetting and field joint works	On-going
Initial Intensive Deep Cement Mixing (DCM) Water Quality Monitoring	The Initial Intensive DCM Monitoring Report was submitted and approved by EPD in accordance with the Detailed Plan on DCM.
Regular DCM Water Quality Monitoring	On-going
<b>Waste Management</b>	
Waste Monitoring	On-going
<b>Land Contamination</b>	
Supplementary Contamination Assessment Plan (CAP)	The Supplementary CAP was submitted to EPD pursuant to EP Condition 2.20.
Contamination Assessment Report (CAR) for Golf Course	The CAR for Golf Course was submitted to EPD.
Contamination Assessment Report (CAR) for Terminal 2 Emergency Power Supply System No.1 (Volumes 1 and 2)	The CAR for Terminal 2 Emergency Power Supply System No.1 (Volumes 1 and 2) was submitted to EPD.
<b>Terrestrial Ecology</b>	
Pre-construction Egret Survey Plan	The Egret Survey Plan was submitted and approved by EPD under EP Condition 2.14.
Ecological Monitoring	The terrestrial ecological monitoring at Sheung Sha Chau was completed in January 2019.
<b>Marine Ecology</b>	
Pre-Construction Phase Coral Dive Survey	The Coral Translocation Plan was submitted and approved by EPD under EP Condition 2.12.
Coral Translocation	The coral translocation was completed.
Post-Translocation Coral Monitoring	The post-translocation monitoring programme according to the Coral Translocation Plan was completed in April 2018.
<b>Chinese White Dolphins (CWD)</b>	
<b>Vessel Survey, Land-based Theodolite Tracking and Passive Acoustic Monitoring (PAM)</b>	
Baseline Monitoring	Baseline CWD results were reported in the CWD Baseline Monitoring Report and submitted to EPD in accordance with EP Condition 3.4.
Impact Monitoring	On-going
<b>Landscape &amp; Visual</b>	
Landscape & Visual Plan	The Landscape & Visual Plan was submitted to EPD under EP Condition 2.18
Baseline Monitoring	The baseline landscape & visual monitoring result has been reported in Baseline Monitoring Report and submitted to EPD under EP Condition 3.4.
Impact Monitoring	On-going
<b>Environmental Auditing</b>	
Regular site inspection	On-going

Parameters	Status
Marine Mammal Watching Plan (MMWP) implementation measures	On-going
Dolphin Exclusion Zone (DEZ) Plan implementation measures	On-going
SkyPier High Speed Ferries (HSF) implementation measures	On-going
Construction and Associated Vessels Implementation measures	On-going
Complaint Hotline and Email channel	On-going
Environmental Log Book	On-going

Taking into account the construction works in this reporting period, impact monitoring of air quality, noise, water quality, waste management, landscape & visual, and CWD were carried out in the reporting period.

The EM&A programme also involved weekly site inspections and related auditing conducted by the ET for checking the implementation of the required environmental mitigation measures recommended in the approved EIA Report. To promote the environmental awareness and enhance the environmental performance of the contractors, environmental trainings and regular environmental management meetings were conducted during the reporting period, which are summarised as below:

- One skipper training session provided by ET: 8 July 2020;
- One dolphin observer training session provided by ET: 17 July 2020;
- Sixteen environmental management meetings for EM&A review with works contracts: 2, 3, 6, 10, 14, 15, 20, 22, 23, 27, 29, 30, and 31 July 2020.

The EM&A programme has been following the recommendations presented in the approved EIA Report and the Manual. A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix A**.

## 2 Air Quality Monitoring

Air quality monitoring of 1-hour Total Suspended Particulates (TSP) was conducted three times every six days at two representative monitoring stations in the vicinity of air sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Manual. **Table 2.1** describes the details of the monitoring stations. **Figure 2.1** shows the locations of the monitoring stations.

**Table 2.1: Locations of Impact Air Quality Monitoring Stations**

Monitoring Station	Location
AR1A	Man Tung Road Park
AR2	Village House at Tin Sum

### 2.1 Action and Limit Levels

In accordance with the Manual, baseline air quality monitoring of 1-hour TSP levels at the two air quality monitoring stations were established as presented in the Baseline Monitoring Report. The Action and Limit Levels of the air quality monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are provided in **Table 2.2**.

**Table 2.2: Action and Limit Levels of Air Quality Monitoring**

Monitoring Station	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AR1A	306	500
AR2	298	

### 2.2 Monitoring Equipment

Portable direct reading dust meter was used to carry out the air quality monitoring. Details of equipment used in the reporting period are given in **Table 2.3**.

**Table 2.3: Air Quality Monitoring Equipment**

Equipment	Brand and Model	Last Calibration Date	Calibration Certificate Provided in
Portable direct reading dust meter (Laser dust monitor)	SIBATA LD-3B-2 (Serial No. 296098)	24 Oct 2019	Monthly EM&A Report No. 46, Appendix E

### 2.3 Monitoring Methodology

#### 2.3.1 Measuring Procedure

The measurement procedures involved in the impact air quality monitoring can be summarised as follows:

- a. The portable direct reading dust meter was mounted on a tripod at a height of 1.2m above the ground.
- b. Prior to the measurement, the equipment was set up for 1 minute span check and 6 second background check.

- c. The one hour dust measurement was started. Site conditions and dust sources at the nearby area were recorded on a record sheet.
- d. When the measurement completed, the “Count” reading per hour was recorded for result calculation.

### 2.3.2 Maintenance and Calibration

The portable direct reading dust meter is calibrated every year against high volume sampler (HVS) to check the validity and accuracy of the results measured by direct reading method. The calibration record of the HVS provided in Appendix E of the Construction Phase Monthly EM&A Report No. 46, and the calibration certificates of portable direct reading dust meters listed in **Table 2.3** are valid in the reporting period.

## 2.4 Summary of Monitoring Results

The air quality monitoring schedule involved in the reporting period is provided in **Appendix B**.

The air quality monitoring results in the reporting period are summarised in **Table 2.4**. Detailed impact monitoring results are presented in **Appendix C**.

**Table 2.4: Summary of Air Quality Monitoring Results**

Monitoring Station	1-hr TSP Concentration Range ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
AR1A	7 - 34	306	500
AR2	3 - 16	298	

The monitoring results were within the corresponding Action and Limit Levels at all monitoring stations in the reporting period.

General meteorological conditions throughout the impact monitoring period were recorded. Wind data including wind speed and wind direction for each monitoring day were collected from the Chek Lap Kok Wind Station.

## 2.5 Conclusion

No dust emission source was observed at the monitoring stations during the monitoring sessions. As the sensitive receivers were far away from the construction activities, with the implementation of dust control measures, there was no adverse impact at the sensitive receivers attributable to the works of the Project.

### 3 Noise Monitoring

Noise monitoring in the form of 30-minute measurements of  $L_{eq}$ ,  $L_{10}$ , and  $L_{90}$  levels was conducted once per week between 0700 and 1900 on normal weekdays at four representative monitoring stations in the vicinity of noise sensitive receivers in Tung Chung and villages in North Lantau in accordance with the Manual. **Table 3.1** describes the details of the monitoring stations. **Figure 2.1** shows the locations of the monitoring stations.

**Table 3.1: Locations of Impact Noise Monitoring Stations**

Monitoring Station	Location	Type of measurement
NM1A	Man Tung Road Park	Free field
NM2 <sup>(1)</sup>	Tung Chung West Development	To be determined
NM3A <sup>(2)</sup>	Site Office	Facade
NM4	Ching Chung Hau Po Woon Primary School	Free field
NM5	Village House in Tin Sum	Free field
NM6	House No. 1, Sha Lo Wan	Free field

Note:

- (1) As described in Section 4.3.3 of the Manual, noise monitoring at NM2 will only commence after occupation of the future Tung Chung West Development.
- (2) According to Section 4.3.3 of the Manual, the noise monitoring at NM3A was temporarily suspended starting from 1 September 2018 and would be resumed with the completion of the Tung Chung East Development.

#### 3.1 Action and Limit Levels

In accordance with the Manual, baseline noise levels at the noise monitoring stations were established as presented in the Baseline Monitoring Report. The Action and Limit Levels of the noise monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are provided in **Table 3.2**.

**Table 3.2: Action and Limit Levels for Noise Monitoring**

Monitoring Stations	Time Period	Action Level	Limit Level, $L_{eq(30mins)}$ dB(A)
NM1A, NM2, NM3A, NM4, NM5 and NM6	0700-1900 hours on normal weekdays	When one documented complaint is received from any one of the sensitive receivers	75dB(A) <sup>(1)</sup>

Note:

- (1) The Limit Level for NM4 is reduced to 70dB(A) for being an educational institution. During school examination period, the Limit Level is further reduced to 65dB(A).

#### 3.2 Monitoring Equipment

Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was used to check the sound level meters by a known sound pressure level for field measurement. Details of equipment used in the reporting period are given in **Table 3.3**.

**Table 3.3: Noise Monitoring Equipment**

Equipment	Brand and Model	Last Calibration Date	Calibration Certificate Provided in
Integrated Sound Level Meter	Rion NL-52 (Serial No. 00998505)	24 Mar 2020	Monthly EM&A Report No. 52, Appendix D
	Rion NL-52 (Serial No. 01287679)	21 Jun 2020	Monthly EM&A Report No. 54, Appendix E
Acoustic Calibrator	Casella CEL-120/1 (Serial No. 2383737)	21 Sep 2019	Monthly EM&A Report No. 45, Appendix D
	Castle GA607 (Serial No. 040162)	4 Jul 2020	<b>Appendix D</b>

### 3.3 Monitoring Methodology

#### 3.3.1 Monitoring Procedure

The monitoring procedures involved in the noise monitoring can be summarised as follows:

- a. The sound level meter was set on a tripod at least a height of 1.2m above the ground for free-field measurements at monitoring stations NM1A, NM4, NM5 and NM6. A correction of +3dB(A) was applied to the free field measurements.
- b. Façade measurements were made at the monitoring station NM3A.
- c. Parameters such as frequency weighting, time weighting and measurement time were set.
- d. Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator. If the difference in the calibration level before and after measurement was more than 1dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.
- e. During the monitoring period,  $L_{eq}$ ,  $L_{10}$  and  $L_{90}$  were recorded. In addition, site conditions and noise sources were recorded on a record sheet.
- f. Noise measurement results were corrected with reference to the baseline monitoring levels.
- g. Observations were recorded when high intrusive noise (e.g. dog barking, helicopter noise) was observed during the monitoring.

#### 3.3.2 Maintenance and Calibration

The maintenance and calibration procedures are summarised below:

- a. The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.
- b. The meter and calibrator were sent to the supplier or laboratory accredited under Hong Kong Laboratory Accreditation Scheme (HOKLAS) to check and calibrate at yearly intervals.

Calibration certificates of the sound level meters and acoustic calibrators used in the noise monitoring listed in **Table 3.3** are valid in the reporting period.

### 3.4 Summary of Monitoring Results

The noise monitoring schedule involved in the reporting period is provided in **Appendix B**.

The noise monitoring results in the reporting period are summarised in **Table 3.4**. Detailed impact monitoring results are presented in **Appendix C**.

**Table 3.4: Summary of Construction Noise Monitoring Results**

Monitoring Station	Noise Level Range, dB(A)	Limit Level, dB(A)
	$L_{eq}$ (30mins)	$L_{eq}$ (30mins)
NM1A <sup>(1)</sup>	67 - 73	75
NM4 <sup>(1)</sup>	61 - 64	70 <sup>(2)</sup>
NM5 <sup>(1)</sup>	53 - 61	75
NM6 <sup>(1)</sup>	66 - 68	75

Notes:

- (1) +3dB(A) Façade correction included;
- (2) Reduced to 65dB(A) during school examination periods at NM4. No school examination took place during this reporting period.

No complaints were received from any sensitive receiver that triggered the Action Level. All monitoring results were also within the corresponding Limit Levels at all monitoring stations in the reporting period.

### 3.5 Conclusion

As the construction activities were far away from the monitoring stations, major sources of noise dominating the monitoring stations observed during the construction noise impact monitoring were traffic noise near NM1A and aircraft noise near NM6 during this reporting period. It is considered that the monitoring work during the reporting period was effective and there was no adverse impact attributable to the Project activities.

## 4 Water Quality Monitoring

Water quality monitoring of DO, pH, temperature, salinity, turbidity, suspended solids (SS), total alkalinity, chromium, and nickel was conducted three days per week, at mid-ebb and mid-flood tides, at a total of 23 water quality monitoring stations, comprising 12 impact (IM) stations, 8 sensitive receiver (SR) stations and 3 control (C) stations in the vicinity of water quality sensitive receivers around the airport island in accordance with the Manual. The purpose of water quality monitoring at the IM stations is to promptly capture any potential water quality impact from the Project before it could become apparent at sensitive receivers (represented by the SR stations). **Table 4.1** describes the details of the monitoring stations. **Figure 4.1** shows the locations of the monitoring stations.

**Table 4.1: Monitoring Locations and Parameters of Impact Water Quality Monitoring**

Monitoring Station	Description	Coordinates		Parameters
		Easting	Northing	
C1	Control Station	804247	815620	<u>General Parameters</u>
C2	Control Station	806945	825682	DO, pH, Temperature, Salinity, Turbidity, SS
C3 <sup>(3)</sup>	Control Station	817803	822109	
IM1	Impact Station	807132	817949	<u>DCM Parameters</u>
IM2	Impact Station	806166	818163	Total Alkalinity, Heavy Metals <sup>(2)</sup>
IM3	Impact Station	805594	818784	
IM4	Impact Station	804607	819725	
IM5	Impact Station	804867	820735	
IM6	Impact Station	805828	821060	
IM7	Impact Station	806835	821349	
IM8	Impact Station	808140	821830	
IM9	Impact Station	808811	822094	
IM10	Impact Station	809794	822385	
IM11	Impact Station	811460	822057	
IM12	Impact Station	812046	821459	
SR1A <sup>(1)</sup>	Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities (HKBCF) Seawater Intake for cooling	812660	819977	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS
SR2 <sup>(3)</sup>	Planned marine park / hard corals at The Brothers / Tai Mo To	814166	821463	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS  <u>DCM Parameters</u> Total Alkalinity, Heavy Metals <sup>(2)(4)</sup>
SR3	Sha Chau and Lung Kwu Chau Marine Park / fishing and spawning grounds in North Lantau	807571	822147	<u>General Parameters</u> DO, pH, Temperature, Salinity, Turbidity, SS
SR4A	Sha Lo Wan	807810	817189	

Monitoring Station	Description	Coordinates		Parameters
		Easting	Northing	
SR5A	San Tau Beach SSSI	810696	816593	
SR6A <sup>(5)</sup>	Tai Ho Bay, Near Tai Ho Stream SSSI	814739	817963	<u>General Parameters</u>
SR7	Ma Wan Fish Culture Zone (FCZ)	823742	823636	DO, pH, Temperature, Salinity, Turbidity, SS
SR8 <sup>(6)</sup>	Seawater Intake for cooling at Hong Kong International Airport (East)	811623	820390	

## Notes:

- (1) With the operation of HKBCF, water quality monitoring at SR1A station was commenced on 25 October 2018. To better reflect the water quality in the immediate vicinity of the intake, the monitoring location of SR1A has been shifted closer to the intake starting from 5 January 2019.
- (2) Details of selection criteria for the two heavy metals for regular DCM monitoring refer to the Detailed Plan on Deep Cement Mixing criteria available on the dedicated 3RS website (<http://env.threerunwaysystem.com/en/ep-submissions.html>). DCM specific water quality monitoring parameters (total alkalinity and heavy metals) were only conducted at C1 to C3, SR2, and IM1 to IM12.
- (3) According to the Baseline Water Quality Monitoring Report, C3 station is not adequately representative as a control station of impact/ SR stations during the flood tide. The control reference has been changed from C3 to SR2 from 1 September 2016 onwards.
- (4) Total alkalinity and heavy metals results are collected at SR2 as a control station for regular DCM monitoring.
- (5) As the access to SR6 was obstructed by the construction activities and temporary structures for Tung Chung New Town Extension, the monitoring location has been relocated to SR6A starting from 8 August 2019.
- (6) The monitoring location for SR8 is subject to further changes due to silt curtain arrangements and the progressive relocation of this seawater intake.

#### 4.1 Action and Limit Levels

In accordance with the Manual, baseline water quality levels at the above-mentioned representative water quality monitoring stations were established as presented in the Baseline Water Quality Monitoring Report. The Action and Limit Levels of general water quality monitoring and regular DCM monitoring stipulated in the EM&A programme for triggering the relevant investigation and follow-up procedures under the programme are provided in **Table 4.2**. The control and impact stations during ebb tide and flood tide for general water quality monitoring and regular DCM monitoring are presented in **Table 4.3**.

**Table 4.2: Action and Limit Levels for General Water Quality Monitoring and Regular DCM Monitoring**

Parameters		Action Level (AL)		Limit Level (LL)	
<b>Action and Limit Levels for general water quality monitoring and regular DCM monitoring (excluding SR1A &amp; SR8)</b>					
General Water Quality Monitoring	DO in mg/l (Surface, Middle & Bottom)	Surface and Middle		Surface and Middle	
		4.5mg/l		4.1mg/l	
	Suspended Solids (SS) in mg/l	Bottom		Bottom	
		3.4mg/l		2.7mg/l	
Regular DCM Monitoring	Turbidity in NTU	23	or 120% of upstream control station at the same tide of the same day,	37	or 130% of upstream control station at the same tide of the same day,
	Total Alkalinity in ppm	95	whichever is higher	99	whichever is higher
Regular DCM Monitoring	Representative Heavy Metals for regular DCM monitoring (Chromium) in µg/l	0.2		0.2	
	Representative Heavy Metals for regular DCM monitoring (Nickel) in µg/l	3.2		3.6	
<b>Action and Limit Levels SR1A</b>					
SS (mg/l)		33		42	
<b>Action and Limit Levels SR8</b>					
SS (mg/l)		52		60	

## Notes:

- (1) For DO measurement, non-compliance occurs when monitoring result is lower than the limits.
- (2) For parameters other than DO, non-compliance of water quality results when monitoring results is higher than the limits.
- (3) Depth-averaged results are used unless specified otherwise.
- (4) Details of selection criteria for the two heavy metals for regular DCM monitoring refer to the Detailed Plan on Deep Cement Mixing available on the dedicated 3RS website (<http://env.threerunwaysystem.com/en/ep-submissions.html>)
- (5) The Action and Limit Levels for the two representative heavy metals chosen will be the same as that for the intensive DCM monitoring.

**Table 4.3: The Control and Impact Stations during Flood Tide and Ebb Tide for General Water Quality Monitoring and Regular DCM Monitoring**

Control Station	Impact Stations
<b>Flood Tide</b>	
C1	IM1, IM2, IM3, IM4, IM5, IM6, IM7, IM8, SR3
SR2 <sup>(1)</sup>	IM7, IM8, IM9, IM10, IM11, IM12, SR1A, SR3, SR4A, SR5A, SR6A, SR8
<b>Ebb Tide</b>	
C1	SR4A, SR5A, SR6A
C2	IM1, IM2, IM3, IM4, IM5, IM6, IM7, IM8, IM9, IM10, IM11, IM12, SR1A, SR2, SR3, SR7, SR8

## Note:

- (1) As per findings of Baseline Water Quality Monitoring Report, the control reference has been changed from C3 to SR2 from 1 September 2016 onwards.

## 4.2 Monitoring Equipment

**Table 4.4** summarises the equipment used in the reporting period for monitoring of specific water quality parameters under the water quality monitoring programme.

**Table 4.4: Water Quality Monitoring Equipment**

Equipment	Brand and Model	Last Calibration Date	Calibration Certificate Provided in
Multifunctional Meter (measurement of DO, pH, temperature, salinity and turbidity)	YSI 6920V2 (Serial No. 0001C6A7)	20 Jul 2020	<b>Appendix D</b>
	YSI 6920V2 (Serial No. 00019CB2)	21 Apr 2020 <sup>(1)</sup>	Monthly EM&A Report No. 52, Appendix D
	YSI ProDSS (Serial No. 16H104234)	10 Jun 2020	Monthly EM&A Report No. 54, Appendix E
	YSI ProDSS (Serial No. 17E100747)	20 Jul 2020	<b>Appendix D</b>
Digital Titrator (measurement of total alkalinity)	Titrette Bottle-top Burette, 50ml (Serial No. 10N60623)	1 Jun 2020	Monthly EM&A Report No. 54, Appendix E

Note:

- (1) The monitoring equipment was not used in the reporting period after the expiry date of the calibration certificate.

Other equipment used as part of the impact water quality monitoring programme are listed in **Table 4.5**.

**Table 4.5: Other Monitoring Equipment**

Equipment	Brand and Model
Water Sampler	Van Dorn Water Sampler
Positioning Device (measurement of GPS)	Garmin eTrex Vista HCx
Current Meter (measurement of current speed and direction, and water depth)	Sontek HydroSurveyor

## 4.3 Monitoring Methodology

### 4.3.1 Measuring Procedure

Water quality monitoring samples were taken at three depths (at 1m below surface, at mid-depth, and at 1m above bottom) for locations with water depth >6m. For locations with water depth between 3m and 6m, water samples were taken at two depths (surface and bottom). For locations with water depth <3m, only the mid-depth was taken. Duplicate water samples were taken and analysed.

The water samples for all monitoring parameters were collected, stored, preserved and analysed according to the Standard Methods, APHA 22<sup>nd</sup> ed. and/or other methods as agreed by the EPD. In-situ measurements at monitoring locations including temperature, pH, DO, turbidity, salinity, alkalinity and water depth were collected by equipment listed in **Table 4.4** and **Table 4.5**. Water samples for heavy metals and SS analysis were stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen), delivered to the laboratory within 24 hours of collection.

### 4.3.2 Maintenance and Calibration

#### Calibration of In-situ Instruments

All in-situ monitoring instrument was checked, calibrated and certified by a laboratory accredited under HOKLAS before use. Responses of sensors and electrodes were checked with certified standard solutions before each use.

Wet bulb calibration for a DO meter was carried out before commencement of monitoring and after completion of all measurements each day. Calibration was not conducted at each monitoring location as daily calibration is adequate for the type of DO meter employed. A zero check in distilled water was performed with the turbidity probe at least once per monitoring day. The probe was then calibrated with a solution of known NTU. In addition, the turbidity probe was calibrated at least twice per month to establish the relationship between turbidity readings (in NTU) and levels of SS (in mg/l). Accuracy check of the digital titrator was performed at least once per monitoring day.

Calibration certificates of the monitoring equipment used in the reporting period are listed in **Table 4.4**.

#### 4.3.3 Laboratory Measurement / Analysis

Analysis of SS and heavy metals have been carried out by a HOKLAS accredited laboratory, ALS Technichem (HK) Pty Ltd (Reg. No. HOKLAS 066). Sufficient water samples were collected at all the monitoring stations for carrying out the laboratory SS and heavy metals determination. The SS and heavy metals determination works were started within 24 hours after collection of the water samples. The analysis of SS and heavy metals have followed the standard methods summarised in **Table 4.6**. The QA/QC procedures for laboratory measurement/ analysis of SS and heavy metals were presented in Appendix F of the Construction Phase Monthly EM&A Report No.8.

**Table 4.6: Laboratory Measurement/ Analysis of SS and Heavy Metals**

Parameters	Instrumentation	Analytical Method	Reporting Limit
SS	Analytical Balance	APHA 2540D	2mg/l
<b>Heavy Metals</b>			
Chromium (Cr)	ICP-MS	USEPA 6020A	0.2µg/l
Nickel (Ni)	ICP-MS	USEPA 6020A	0.2µg/l

#### 4.4 Summary of Monitoring Results

The water quality monitoring schedule for the reporting period is updated and provided in **Appendix B**.

The water quality monitoring results for all parameters, except DO, obtained during the reporting period were within their corresponding Action and Limit Levels. The detailed monitoring results are presented in **Appendix C**.

For DO, some of the testing results triggered the corresponding Action and Limit Levels, and investigations were conducted accordingly.

**Table 4.7 to Table 4.10** present the summary of the DO compliance status at IM and SR stations during mid-ebb and mid-flood tide for the reporting period.



**Table 4.10: Summary of DO (Bottom) Compliance Status (Mid-Flood Tide)**

	IM1	IM2	IM3	IM4	IM5	IM6	IM7	IM8	IM9	IM10	IM11	IM12	SR3	SR4A	SR5A	SR6A	SR7
02/07/2020																	
04/07/2020																	
07/07/2020																	
09/07/2020																	
11/07/2020																	
14/07/2020																	
16/07/2020																	
18/07/2020																	
21/07/2020																	
23/07/2020																	
25/07/2020																	
28/07/2020																	
30/07/2020																	
No. of result triggering Action or Limit Level	0	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0

Note: Detailed results are presented in **Appendix C**.

Legend:

	The monitoring results were within the corresponding Action and Limit Levels
	Monitoring result triggered the Action Level at monitoring station located upstream of the Project based on dominant tidal flow
D	Monitoring result triggered the Action Level at monitoring station located downstream of the Project based on dominant tidal flow
D	Monitoring result triggered the Limit Level at monitoring station located downstream of the Project based on dominant tidal flow
	Upstream station with respect to the Project during the respective tide based on dominant tidal flow

Monitoring results triggered the corresponding Action and Limit Levels on three monitoring days. In accordance with Event and Action Plan stipulated in the Manual, EPD, IEC and Contractor were informed when the corresponding Action and Limit Levels were triggered. Repeat measurement was conducted on 17, 19, 20 and 22 July 2020 as stipulated in the Manual. Some cases occurred at monitoring stations upstream of the Project during respective tide and would unlikely be affected by the Project.

Investigations focusing on the cases that occurred at monitoring stations located downstream of the Project were carried out. Details of the Project's marine construction activities and site observations on the concerned monitoring days were collected. Findings were summarized in **Table 4.11**.

**Table 4.11: Summary of Findings from Investigation of DO Monitoring Results**

Date	Marine construction works nearby	Approximate distance from marine construction works	Status of water quality measures (if applicable)	Construction vessels in the vicinity	Turbidity / Silt plume observed near the monitoring station	Action or Limit Level triggered due to Project
16/7/2020	DCM works	Around 1km	Localised and enhanced silt curtain deployed	No	No	No
18/7/2020	DCM works	Around 1km	Localised and enhanced silt curtain deployed	No	No	No

Date	Marine construction works nearby	Approximate distance from marine construction works	Status of water quality measures (if applicable)	Construction vessels in the vicinity	Turbidity / Silt plume observed near the monitoring station	Action or Limit Level triggered due to Project
21/7/2020	DCM works	Around 1km	Localised and enhanced silt curtain deployed	No	No	No

During the reporting period, all the DO results which triggered Action or Limit Level were recorded at monitoring stations located at the western part of the 3RS marine work site. The ET checked with all contractors and confirmed that only DCM works and marine filling activities were undertaking at this area, localised and enhanced silt curtains were deployed and there was no abnormal operation. The contractors had also checked the maintenance record of all plant and equipment and confirmed that there was no spillage incident or abnormal observation.

In June, the low DO levels which triggered Action and Limit Levels occurred from 11 to 25 June 2020. Actions have been taken to repeat the monitoring in the next day. The initial findings after reviewing the results of control stations and tidal situation revealed that the cases were not much related to the construction activities. In addition, further investigation was conducted to monitor the in-situ water quality around the western part of the 3RS marine work site at locations closer to the construction activities. The monitoring results did not identify any hotspots of low DO levels. Conversely, the additional monitoring showed that the low DO levels were present over a large area, covering the western part of the 3RS marine work site. It is also noted that similar sustained low DO levels have occurred in this area in the previous wet season (i.e. June 2017 and July 2019). These findings suggest that the area of IM2 to IM4, similar to SR4A, is likely naturally susceptible to low DO levels during the wet season as a result of the combination of climatic and hydrological conditions in this area. Therefore, the cases were considered unlikely due to the Project.

In July, similar cases recorded from 16 July to 21 July 2020 with DO levels triggered Action and Limit Levels. Actions have been taken to repeat the monitoring in the next day and the results were found similar. Further investigation found that there were no abnormal activities observed, the cases were considered similar to those found in June 2020 and not due to the Project.

Detail investigation findings are presented in **Appendix C**.

#### 4.5 Conclusion

During the reporting period, it is noted that the vast majority of monitoring results were within their corresponding Action and Limit Levels, while only a minor number of DO measurement results triggered the corresponding Action and Limit Levels, and investigations were conducted accordingly.

Based on the investigation findings, all results that triggered the corresponding Action or Limit Levels in June and July 2020 were not due to the Project. Therefore, the Project did not cause adverse impact at the water quality sensitive receivers. All required actions under the Event and Action Plan were followed. These cases appeared to be due to natural fluctuation or other sources not related to the Project.

Nevertheless, as part of the EM&A programme, the construction methods and mitigation measures for water quality will continue to be monitored and opportunities for further enhancement will continue to be explored and implemented where possible, to strive for better protection of water quality and the marine environment.

In the meantime, the contractors were reminded to implement and maintain all mitigation measures during weekly site inspection and regular environmental management meetings. These include maintaining mitigation measures properly for reclamation works including DCM works, marine filling, and seawall construction as recommended in the Manual.

## 5 Waste Management

In accordance with the Manual, the waste generated from construction activities was audited once per week to determine if wastes are being managed in accordance with the Waste Management Plan (WMP) prepared for the Project, contract-specific WMP, and any statutory and contractual requirements. All aspects of waste management including waste generation, storage, transportation and disposal were assessed during the audits.

### 5.1 Action and Limit Levels

The Action and Limit Levels of the construction waste are provided in **Table 5.1**.

**Table 5.1: Action and Limit Levels for Construction Waste**

Monitoring Stations	Action Level	Limit Level
Construction Area	When one valid documented complaint is received	Non-compliance of the WMP, contract-specific WMPs, any statutory and contractual requirements

### 5.2 Waste Management Status

Weekly monitoring on all works contracts were carried out by the ET to check and monitor the implementation of proper waste management practices during the construction phase.

Recommendations made included provision and maintenance of proper chemical waste storage area, as well as handling, segregation, and regular disposal of general refuse. The contractors had taken actions to implement the recommended measures. Waste management audits were carried out by ET according to the requirement of the Waste Management Plan, Updated EM&A Manual and the implementation schedule of the waste management mitigation measures in **Appendix A**.

Based on updated information provided by contractors, construction waste generated in the reporting period is summarised in **Table 5.2**. Proactive measures have been undertaken during the re-configuration of T2 building. The contractor has established the recycling strategy for C&D materials with proper planning and design to maximize recycling and reuse. Dedicated recyclers were employed for different kinds of recyclable materials by the contractor, and ET and IEC have carried out site visit to recyclers' facilities to review recycling process. Recycling materials before leaving the site are weighted by a weight bridge and monitored by CCTV system. Dedicated areas for sorting of materials are established on site. Recyclable materials such as steel, reinforcement bar, structural steel, aluminum, copper, other metals and glass are sorted on-site and transported off-site for recycling. ET and IEC has carried out site audits regularly and reviewed the trip ticket system.

There were no complaints, non-compliance of the WMP, contract-specific WMPs, statutory and contractual requirements that triggered Action and Limit Levels in the reporting period.

Along with the design and construction progress, further development on the treatment level/details and the re-use mode for marine sediment generated from 3RS Project has been conducted according to the EIA recommendation.

**Table 5.2: Construction Waste Statistics**

	C&D <sup>(1)</sup> Material Stockpiled for Reuse or Recycle (m <sup>3</sup> )	C&D Material Reused in the Project (m <sup>3</sup> )	C&D Material Reused in other Projects (m <sup>3</sup> )	C&D Material Transferred to Public Fill (m <sup>3</sup> )	Chemical Waste (kg)	Chemical Waste (l)	General Refuse (tonne)
June 2020 <sup>(2)(3)</sup>	3,903	*32,271	0	3,164	0	0	736
July 2020 <sup>(2)(4)</sup>	2,895	38,584	16	3,785	60	4,200	1,035

**Notes:**

- (1) C&D refers to Construction and Demolition.
- (2) Metals, paper and/or plastics were recycled in the reporting period.
- (3) Updated figure for the previous month is reported and marked with an asterisk (\*). Updated figures for earlier months will be reported in the forthcoming Annual EM&A Report.
- (4) The data was based on the information provided by contractors up to the submission date of this Monthly EM&A Report, and might be updated in the forthcoming Monthly EM&A Report.

## 6 Chinese White Dolphin Monitoring

In accordance with the Manual, CWD monitoring by small vessel line-transect survey supplemented by land-based theodolite tracking survey and passive acoustic monitoring should be conducted during construction phase.

The small vessel line-transect survey should be conducted at a frequency of two full surveys per month, while land-based theodolite tracking survey should be conducted at a frequency of one day per month per station at Sha Chau (SC) and Lung Kwu Chau (LKC) during the construction phase as stipulated in the Manual.

### 6.1 Action and Limit Levels

The Action and Limit Levels for CWD monitoring were formulated by the action response approach using the running quarterly dolphin encounter rates STG and ANI derived from the baseline monitoring data, as presented in the CWD Baseline Monitoring Report. The derived values of Action and Limit Levels for CWD monitoring were summarised in **Table 6.1**.

**Table 6.1: Derived Values of Action and Limit Levels for Chinese White Dolphin Monitoring**

NEL, NWL, AW, WL and SWL as a Whole	
Action Level <sup>(3)</sup>	Running quarterly <sup>(1)</sup> STG < 1.86 & ANI < 9.35
Limit Level <sup>(3)</sup>	Two consecutive running quarterly <sup>(2)</sup> (3-month) STG < 1.86 & ANI < 9.35

Notes: (referring to the baseline monitoring report)

- (1) Action Level – running quarterly encounter rates STG & ANI of this month will be calculated from the reporting period and the two preceding survey months.
- (2) Limit Level – two consecutive running quarters mean both the running quarterly encounter rates of the preceding month and the running quarterly encounter rates of this month.
- (3) Action Level and/or Limit Level will be triggered if both STG and ANI fall below the criteria.

### 6.2 CWD Monitoring Transects and Stations

#### 6.2.1 Small Vessel Line-transect Survey

Small vessel line-transect surveys were conducted along the transects covering Northeast Lantau (NEL), Northwest Lantau (NWL), Airport West (AW), West Lantau (WL) and Southwest Lantau (SWL) areas as proposed in the Manual, which are consistent with the Agriculture, Fisheries and Conservation Department (AFCD) long-term monitoring programme (except the addition of AW). The AW transect has not been previously surveyed in the AFCD programme due to the restrictions of HKIA Approach Area, nevertheless, this transect was established during the EIA of the 3RS Project and refined in the Manual with the aim to collect project specific baseline information within the HKIA Approach Area to fill the data gap that was not covered by the AFCD programme. This also provided a larger sample size for estimating the density, abundance and patterns of movements in the broader study area of the project.

The planned vessel survey transect lines following the waypoints set for construction phase monitoring as proposed in the Manual are depicted in **Figure 6.1** with the waypoint coordinates of all transect lines given in **Table 6.2**, which are subject to on-site refinement based on the actual survey conditions and constraints.

**Table 6.2: Coordinates of Transect Lines in NEL, NWL, AW, WL and SWL Survey Areas**

Waypoint	Easting	Northing	Waypoint	Easting	Northing
<b>NEL</b>					
1S	813525	820900	6N	818568	824433
1N	813525	824657	7S	819532	821420
2S	814556	818449	7N	819532	824209
2N	814559	824768	8S	820451	822125
3S	815542	818807	8N	820451	823671
3N	815542	824882	9S	821504	822371
4S	816506	819480	9N	821504	823761
4N	816506	824859	10S	822513	823268
5S	817537	820220	10N	822513	824321
5N	817537	824613	11S	823477	823402
6S	818568	820735	11N	823477	824613
<b>NWL</b>					
1S	804671	814577	5S	808504	821735
1N	804671	831404	5N	808504	828602
2Sb	805475	815457	6S	809490	822075
2Nb	805476	818571	6N	809490	825352
2Sa	805476	820770	7S	810499	822323
2Na	805476	830562	7N	810499	824613
3S	806464	821033	8S	811508	821839
3N	806464	829598	8N	811508	824254
4S	807518	821395	9S	812516	821356
4N	807518	829230	9N	812516	824254
<b>AW</b>					
1W	804733	818205	2W	805045	816912
1E	806708	818017	2E	805960	816633
<b>WL</b>					
1W	800600	805450	7W	800400	811450
1E	801760	805450	7E	802400	811450
2W	800300	806450	8W	800800	812450
2E	801750	806450	8E	802900	812450
3W	799600	807450	9W	801500	813550
3E	801500	807450	9E	803120	813550
4W	799400	808450	10W	801880	814500
4E	801430	808450	10E	803700	814500
5W	799500	809450	11W	802860	815500
5E	801300	809450	12S/11E	803750	815500
6W	799800	810450	12N	803750	818500
6E	801400	810450			
<b>SWL</b>					
1S	802494	803961	6S	807467	801137
1N	802494	806174	6N	807467	808458
2S	803489	803280	7S	808553	800329
2N	803489	806720	7N	808553	807377
3S	804484	802509	8S	809547	800338
3N	804484	807048	8N	809547	807396
4S	805478	802105	9S	810542	800423
4N	805478	807556	9N	810542	807462

Waypoint	Easting	Northing	Waypoint	Easting	Northing
5S	806473	801250	10S	811446	801335
5N	806473	808458	10N	811446	809436

## 6.2.2 Land-based Theodolite Tracking Survey

Land-based theodolite tracking survey stations were set up at two locations, one facing east/south/west on the southern slopes of Sha Chau (SC), and the other facing north/northeast/northwest at Lung Kwu Chau (LKC). The stations (D and E) are depicted in **Figure 6.2** and shown in **Table 6.3** with position coordinates, height of station and approximate distance of consistent theodolite tracking capabilities for CWD.

**Table 6.3: Land-based Theodolite Survey Station Details**

Stations	Location	Geographical Coordinates	Station Height (m)	Approximate Tracking Distance (km)
D	Sha Chau (SC)	22° 20' 43.5" N 113° 53' 24.66" E	45.66	2
E	Lung Kwu Chau (LKC)	22° 22' 44.83" N 113° 53' 0.2" E	70.40	3

## 6.3 CWD Monitoring Methodology

### 6.3.1 Small Vessel Line-transect Survey

Small vessel line-transect surveys provided data for density and abundance estimation and other assessments using distance-sampling methodologies, specifically, line-transect methods.

The surveys involved small vessel line-transect data collection and have been designed to be similar to, and consistent with, previous surveys for the AFCD for their long-term monitoring of small cetaceans in Hong Kong. The survey was designed to provide systematic, quantitative measurements of density, abundance and habitat use.

As mentioned in **Section 6.2.1**, the transects covered NEL, NWL, AW, WL and SWL areas as proposed in the Manual, which are consistent with the AFCD long-term monitoring programme (except AW). There are two types of transect lines:

- Primary transect lines: the parallel and zigzag transect lines as shown in **Figure 6.1**; and
- Secondary transect lines: transect lines connecting between the primary transect lines and going around islands.

All data collected on both primary and secondary transect lines were used for analysis of sighting distribution, group size, activities including association with fishing boat, and mother-calf pairs. Only on-effort data collected under conditions of Beaufort 0-3 and visibility of approximately 1200 m or beyond were used for analysis of the CWD encounter rates.

A 15-20m vessel with a flying bridge observation platform about 4 to 5m above water level and unobstructed forward view, and a team of three to four observers were deployed to undertake the surveys. Two observers were on search effort at all times when following the transect lines with a constant speed of 7 to 8 knots (i.e. 13 to 15 km per hour), one using 7X handheld binoculars and the other using unaided eyes and recording data.

During on-effort survey periods, the survey team recorded effort data including time, position (waypoints), weather conditions (Beaufort sea state and visibility) and distance travelled in each

series with assistance of a handheld GPS device. The GPS device also continuously and automatically logged data including time, position (latitude and longitude) and vessel speed throughout the entire survey.

When CWDs were seen, the survey team was taken off-effort, the dolphins were approached and photographed for photo-ID information (using a Canon 7D [or similar] camera and long 300 mm+ telephoto lens), then followed until they were lost from view. At that point, the boat returned (off effort) to the survey line at the closest point after obtaining photo records of the dolphin group and began to survey on effort again.

Focal follows of dolphins would be used for providing supplementary information only where practicable (i.e. when individual dolphins or small stable groups of dolphins with at least one member that could be readily identifiable with unaided eyes during observations and weather conditions are favourable). These would involve the boat following (at an appropriate distance to minimise disturbance) an identifiable individual dolphin for an extended period of time, and collecting detailed data on its location, behaviour, response to vessels, and associates.

### 6.3.2 Photo Identification

CWDs can be identified by their unique features like presence of scratches, nick marks, cuts, wounds, deformities of their dorsal fin and distinguished colouration and spotting patterns.

When CWDs were observed, the survey team was taken off-effort, the dolphins were approached and photographed for photo-ID information (using a Canon 7D [or similar] camera and long 300 mm+ telephoto lens). The survey team attempted to photograph both sides of every single dolphin in the group as the colouration and spotting pattern on both sides may not be identical. The photos were taken at the highest available resolution and stored on Compact Flash memory cards for transferring into a computer.

All photos taken were initially examined to sort out those containing potentially identifiable individuals. These sorted-out images would then be examined in detail and compared to the CWD photo-identification catalogue established for 3RS Project during the baseline monitoring stage.

### 6.3.3 Land-based Theodolite Tracking Survey

Land-based theodolite tracking survey obtains fine-scale information on the time of day and movement patterns of the CWDs. A digital theodolite (Sokkia/Sokkisha Model DT5 or similar equipment) with 30-power magnification and 5-s precision was used to obtain the vertical and horizontal angle of each dolphin and vessel position. Angles were converted to geographic coordinates (latitude and longitude) and data were recorded using *Pythagoras* software, Version 1.2. This method delivers precise positions of multiple spatially distant targets in a short period of time. The technique is fully non-invasive, and allows for time and cost-effective descriptions of dolphin habitat use patterns at all times of daylight.

Three surveyors (one theodolite operator, one computer operator, and one observer) were involved in each survey. Observers searched for dolphins using unaided eyes and handheld binoculars (7X50). Theodolite tracking sessions were initiated whenever an individual CWD or group of CWDs was located. Where possible, a distinguishable individual was selected, based on colouration, within the group. The focal individual was then continuously tracked via the theodolite, with a position recorded each time the dolphin surfaced. In case an individual could not be positively distinguished from other members, the group was tracked by recording positions based on a central point within the group whenever the CWD surfaced. Tracking continued until animals were lost from view; moved beyond the range of reliable visibility (>1-3km, depending on station height); or environmental conditions obstructed visibility (e.g., intense haze, Beaufort sea state >4, or sunset), at which time the research effort was terminated. In addition to the tracking

of CWD, all vessels that moved within 2-3km of the station were tracked, with effort made to obtain at least two positions for each vessel.

Theodolite tracking included focal follows of CWD groups and vessels. Priority was given to tracking individual or groups of CWD. The survey team also attempted to track all vessels moving within 1 km of the focal CWD.

## 6.4 Monitoring Results and Observations

### 6.4.1 Small Vessel Line-transect Survey

#### Survey Effort

Within this reporting period, two complete sets of small vessel line-transect surveys were conducted on the 6, 8, 9, 10, 13, 20, 21 and 22 July 2020, covering all transects in NEL, NWL, AW, WL and SWL survey areas for twice.

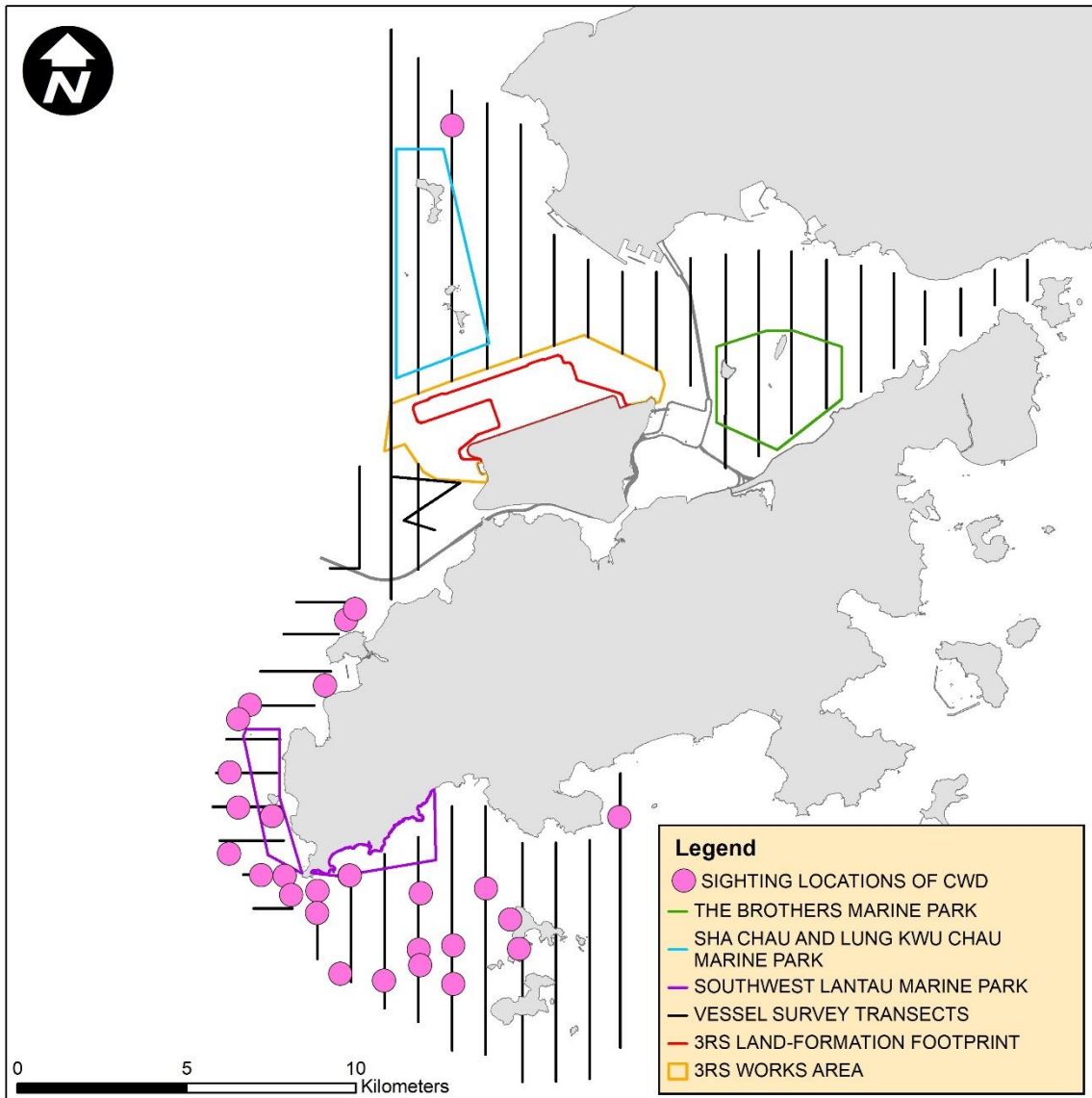
A total of around 430.31 km of survey effort was collected from these surveys and around 91.8% of the survey effort was being conducted under favourable weather condition (i.e. Beaufort Sea State 3 or below with favourable visibility). Details of the survey effort are given in **Appendix C**.

#### Sighting Distribution

In July 2020, 28 sightings with 124 dolphins were sighted. Amongst these sightings, 27 sightings with 113 dolphins are on-effort records under favourable weather condition (i.e. Beaufort Sea State 3 or below with favourable visibility). Details of cetacean sightings are presented in **Appendix C**.

Distribution of all CWD sightings recorded in July 2020 is illustrated in **Figure 6.3**. In NWL, the only CWD sighting was recorded northeastern to Sha Chau and Lung Kwu Chau Marine Park. In WL, the majority of the CWD sightings were clustered at waters around Tai O and at the relatively offshore waters between Yi O and Fan Lau. In SWL, CWD sightings were scattered from Shui Hau to Fan Lau with the majority recorded at the offshore waters between Fan Lau and the Soko Islands. No sightings of CWD were recorded in NEL or AW survey area.

**Figure 6.3: Sightings Distribution of Chinese White Dolphins**



Remarks: (1) Please note that there are 28 pink circles on the map indicating the sighting locations of CWDs. Some of them were very close to each other and therefore may appear overlapped on this distribution map. (2) Marine park excludes land area and the landward boundary generally follows the high water mark along the coastline.

**Encounter Rate**

Two types of dolphin encounter rates were calculated based on the data from July 2020. They included the number of dolphin sightings per 100 km survey effort (STG) and total number of dolphins per 100 km survey effort (ANI) in the whole survey area (i.e. NEL, NWL, AW, WL and SWL). In the calculation of dolphin encounter rates, only survey data collected under favourable weather condition (i.e. Beaufort Sea State 3 or below with favourable visibility) were used. The formulae used for calculation of the encounter rates are shown below:

Encounter Rate by Number of Dolphin Sightings (STG)

$$STG = \frac{\text{Total No. of On - effort Sightings}}{\text{Total Amount of Survey Effort (km)}} \times 100$$

Encounter Rate by Number of Dolphins (ANI)

$$ANI = \frac{\text{Total No. of Dolphins from On - effort Sightings}}{\text{Total Amount of Survey Effort (km)}} \times 100$$

(Notes: Only data collected under Beaufort 3 or below condition were used)

In July 2020, a total of around 394.79 km of survey effort were conducted under Beaufort Sea State 3 or below with favourable visibility, whilst a total number of 27 on-effort sightings with 113 dolphins were sighted under such condition. Calculation of the encounter rates in July 2020 are shown in **Appendix C**.

For the running quarter of the reporting period (i.e., from May 2020 to July 2020), a total of around 1228.86 km of survey effort were conducted under Beaufort Sea State 3 or below with favourable visibility, whilst a total number of 60 on-effort sightings and a total number of 260 dolphins from on-effort sightings were obtained under such condition. Calculation of the running quarterly encounter rates are shown in **Appendix C**.

The STG and ANI of CWD in the whole survey area (i.e. NEL, NWL, AW, WL and SWL) during the month of July 2020 and during the running quarter are presented in **Table 6.4** below and compared with the Action Level. The running quarterly encounter rates STG and ANI remain above the Action Level, thus the Action Level is not triggered.

**Table 6.4: Comparison of CWD Encounter Rates of the Whole Survey Area with Action Levels**

	Encounter Rate (STG)	Encounter Rate (ANI)
July 2020	6.84	28.62
Running Quarter from May 2020 to July 2020 <sup>(1)</sup>	4.88	21.16
Action Level	Running quarterly <sup>(1)</sup> STG < 1.86 & ANI < 9.35	

Note: (1) Running quarterly encounter rates STG & ANI were calculated from data collected in the reporting period and the two preceding survey months, i.e. the data from May 2020 to July 2020, containing six sets of transect surveys for all monitoring areas. Action Level will be triggered if both STG and ANI fall below the criteria.

**Group Size**

In July 2020, 28 groups of 124 dolphins in total were sighted, and the average group size of CWDs was 4.4 dolphins per group. Sightings with small group size (i.e. 1-2 dolphins) and medium group size (i.e. 3-9 dolphins) were similar. There were two CWD sightings with large group size (i.e. 10 or more dolphins) recorded in WL.

**Activities and Association with Fishing Boats**

Seven sightings of CWDs were recorded engaging in feeding activities in July 2020 and one of them was observed in association with operating purse seiner in SWL.

## Mother-calf Pair

In July 2020, eight CWD sightings were recorded with the presence of mother-and-unspotted calf and/or mother-and-unspotted juvenile pair.

### 6.4.2 Photo Identification

In July 2020, a total number of 57 different CWD individuals were identified for totally 75 times. A summary of photo identification works is presented in **Table 6.5**. Representative photos of these individuals are given in **Appendix C**.

**Table 6.5: Summary of Photo Identification**

Individual ID	Date of Sighting (dd-mmm-yy)	Sighting Group No.	Area	Individual ID	Date of Sighting (dd-mmm-yy)	Sighting Group No.	Area
NLMM012	13-Jul-20	4	WL	WLMM029	20-Jul-20	4	SWL
NLMM013	13-Jul-20	5	WL	WLMM030	06-Jul-20	2	WL
NLMM019	20-Jul-20	4	SWL		13-Jul-20	2	WL
NLMM020	06-Jul-20	4	WL	WLMM038	13-Jul-20	1	WL
NLMM027	20-Jul-20	3	SWL	WLMM043	13-Jul-20	5	WL
NLMM034	13-Jul-20	1	WL	WLMM047	13-Jul-20	7	WL
NLMM037	20-Jul-20	8	SWL	WLMM060	13-Jul-20	6	WL
		9	SWL	WLMM063	21-Jul-20	3	SWL
NLMM052	13-Jul-20	5	WL	WLMM071	06-Jul-20	2	WL
	21-Jul-20	5	SWL	WLMM079	13-Jul-20	7	WL
NLMM060	06-Jul-20	2	WL		20-Jul-20	5	SWL
NLMM063	22-Jul-20	1	NWL		21-Jul-20	4	SWL
SLMM003	13-Jul-20	7	WL	WLMM080	13-Jul-20	6	WL
	21-Jul-20	4	SWL	WLMM085	13-Jul-20	6	WL
SLMM007	13-Jul-20	6	WL			7	WL
		7	WL	WLMM086	13-Jul-20	2	WL
SLMM010	13-Jul-20	6	WL	WLMM089	13-Jul-20	5	WL
SLMM012	21-Jul-20	2	SWL	WLMM091	13-Jul-20	2	WL
SLMM014	06-Jul-20	3	WL			3	WL
SLMM025	13-Jul-20	7	WL	WLMM092	13-Jul-20	2	WL
	20-Jul-20	3	SWL			3	WL
SLMM027	21-Jul-20	5	SWL	WLMM098	13-Jul-20	1	WL
SLMM037	20-Jul-20	5	SWL	WLMM102	06-Jul-20	1	WL
SLMM049	13-Jul-20	7	WL	WLMM107	06-Jul-20	2	WL
	20-Jul-20	5	SWL	WLMM112	13-Jul-20	6	WL
SLMM052	13-Jul-20	7	WL	WLMM122	21-Jul-20	7	SWL
SLMM060	20-Jul-20	1	SWL	WLMM136	06-Jul-20	2	WL
	21-Jul-20	7	SWL	WLMM147	13-Jul-20	7	WL
SLMM062	20-Jul-20	3	SWL		20-Jul-20	5	SWL
	21-Jul-20	2	SWL		21-Jul-20	4	SWL
SLMM070	21-Jul-20	2	SWL	WLMM149	06-Jul-20	2	WL
WLMM001	13-Jul-20	6	WL	WLMM154	06-Jul-20	2	WL
		7	WL	WLMM155	13-Jul-20	1	WL
WLMM008	21-Jul-20	5	SWL	WLMM156	13-Jul-20	1	WL
WLMM009	13-Jul-20	6	WL	WLMM157	13-Jul-20	7	WL
	20-Jul-20	4	SWL	WLMM158	13-Jul-20	7	WL
WLMM019	22-Jul-20	1	NWL	WLMM159	13-Jul-20	7	WL
WLMM028	20-Jul-20	4	SWL				

### 6.4.3 Land-based Theodolite Tracking Survey

#### **Survey Effort**

Land-based theodolite tracking surveys were conducted at LKC on 15 July 2020 and at SC on 7 July 2020, with a total of two days of land-based theodolite tracking survey effort accomplished in this reporting period. No CWD group was tracked during the surveys. Information of survey effort and CWD groups are presented in **Table 6.6**. Details of the survey effort are presented in **Appendix C**.

**Table 6.6: Summary of Survey Effort and CWD Group of Land-based Theodolite Tracking**

Land-based Station	No. of Survey Sessions	Survey Effort (hh:mm)	No. of CWD Groups Sighted	CWD Group Sighting per Survey Hour
Lung Kwu Chau	1	6:00	0	0
Sha Chau	1	6:00	0	0
<b>TOTAL</b>	<b>2</b>	<b>12:00</b>	<b>0</b>	<b>0</b>

### 6.5 Progress Update on Passive Acoustic Monitoring

Underwater acoustic monitoring using Passive Acoustic Monitoring (PAM) should be undertaken during land formation related construction works. In this reporting period, the Ecological Acoustic Recorder (EAR) was retrieved on 22 July 2020 and subsequently redeployed and positioned at south of Sha Chau Island inside the SCLKCMP with 20% duty cycle (**Figure 6.5**). The EAR deployment is generally for 6 weeks prior to data retrieval for analysis. Acoustic data is reviewed to give an indication of CWDs occurrence patterns and to obtain anthropogenic noise information simultaneously. Analysis (by a specialised team of acousticians) involved manually browsing through spectrograms of every acoustic recording and logging the occurrence of dolphin signals. All potential dolphin detections will be re-played by computer as well as listened to by human ears for accurate assessment of dolphin group presence. As the period of data collection and analysis takes more than four months, PAM results could not be reported in monthly intervals but report for supplementing the annual CWD monitoring analysis.

### 6.6 Site Audit for CWD-related Mitigation Measures

During the reporting period, silt curtains were in place by the contractor for marine filling, in which dolphin observers were deployed by contractor in accordance with the MMWP. Overall, 2 to 4 dolphin observation stations and teams of at least two dolphin observers were deployed by the contractors for continuous monitoring of the DEZ for DCM and seawall construction works in accordance with the DEZ Plan. Trainings for the proposed dolphin observers on the implementation of MMWP and DEZ monitoring were provided by the ET prior to the aforementioned works, with a cumulative total of 696 individuals being trained and the training records kept by the ET. From the contractors' MMWP observation records, no dolphin or other marine mammals were observed within or around the silt curtains. As for DEZ monitoring records, no dolphin or other marine mammals were observed within or around the DEZs in this reporting month. These contractors' records were also audited by the ET during site inspection.

Audits of acoustic decoupling measures for construction vessels were carried out during weekly site inspection and the observations are summarised in **Section 7.1**. Audits of SkyPier high speed ferries route diversion and speed control and construction vessel management are presented in **Section 7.2** and **Section 7.3** respectively.

## 6.7 Timing of Reporting CWD Monitoring Results

Detailed analysis of CWD monitoring results collected by small vessel line-transect survey will be provided in future quarterly reports. Detailed analysis of CWD monitoring results collected by land-based theodolite tracking survey and PAM will be provided in future annual reports after a larger sample size of data has been collected.

## 6.8 Summary of CWD Monitoring

Monitoring of CWD was conducted with two complete sets of small vessel line-transect surveys and two days of land-based theodolite tracking survey effort as scheduled. The running quarterly encounter rates STG and ANI in the reporting period did not trigger the Action Level for CWD monitoring.

## 7 Environmental Site Inspection and Audit

### 7.1 Environmental Site Inspection

Site inspections of the construction works were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. The weekly site inspection schedule of the construction works is provided in **Appendix B**. Bi-weekly site inspections were also conducted by the IEC. Besides, *ad-hoc* site inspections were conducted by ET and IEC if environmental problems were identified, or subsequent to receipt of an environmental complaint, or as part of the investigation work. These site inspections provided a direct means to reinforce the specified environmental protection requirements and pollution control measures in construction sites.

During site inspections, environmental situation, status of implementation of pollution control and mitigation measures were observed. Environmental documents and site records, including waste disposal record, maintenance record of environmental equipment, and relevant environmental permit and licences, were also checked on site. Observations were recorded in the site inspection checklist and passed to the contractor together with the recommended mitigation measures where necessary in order to advise contractors on environmental improvement, awareness and on-site enhancement measures. The observations were made with reference to the following information during the site inspections:

- The EIA and EM&A requirements;
- Relevant environmental protection laws, guidelines, and practice notes;
- The EP conditions and other submissions under the EP;
- Monitoring results of EM&A programme;
- Works progress and programme;
- Proposal of individual works;
- Contract specifications on environmental protection; and
- Previous site inspection results.

Good site practices were observed in site inspections during the reporting period. Advice were given when necessary to ensure the construction workforce were familiar with relevant procedures, and to maintain good environmental performance on site. Regular toolbox talks on environmental issues were organised for the construction workforce by the contractors to ensure understanding and proper implementation of environmental protection and pollution control mitigation measures.

#### Landscape and Visual Mitigation Measures

Implementation of applicable landscape and visual mitigation measures (reference to the environmental protection measures CM1 – CM10 in **Appendix A**) was monitored regularly in accordance with the Manual. No non-conformity was recorded during the reporting period. Based on the latest Contractors' submitted records, the updated cumulative total number of retained and transplanted trees under the Project were 165 and 8, respectively. Compare to the last reporting period, some retained trees were removed from the records because it was confirmed recently that those retained trees are not located within 3RS works area. The Contractors' performance on existing trees maintenance and protection measures on retained and transplanted trees were

regularly checked by the ET. In case of non-conformity, specific recommendations would be made, and actions will be carried out according to the Event and Action Plan.

#### Marine Sediment Management

Marine sediment is managed according to the EIA Report, Updated EM&A Manual and the project Waste Management Plan. Sediment sampling and treatment are in progress. Treated sediment is reused as backfilling materials.

#### Land Contamination Assessment

The Supplementary CAP was submitted to EPD pursuant to EP Condition 2.20. The CAR for Golf Course and T2 Emergency Power Supply System No.1 (Volumes 1 and 2) were submitted to EPD in accordance with EP Condition 1.9 and the Supplementary CAP in which no land contamination issues were identified. The land contamination assessment work of the Emergency Power Supply System No. 3 as on-going in the reporting period.

A summary of implementation status of the environmental mitigation measures for the construction phase of the Project during the reporting period is provided in **Appendix A**.

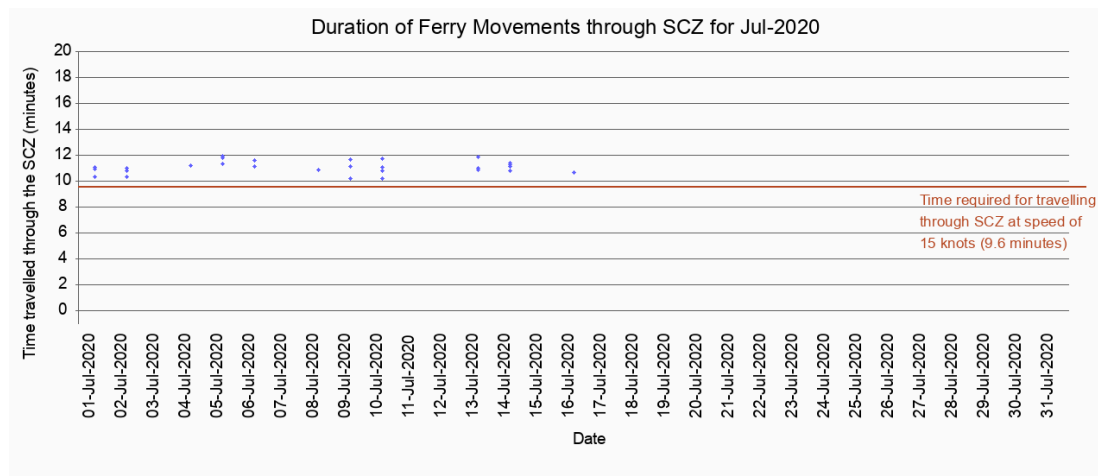
## 7.2 Audit of SkyPier High Speed Ferries

The Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier (the SkyPier Plan) was submitted to the Advisory Council on the Environment for comment and subsequently submitted to and approved by EPD in November 2015 under EP Condition 2.10. The approved SkyPier Plan is available on the dedicated website of the Project. In the SkyPier Plan, AAHK has committed to implement the mitigation measure of requiring HSFs of SkyPier travelling between HKIA and Zhuhai / Macau to start diverting the route with associated speed control across the area, i.e. Speed Control Zone (SCZ), with high CWD abundance. The route diversion and speed restriction at the SCZ have been implemented since 28 December 2015.

Due to the COVID-19 pandemic, all SkyPier HSF services have been suspended from 25 March 2020 until further notice. Special ferry service between Macau and Hong Kong International Airport was arranged from 17 June 2020 to 16 July 2020. Key audit findings for the SkyPier HSFs travelling to/from Macau against the requirements of the SkyPier Plan during the reporting period are summarised in **Table 7.1**. The daily movements of all SkyPier HSFs in this reporting period (i.e., 0 to 4 daily movements) were within the maximum daily cap of 125 daily movements. Status of compliance with the annual daily average of 99 movements will be further reviewed in the annual EM&A Report.

In total, 64 ferry movements between HKIA SkyPier and Macau were recorded in July 2020 and the data are presented in **Appendix G**. The time spent by the SkyPier HSFs travelling through the SCZ in July 2020 were presented in **Figure 7.1**. It will take 9.6 minutes to travel through the SCZ when the SkyPier HSFs adopt the maximum allowable speed of 15 knots within the SCZ. **Figure 7.1** shows that all of the SkyPier HSFs spent more than 9.6 minutes to travel through the SCZ.

**Figure 7.1: Duration of the SkyPier HSFs travelling through the SCZ for July 2020**



**Table 7.1: Summary of Key Audit Findings against the SkyPier Plan**

Requirements in the SkyPier Plan	1 to 31 July 2020
Total number of ferry movements recorded and audited	64
Use diverted route and enter / leave SCZ through Gate Access Points	0 deviation
Speed control in speed control zone	The average speeds of all HSFs travelling through the SCZ ranged from 10.6 to 13.4 knots. All HSFs had travelled through the SCZ with average speeds under 15 knots in compliance with the SkyPier Plan. The time used by HSFs to travel through SCZ is presented in <b>Figure 7.1</b> .
Daily Cap (including all SkyPier HSFs)	0-4 daily movement (within the maximum daily cap - 125 daily movements).

**7.3 Audit of Construction and Associated Vessels**

The updated Marine Travel Routes and Management Plan for Construction and Associated Vessel (MTRMP-CAV) was submitted and approved in November 2016 by EPD under EP Condition 2.9. The approved Plan is available on the dedicated website of the Project.

ET carried out the following actions during the reporting period:

- One skipper training session was held for contractors’ concerned skippers of relevant construction vessels to familiarize them with the predefined routes; general education on local cetaceans; guidelines for avoiding adverse water quality impact; the required environmental practices / measures while operating construction and associated vessels under the Project; and guidelines for operating vessels safely in the presence of CWDs. The list of all trained skippers was properly recorded and maintained by ET.
- Five skipper training sessions were held by contractors’ Environmental Officers. Competency tests were subsequently conducted with the trained skippers by ET. The list of all trained skippers was properly recorded and maintained by ET.
- In this reporting period, 13 skippers were trained by ET and 15 skippers were trained by contractors’ Environmental Officers. In total, 1591 skippers were trained from August 2016 to July 2020.

- The MSS automatically recorded deviation cases such as speeding, entering no entry zone and not travelling through the designated gate. ET conducted checking to ensure the MSS records deviation cases accurately.
- Deviations such as speeding in the works area, entered no entry zone, and entering from non-designated gates were identified. All the concerned contractors were reminded to comply with the requirements of the MTRMP-CAV during the bi-weekly MTCC audit.
- Three-month rolling programmes (one month record and three months forecast) for construction vessel activities were received from the contractors in order to help maintain the number of construction and associated vessels on site to a practicable minimal level.

#### 7.4 Implementation of Dolphin Exclusion Zone

The DEZ Plan was submitted in accordance with EP Condition 3.1 (v) requirement and Section 10.3 of the Manual, and approved in April 2016 by EPD. The 24-hour DEZs with a 250m radius for marine works were established and implemented by the contractors for DCM works and seawall construction according to their Method Statement for DEZ Monitoring that followed the specifications and requirements of the DEZ Plan.

During the reporting period, ET was notified that no dolphin sightings were recorded within the DEZ by the contractors. The ET checked the dolphin sighting record and relevant records by the contractors to audit the implementation of DEZ.

#### 7.5 Status of Submissions under Environmental Permits

The current status of submissions under the EP up to the reporting period is presented in **Table 7.2**.

**Table 7.2: Status of Submissions under Environmental Permit**

EP Condition	Submission	Status
2.1	Complaint Management Plan	
2.4	Management Organizations	
2.5	Construction Works Schedule and Location Plans	
2.7	Marine Park Proposal	
2.8	Marine Ecology Conservation Plan	
2.9	Marine Travel Routes and Management Plan for Construction and Associated Vessels	
2.10	Marine Travel Routes and Management Plan for High Speed Ferries of SkyPier	Accepted / approved by EPD
2.11	Marine Mammal Watching Plan	
2.12	Coral Translocation Plan	
2.13	Fisheries Management Plan	
2.14	Egretty Survey Plan	
2.15	Silt Curtain Deployment Plan	
2.16	Spill Response Plan	
2.17	Detailed Plan on Deep Cement Mixing	
2.18	Landscape & Visual Plan	Submitted to EPD
2.19	Waste Management Plan	
2.20	Supplementary Contamination Assessment Plan	Accepted / approved by EPD
3.1	Updated EM&A Manual	by EPD
3.4	Baseline Monitoring Reports	

## 7.6 Compliance with Other Statutory Environmental Requirements

During the reporting period, environmental related licenses and permits required for the construction activities were checked. No non-compliance with environmental statutory requirements was recorded. The environmental licenses and permits which are valid in the reporting period are presented in **Appendix E**.

## 7.7 Analysis and Interpretation of Complaints, Notification of Summons and Status of Prosecutions

### 7.7.1 Complaints

A complaint was received on 6 July 2020 regarding suspected improper chemical waste disposal at the pier near Marina Garden, Tuen Mun. Investigation was conducted by the ET in accordance with the Manual and the Complaint Management Plan of the Project. According to the information provided by the Contactor, skipper of the concerned vessel had carried a rubbish bin filled with trash from the vessel for disposal at the refuse collection point at the pier near Marina Garden, Tuen Mun. Furthermore, the chemical containers located at the pier near Marina Garden, Tuen Mun did not belong to the Contractor or the owner of vessel. Moreover, there was no chemical waste generated from the Contractor. Based on the ET's regular site inspections, the Contractor was mainly conducting ground investigation works and no chemical waste had been generated from the construction site. ET had also checked the Contractor's chemical waste cabinet, which was found empty on 8 June, 3 and 6 July 2020. According to Contractor's record, no chemical waste was generated from the Contractor. The chemical waste cabinet was also observed properly locked and labelled with the display of the Chemical Waste Producer Registration on the cabinet, following the guideline Code of Practice of chemical waste handling. In view of the information provided by the Contractor and the ET's inspection findings, there were no evidences indicating improper disposal of chemical waste at the pier near Marine Garden, Tuen Mun by the Contractor. ET will continue to remind all work contracts to properly handle their chemical. Hence, the complaint case was considered closed.

A complaint was received on 13 July 2020 regarding the discharge of muddy water from a construction site near Aviation Fuel Supply Company (AFSC) Operation Limited premise and the discharge flowing to the surrounding surface water channel. Investigation was conducted by the ET in accordance with the Manual and the Complaint Management Plan of the Project. ET investigated the related work contracts of 3RS Project at or near the alleged area. Based on information provided by the Contractors, the sites were used as material stockpile and site office, and no wastewater was generated. Each contractor implemented water pollution control measures such as provision of concrete bund at the site entrance to contain surface runoff within the site, establishing an internal water reuse circuit using trenches and water tanks, and reuse of wastewater generated from the wheel washing facility. Based on the ET's weekly site inspections, no malpractices were observed on site. ET also found that surface runoff, if any, was contained within the Contractors respective site areas. In view of the above information provided from Contractors and ET inspection findings, there were no evidences that any one of the Contractors had discharged muddy water from their site areas to the surface water channel. Hence, the complaint case was considered closed. However, the ET will continue to remind all work contracts to properly handle the wastewater, especially surface runoff during the rainy season.

### 7.7.2 Notifications of Summons or Status of Prosecution

Neither notification of summons nor prosecution was received during the reporting period.

### 7.7.3 Cumulative Statistics

Cumulative statistics on complaints, notifications of summons and status of prosecutions are summarised in **Appendix F**.

## 8 Future Key Issues and Other EIA & EM&A Issues

### 8.1 Construction Programme for the Coming Reporting Period

Key activities anticipated in the next reporting period for the Project will include the following:

#### **Reclamation Works:**

##### **Contract 3205 DCM works**

- DCM works

##### **Contract 3206 Main Reclamation Works**

- Land-based ground improvement works;
- Seawall construction;
- Marine filling; and
- Sorting and reuse of inert waste from other 3RS contracts.

#### **Airfield Works:**

##### **Contract 3301 North Runway Crossover Taxiway**

- Cable ducting works; and
- Subgrade compaction and paving works.

##### **Contract 3302 Eastern Vehicular Tunnel Advance Works**

- Cable laying and ducting works;
- Trench excavation works;
- Backfilling and reinstatement works
- Piling and structure works;
- King Post Construction; and
- Site establishment.

##### **Contract 3303 Third Runway and Associated Works**

- Footing and utilities work;
- Preparation works for box culvert construction;
- Bored piling work; and
- Cable laying and ducting works.

##### **Contract 3307 Fire Training Facility**

- Site establishment

#### **Third Runway Concourse:**

##### **Contract 3403 New Integrated Airport Centres Building and Civil Works**

- Piling works and
- Installation of cable and lightning pit.

##### **Contract 3405 Third Runway Concourse Foundation and Substructure Works**

- Plant mobilisation;
- Bored piling work; and
- Laying of pipes.

#### **Terminal 2 Expansion:**

##### **Contract 3503 Terminal 2 Foundation and Substructure Works**

- T2 re-configuration;
- Excavation works;
- Utilities, drainage, and road work; and
- Piling and structure works.

#### **Automated People Mover (APM) and Baggage Handling System (BHS):**

##### **Contract 3601 New Automated People Mover System (TRC Line)**

- Construction of site office.

##### **Contract 3602 Existing APM System Modification Works**

- Modification works at APM depot.

#### **Construction Support (Facilities):**

##### **Contract 3721 Construction Support Infrastructure Works**

- Excavation and backfilling; and
- Laying of drainage pipes and ducts.

##### **Contract 3722 Construction Support Facilities**

- Formboard erecting and concreting;
- Foundation works;
- Erection of superstructure; and
- Site Establishment.

#### **Airport Support Infrastructure:**

##### **Contract 3801 APM and BHS Tunnels on Existing Airport Island**

- Construction of box culvert;
- Cofferdam installation for shaft;
- King Post;
- Backfilling work; and
- Site clearance.

##### **Contract 3802 APM and BHS Tunnels and Related Works**

- Site establishment;
- Set up storage area and temporary haul road; and
- Ground investigation.

#### **Construction Support (Services / Licenses):**

##### **Contract 3901A/ B Concrete Batching Facility**

- Erection of superstructure;
- Concreting; and
- Foundation work.

## 8.2 Key Environmental Issues for the Coming Reporting Period

The key environmental issues for the Project in the coming reporting period expected to be associated with the construction activities include:

- Generation of dust from construction works and stockpiles;
- Noise from operating equipment and machinery on-site;
- Generation of site surface runoffs and wastewater from activities on-site;
- Water quality from DCM works and marine filling;
- DEZ monitoring for ground improvement works (DCM works) and seawall construction;
- Implementation of MMWP for silt curtain deployment;
- Sorting, recycling, storage and disposal of general refuse and construction waste;
- Reuse of treated marine sediments from piling and excavation works;
- Management of chemicals and avoidance of oil spillage on-site; and
- Acoustic decoupling measures for equipment on marine vessels.

The implementation of required mitigation measures by the contractors will be monitored by the ET.

## 8.3 Monitoring Schedule for the Coming Reporting Period

A tentative schedule of the planned environmental monitoring work in the next reporting period is provided in **Appendix B**.

## 8.4 Review of the Key Assumptions Adopted in the EIA Report

With reference to Appendix E of the Manual, it is noted that the key assumptions adopted in approved EIA report for the construction phase are still valid and no major changes are involved. The environmental mitigation measures recommended in the approved EIA Report remain applicable and shall be implemented in undertaking construction works for the Project.

## 9 Conclusion and Recommendation

The key activities of the Project carried out in the reporting period included reclamation works and land-based works. Works in the reclamation areas included DCM works, marine filling, seawall and facilities construction, together with runway and associated works. Land-based works on existing airport island involved mainly airfield works, foundation and substructure work for Terminal 2 expansion, modification and tunnel work for APM and BHS systems, and preparation work for utilities, with activities include site establishment, site office construction, road and drainage works, cable ducting, demolition of existing facilities, piling, and excavation works.

All the monitoring works for construction dust, construction noise, water quality, construction waste, landscape & visual, and CWD were conducted during the reporting period in accordance with the Manual.

Monitoring results of construction dust, construction noise, construction waste, and CWD did not trigger the corresponding Action and Limit Levels during the reporting period.

The water quality monitoring results for all parameters, except DO, obtained during the reporting period were within the corresponding Action and Limit Levels stipulated in the EM&A programme. Relevant investigation and follow-up actions will be conducted according to the EM&A programme if the corresponding Action and Limit Levels are triggered. For DO, some testing results triggered the relevant Action and Limit Levels, and the corresponding investigations were conducted accordingly. Further investigations for cases recorded between 11 and 25 June 2020 were also provided in this Construction Phase Monthly EM&A Report. The investigation findings indicated that the cases recorded in June and July were not related to the Project. To conclude, the construction activities did not introduce adverse impact to all water quality sensitive receivers.

Weekly site inspections of the construction works were carried out by the ET to audit the implementation of proper environmental pollution control and mitigation measures for the Project. Bi-weekly site inspections were also conducted by the IEC. Site inspection findings were recorded in the site inspection checklists and provided to the contractors to follow up.

Due to the COVID-19 pandemic, all SkyPier HSF services have been suspended from 25 March 2020 until further notice. Special ferry service between Macau and HKIA was arranged from 17 June 2020 to 16 July 2020. The daily movements of all SkyPier HSFs in this reporting period were in the range of 0 to 4 daily movements, which are within the maximum daily cap of 125 daily movements. A total of 64 HSF movements under the SkyPier Plan were recorded in the reporting period. The average speeds of all HSFs travelling through the SCZ ranged from 10.6 to 13.4 knots. All HSFs had travelled through the SCZ with average speeds under 15 knots in compliance with the SkyPier Plan. In summary, the ET and IEC have audited the HSF movements against the SkyPier Plan and conducted follow up investigations or actions accordingly.

On the implementation of MTRMP-CAV, the MSS automatically recorded the deviation case such as speeding, entering no entry zone and not travelling through the designated gates. ET conducted checking to ensure the MSS records all deviation cases accurately. Training has been provided for the concerned skippers to facilitate them in familiarising with the requirements of the MTRMP-CAV. Deviations including speeding in the works area, entered no entry zone, and entry from non-designated gates were reviewed by ET. All the concerned captains were reminded by the contractor's MTCC representative to comply with the requirements of the MTRMP-CAV. The ET reminded contractors that all vessels shall avoid entering the no-entry zone, in particular the

Brothers Marine Park and the Sha Chau & Lung Kwu Chau Marine Park. Three-month rolling programmes for construction vessel activities, which ensures the proposed vessels are necessary and minimal through good planning, were also received from contractors.

# Figures

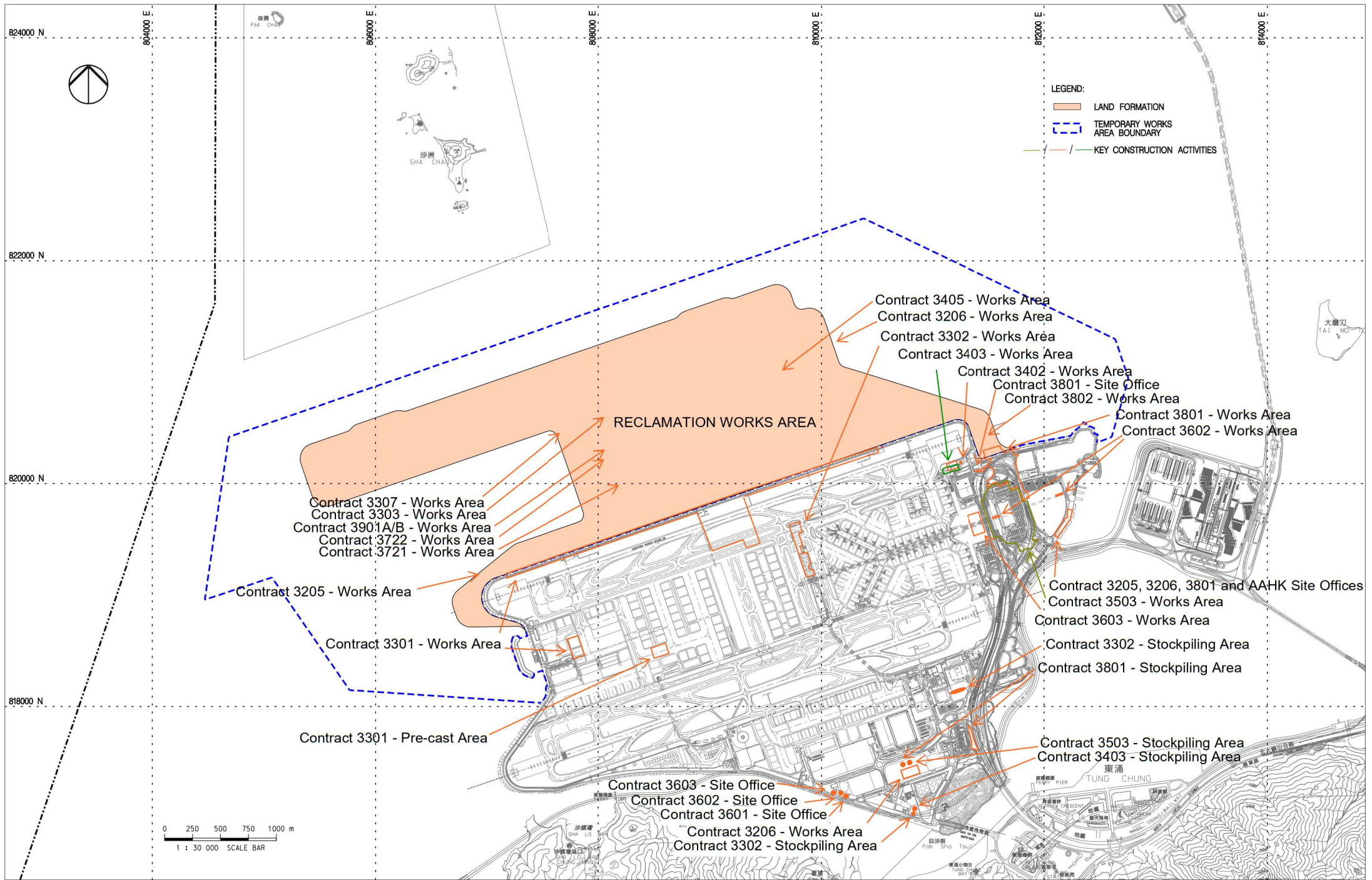


FIGURE 1.1 LOCATIONS OF KEY CONSTRUCTION ACTIVITIES

Note: The locations are for indicative purpose. The actual construction work locations are in accordance with the construction work programme.



80000 E

80000 E

81000 E

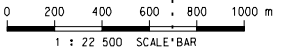
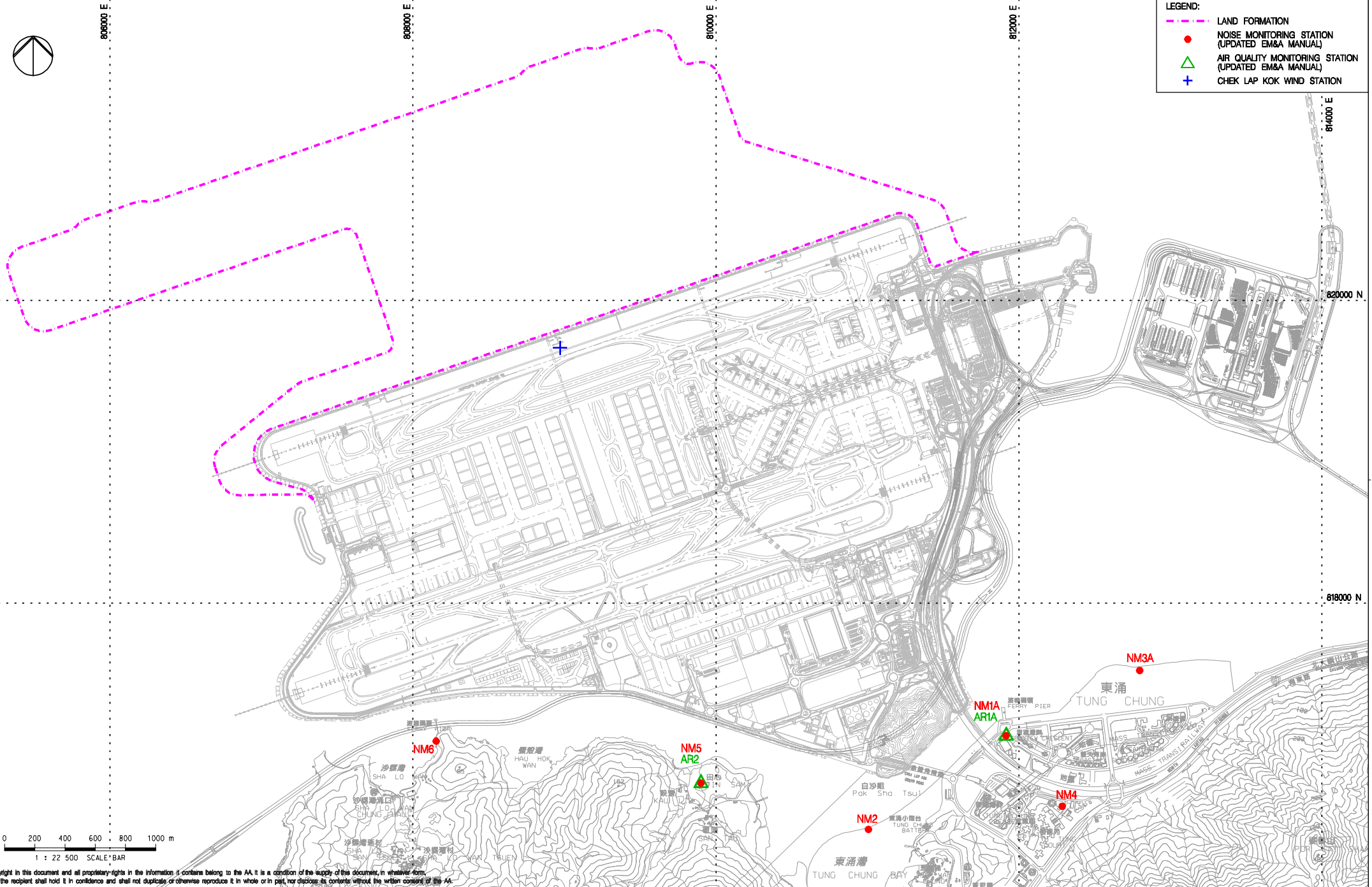
82000 E

84000 E

82000 N

81800 N

- LEGEND:
- LAND FORMATION
  - NOISE MONITORING STATION (UPDATED EM&A MANUAL)
  - AIR QUALITY MONITORING STATION (UPDATED EM&A MANUAL)
  - CHEK LAP KOK WIND STATION



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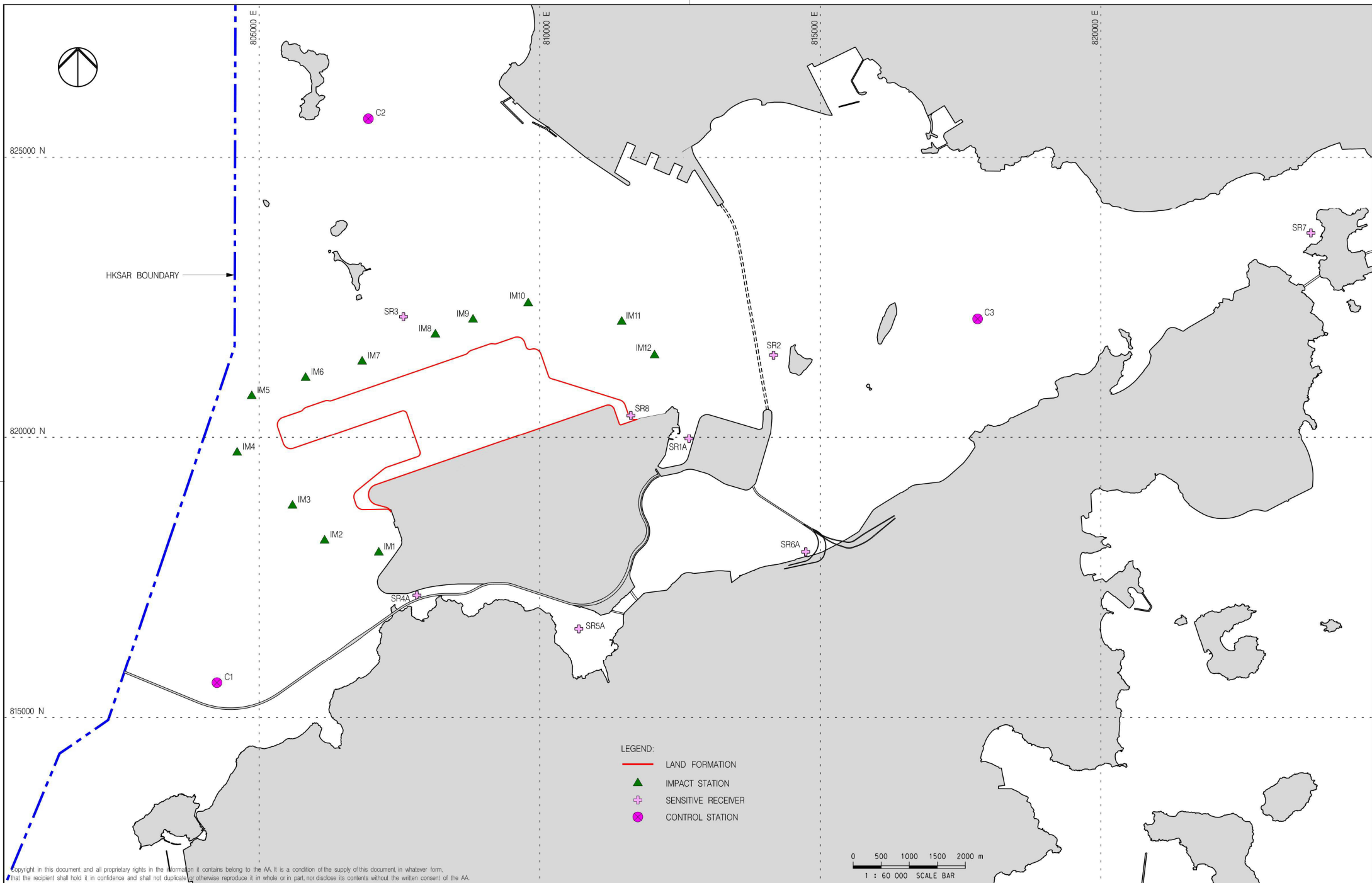
Rev.	Date	Description	Checked
A	06JAN16	FIRST ISSUE	RO
B	28JAN16	GENERAL REVISION	RO
C	11FEB16	GENERAL REVISION	RO
D	29OCT18	GENERAL REVISION	SH



Title  
LOCATIONS OF AIR AND NOISE MONITORING STATIONS AND CHEK LAP KOK WIND STATION

Consultant's Signatures for Approval		Date
Design	TK	29OCT18
Checkers	TK	29OCT18
Approver	EC	29OCT18

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 22500
FIGURE 2.1	Rev. D



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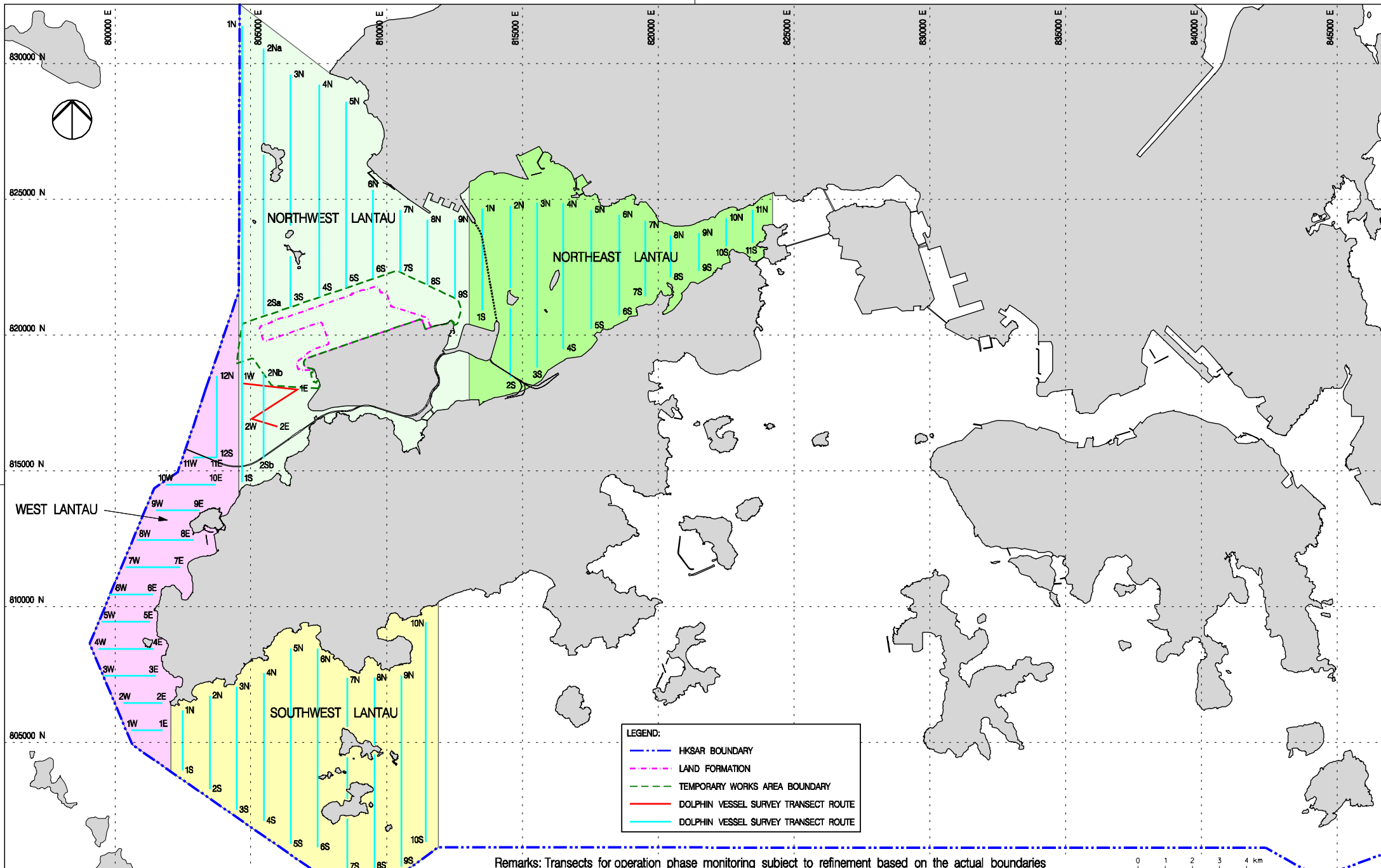
Rev.	Date	Description	Checked
A	21AUG19	FIRST ISSUE	VL



Title  
**WATER QUALITY MONITORING STATIONS**

Consultant's Signatures for Approval		Date
Design	DC	21AUG19
Checkers	DC / TK	21AUG19
Approver	EC	21AUG19

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1 : 60000
<b>FIGURE 4.1</b>	Rev. A



Remarks: Transects for operation phase monitoring subject to refinement based on the actual boundaries for the extension of Hong Kong International Airport Approach Areas (HKIAAA) and 3RS Marine Park

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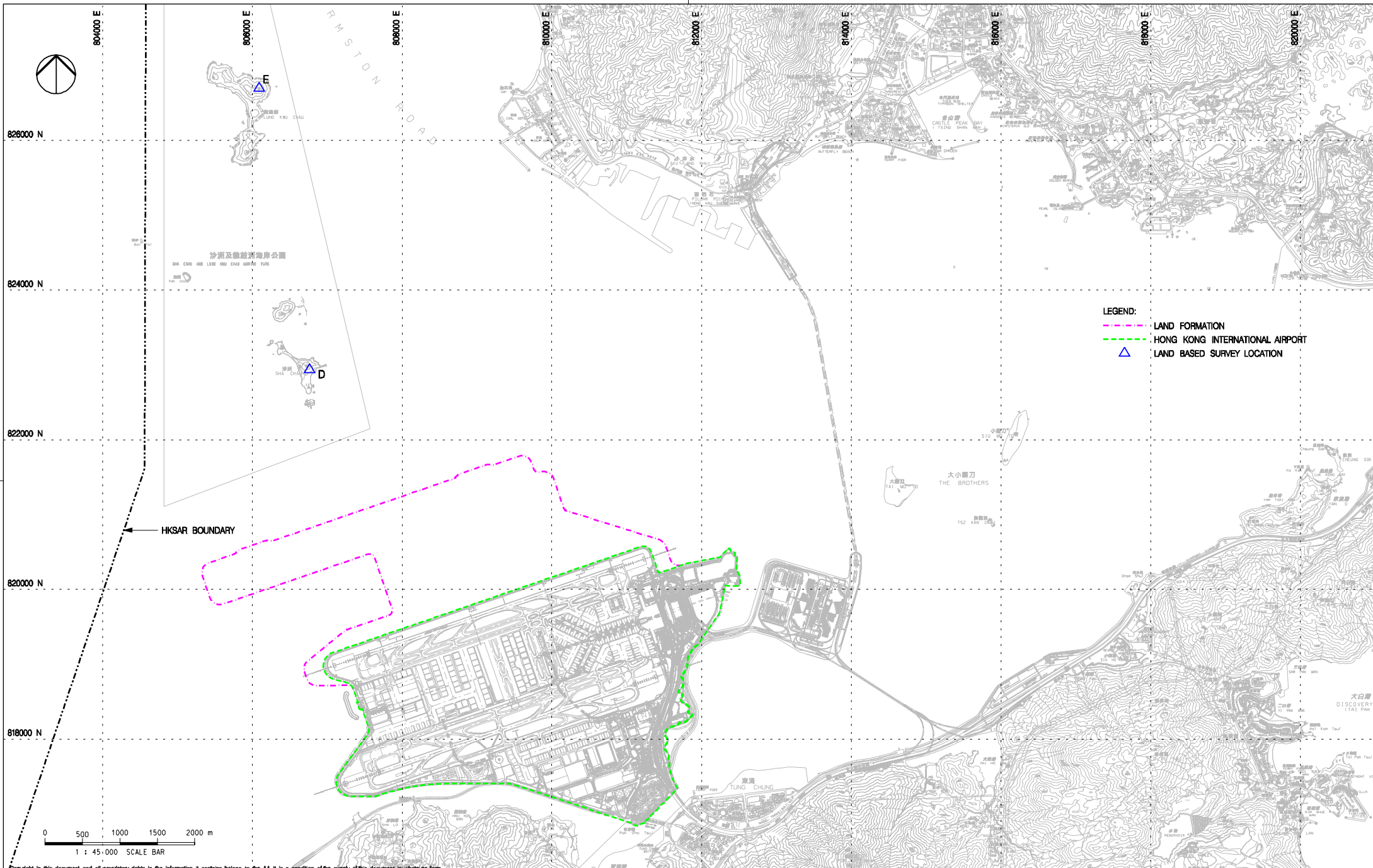
Rev.	Date	Description	Checked
B	27JUL16	GENERAL REVISION	JT
C	06FEB17	GENERAL REVISION	JT
D	01MAR17	GENERAL REVISION	JT
E	29OCT18	GENERAL REVISION	SH
F	04APR19	GENERAL REVISION	SH



Title  
VESSEL BASED DOLPHIN MONITORING  
TRANSECTS IN CONSTRUCTION,  
POST-CONSTRUCTION AND OPERATION PHASES

Consultant's Signatures for Approval		Date
Design	JC	04APR19
Checkers	JC / TK	04APR19
Approver	EC	04APR19

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM		Scale at A3
Drawing No.	FIGURE 6.1	1 : 125000
Rev.	F	



- LEGEND:**
- - - LAND FORMATION
  - - - HONG KONG INTERNATIONAL AIRPORT
  - ▲ LAND BASED SURVEY LOCATION

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A	02DEC15	FIRST ISSUE	JC
B	06FEB17	GENERAL REVISION	JC
C	29OCT18	GENERAL REVISION	SH



**Title**  
**LAND BASED DOLPHIN MONITORING  
 IN BASELINE AND CONSTRUCTION PHASES**

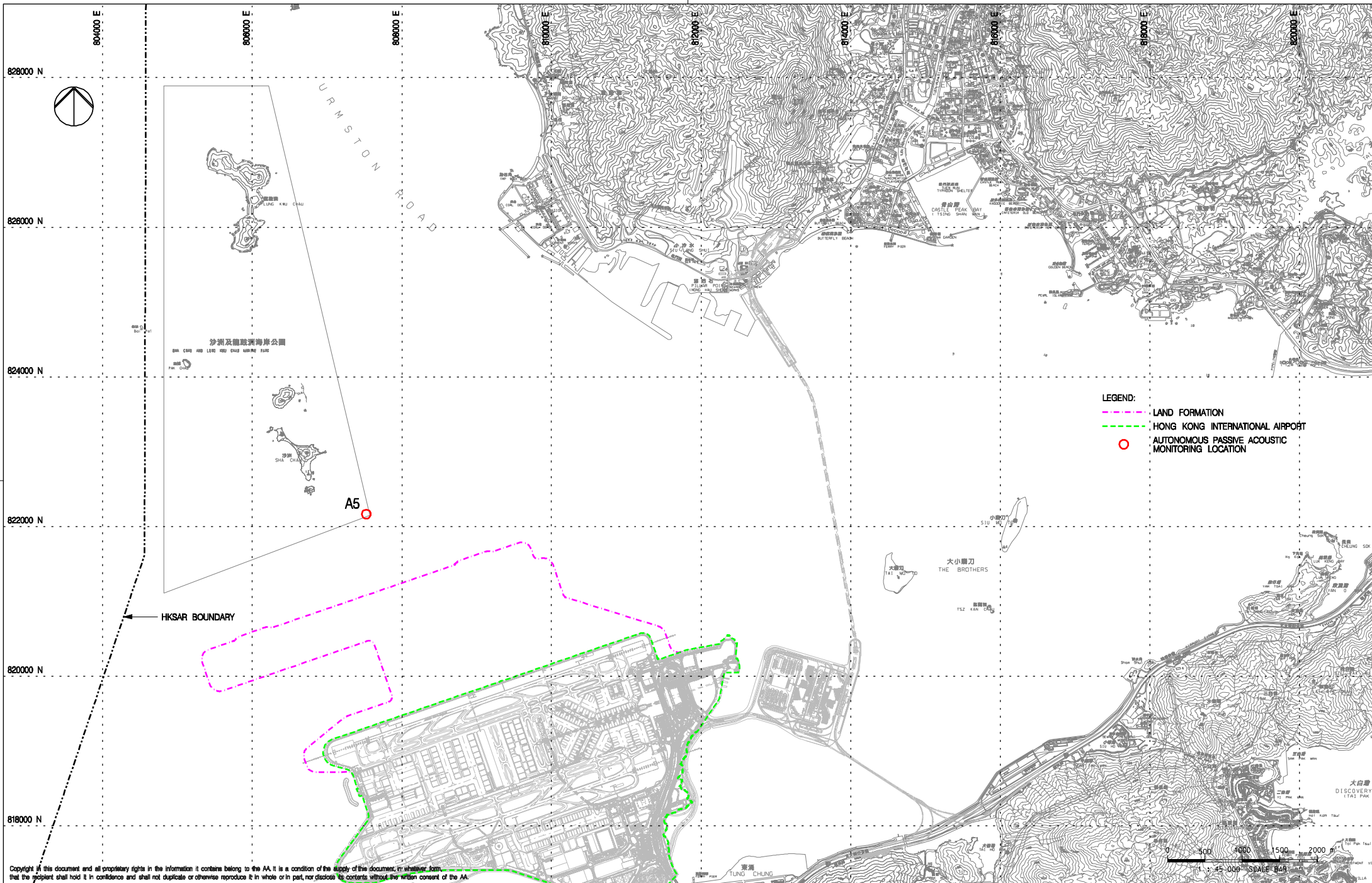
Consultant's Signatures for Approval		Date
Design	JC	29OCT18
Checkers	JC / TK	29OCT18
Approver	EC	29OCT18

**EXPANSION OF HONG KONG INTERNATIONAL AIRPORT  
 INTO A THREE-RUNWAY SYSTEM**

Drawing No. **FIGURE 6.2**

Scale at A3 **1:45000**

Rev. **C**



- LEGEND:**
- - - LAND FORMATION
  - - - HONG KONG INTERNATIONAL AIRPORT
  - AUTONOMOUS PASSIVE ACOUSTIC MONITORING LOCATION

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Rev.	Date	Description	Checked
A	29AUG17	FIRST ISSUE	JT
B	10OCT17	GENERAL REVISION	PL
C	29OCT18	GENERAL REVISION	SH



Title  
**LOCATION FOR AUTONOMOUS PASSIVE ACOUSTIC MONITORING**

Consultant's Signatures for Approval		Date
Design	JC	29OCT18
Checkers	JC / TK	29OCT18
Approver	EC	29OCT18

EXPANSION OF HONG KONG INTERNATIONAL AIRPORT INTO A THREE-RUNWAY SYSTEM	
Drawing No.	Scale at A3 1:45000
<b>FIGURE 6.5</b>	Rev. C

# **Appendix A. Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase**

# Environmental Mitigation Implementation Schedule (EMIS) for Construction Phase

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
<b>Air Quality Impact – Construction Phase</b>					
5.2.6.2	2.1	-	<b>Dust Control Measures</b> <ul style="list-style-type: none"> <li>Water spraying for 12 times a day or once every two hours for 24-hour working at all active works area.</li> </ul>	Within construction site / Duration of the construction phase	I
5.2.6.3	2.1	-	<ul style="list-style-type: none"> <li>Covering of at least 80% of the stockpiling area by impervious sheets. Water spraying of all dusty materials immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling.</li> </ul>	Within construction site / Duration of the construction phase	I
5.2.6.4	2.1	-	Dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation should be adopted. These practices include: Good Site Management <ul style="list-style-type: none"> <li>Good site management is important to help reducing potential air quality impact down to an acceptable level. As a general guide, the Contractor should maintain high standard of housekeeping to prevent emission of fugitive dust. Loading, unloading, handling and storage of raw materials, wastes or by-products should be carried out in a manner so as to minimise the release of visible dust emission. Any piles of materials accumulated on or around the work areas should be cleaned up regularly. Cleaning, repair and maintenance of all plant facilities within the work areas should be carried out in a manner minimising generation of fugitive dust emissions. The material should be handled properly to prevent fugitive dust emission before cleaning.</li> </ul>	Within construction site / Duration of the construction phase	I
			Disturbed Parts of the Roads <ul style="list-style-type: none"> <li>Each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials; or</li> <li>Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.</li> </ul>	Within construction site / Duration of the construction phase	I
			Exposed Earth <ul style="list-style-type: none"> <li>Exposed earth should be properly treated by compaction, hydroseeding, vegetation planting or seating with latex, vinyl, bitumen within six months after the last construction activity on the site or part of the site where the exposed earth lies.</li> </ul>	Within construction site / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>Loading, Unloading or Transfer of Dusty Materials</p> <ul style="list-style-type: none"> <li>All dusty materials should be sprayed with water immediately prior to any loading or transfer operation so as to keep the dusty material wet.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p>Debris Handling</p> <ul style="list-style-type: none"> <li>Any debris should be covered entirely by impervious sheeting or stored in a debris collection area sheltered on the top and the three sides; and</li> <li>Before debris is dumped into a chute, water should be sprayed so that it remains wet when it is dumped.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p>Transport of Dusty Materials</p> <ul style="list-style-type: none"> <li>Vehicle used for transporting dusty materials/spoils should be covered with tarpaulin or similar material. The cover should extend over the edges of the sides and tailboards.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p>Wheel washing</p> <ul style="list-style-type: none"> <li>Vehicle wheel washing facilities should be provided at each construction site exit. Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p>Use of vehicles</p> <ul style="list-style-type: none"> <li>The speed of the trucks within the site should be controlled to about 10km/hour in order to reduce adverse dust impacts and secure the safe movement around the site;</li> <li>Immediately before leaving the construction site, every vehicle should be washed to remove any dusty materials from its body and wheels; and</li> <li>Where a vehicle leaving the construction site is carrying a load of dusty materials, the load should be covered entirely by clean impervious sheeting to ensure that the dusty materials do not leak from the vehicle.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p>Site hoarding</p> <ul style="list-style-type: none"> <li>Where a site boundary adjoins a road, street, service lane or other area accessible to the public, hoarding of not less than 2.4m high from ground level should be provided along the entire length of that portion of the site boundary except for a site entrance or exit.</li> </ul>	Within construction site / Duration of the construction phase	I
5.2.6.5	2.1	-	<p><b>Best Practices for Concrete Batching Plant</b></p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2 as well as in the future Specified Process licence should be adopted. The best practices are recommended to be applied to both the land based and floating concrete batching plants. Best practices include:</p> <p>Cement and other dusty materials</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>▪ The loading, unloading, handling, transfer or storage of cement, pulverised fuel ash (PFA) and/or other equally dusty materials shall be carried in a totally enclosed system acceptable to EPD. All dust-laden air or waste gas generated by the process operations shall be properly extracted and vented to fabric filtering system to meet the required emission limit;</li> <li>▪ Cement, PFA and/or other equally dusty materials shall be stored in storage silo fitted with audible high level alarms to warn of over-filling. The high-level alarm indicators shall be interlocked with the material filling line such that in the event of the silo approaching an overfilling condition, an audible alarm will operate, and after 1 minute or less the material filling line will be closed;</li> <li>▪ Vents of all silos shall be fitted with fabric filtering system to meet the required emission limit;</li> <li>▪ Vents of cement/PFA weighing scale shall be fitted with fabric filtering system to meet the required emission limit; and</li> <li>▪ Seating of pressure relief valves of all silos shall be checked, and the valves re-seated if necessary, before each delivery.</li> </ul>		
			<p>Other raw materials</p> <ul style="list-style-type: none"> <li>▪ The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rock, sand, stone aggregate, shall be carried out in such a manner to prevent or minimize dust emissions;</li> <li>▪ The materials shall be adequately wetted prior to and during the loading, unloading and handling operations. Manual or automatic water spraying system shall be provided at all unloading areas, stock piles and material discharge points;</li> <li>▪ All receiving hoppers for unloading relevant materials shall be enclosed on three sides up to 3 m above the unloading point. In no case shall these hoppers be used as the material storage devices;</li> <li>▪ The belt conveyor for handling materials shall be enclosed on top and two sides with a metal board at the bottom to eliminate any dust emission due to wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can achieve same performance;</li> <li>▪ All conveyor transfer points shall be totally enclosed. Openings for the passage of conveyors shall be fitted with adequate flexible seals;</li> <li>▪ Scrapers shall be provided at the turning points of all conveyors to remove dust adhered to the belt surface;</li> <li>▪ Conveyors discharged to stockpiles of relevant materials shall be arranged to minimize free fall as far as practicable. All free falling transfer points from conveyors to stockpiles shall be enclosed with chute(s) and water sprayed;</li> <li>▪ Aggregates with a nominal size less than or equal to 5 mm should be stored in totally enclosed structure such as storage bin and should not be handled in open area. Where there is sufficient buffer area surrounding the concrete batching plant, ground stockpiling may be used;</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>▪ The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side;</li> <li>▪ Aggregates with a nominal size greater than 5 mm should preferably be stored in a totally enclosed structure. If open stockpiling is used, the stockpile shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping; and</li> <li>▪ The opening between the storage bin and weighing scale of the materials shall be fully enclosed.</li> </ul>		
			<p>Loading of materials for batching</p> <ul style="list-style-type: none"> <li>▪ Concrete truck shall be loaded in such a way as to minimise airborne dust emissions. The following control measures shall be implemented:                             <ul style="list-style-type: none"> <li>(a) Pre-mixing the materials in a totally enclosed concrete mixer before loading the materials into the concrete truck is recommended. All dust-laden air generated by the pre-mixing process as well as the loading process shall be totally vented to fabric filtering system to meet the required emission limit; and</li> <li>(b) If truck mixing batching or other types of batching method is used, effective dust control measures acceptable to EPD shall be adopted. The dust control measures must have been demonstrated to EPD that they are capable to collect and vent all dust-laden air generated by the material loading/mixing to dust arrestment plant to meet the required emission limit.</li> </ul> </li> <li>▪ The loading bay shall be totally enclosed during the loading process.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Vehicles</p> <ul style="list-style-type: none"> <li>▪ All practicable measures shall be taken to prevent or minimize the dust emission caused by vehicle movement; and</li> <li>▪ All access and route roads within the premises shall be paved and adequately wetted.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Housekeeping</p> <ul style="list-style-type: none"> <li>▪ A high standard of housekeeping shall be maintained. All spillages or deposits of materials on ground, support structures or roofs shall be cleaned up promptly by a cleaning method acceptable to EPD. Any dumping of materials at open area shall be prohibited.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
5.2.6.6	2.1	-	<p><b>Best Practices for Asphaltic Concrete Plant</b></p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Tar and Bitumen Works (Asphaltic Concrete Plant) BPM 15 (94) as well as in the future Specified Process licence should be adopted. These include:</p> <p>Design of Chimney</p> <ul style="list-style-type: none"> <li>▪ The chimney shall not be less than 3 metres plus the building height or 8 metres above ground level, whichever is the greater;</li> <li>▪ The efflux velocity of gases from the main chimney shall not be less than 12 m/s at full load condition;</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>▪ The flue gas exit temperature shall not be less than the acid dew point; and</li> <li>▪ Release of the chimney shall be directed vertically upwards and not be restricted or deflected.</li> </ul>		
			<p>Cold feed side</p> <ul style="list-style-type: none"> <li>▪ The aggregates with a nominal size less than or equal to 5 mm shall be stored in totally enclosed structure such as storage bin and shall not be handled in open area;</li> <li>▪ Where there is sufficient buffer area surrounding the plant, ground stockpiling may be used. The stockpile shall be enclosed at least on top and three sides and with flexible curtain to cover the entrance side. If these aggregates are stored above the feeding hopper, they shall be enclosed at least on top and three sides and be wetted on the surface to prevent wind-whipping;</li> <li>▪ The aggregates with a nominal size greater than 5 mm should preferably be stored in totally enclosed structure. Aggregates stockpile that is above the feeding hopper shall be enclosed at least on top and three sides. If open stockpiling is used, the stockpiles shall be enclosed on three sides with the enclosure wall sufficiently higher than the top of the stockpile to prevent wind whipping;</li> <li>▪ Belt conveyors shall be enclosed on top and two sides and provided with a metal board at the bottom to eliminate any dust emission due to the wind-whipping effect. Other type of enclosure will also be accepted by EPD if it can be demonstrated that the proposed enclosure can be achieve the same performance;</li> <li>▪ Scrapers shall be provided at the turning points of all belt conveyors inside the chute of the transfer points to remove dust adhered to the belt surface;</li> <li>▪ All conveyor transfer points shall be totally enclosed. Openings for the passages of conveyors shall be fitted with adequate flexible seals; and</li> <li>▪ All materials returned from dust collection system shall be transferred in enclosed system and shall be stored inside bins or enclosures.</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	N/A
			<p>Hot feed side</p> <ul style="list-style-type: none"> <li>▪ The inlet and outlet of the rotary dryer shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter. The particulate and gaseous concentration at the exhaust outlet of the dust collector shall not exceed the required limiting values;</li> <li>▪ The bucket elevator shall be totally enclosed and the air be extracted and ducted to a dust collection system to meet the required particulates limiting value;</li> <li>▪ All vibratory screens shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings;</li> <li>▪ Chutes for carrying hot material shall be rigid and preferably fitted with abrasion resistant plate inside. They shall be inspected daily for leakages;</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>▪ All hot bins shall be totally enclosed and dust tight with close-fitted access inspection opening. Gaskets shall be installed to seal off any cracks and edges of any inspection openings. The air shall be extracted and ducted to a dust collection system to meet the required particulates limiting value; and</li> <li>▪ Appropriate control measures shall be adopted in order to meet the required bitumen emission limit as well as the ambient odour level (2 odour units).</li> </ul>		
			<p>Material transportation</p> <ul style="list-style-type: none"> <li>▪ The loading, unloading, handling, transfer or storage of other raw materials which may generate airborne dust emissions such as crushed rocks, sands, stone aggregates, reject fines, shall be carried out in such a manner as to minimize dust emissions;</li> <li>▪ Roadways from the entrance of the plant to the product loading points and/or any other working areas where there are regular movements of vehicles shall be paved or hard surfaced; and</li> <li>▪ Haul roads inside the Works shall be adequately wetted with water and/or chemical suppressants by water trucks or water sprayers.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Control of emissions from bitumen decanting</p> <ul style="list-style-type: none"> <li>▪ The heating temperature of the particular bitumen type and grade shall not exceed the corresponding temperature limit of the same type listed in Appendix 1 of the Guidance Note;</li> <li>▪ Tamper-free high temperature cut-off device shall be provided to shut off the fuel supply or electricity in case the upper limit for bitumen temperature is reached;</li> <li>▪ Proper chimney for the discharge of bitumen fumes shall be provided at high level;</li> <li>▪ The emission of bitumen fumes shall not exceed the required emission limit; and</li> </ul> <p>The air-to-fuel ratio shall be properly controlled to allow complete combustion of the fuel. The fuel burners, if any, shall be maintained properly and free from carbon deposits in the burner nozzles.</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Liquid fuel</p> <ul style="list-style-type: none"> <li>▪ The receipt, handling and storage of liquid fuel shall be carried out so as to prevent the release of emissions of organic vapours and/or other noxious and offensive emissions to the air.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
			<p>Housekeeping</p> <ul style="list-style-type: none"> <li>▪ A high standard of housekeeping shall be maintained. Waste material, spillage and scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared frequently. The minimum clearing frequency is on a weekly basis.</li> </ul>	Within Concrete Batching Plant / Duration of the construction phase	N/A
5.2.6.7	2.1	-	<p><b>Best Practices for Rock Crushing Plants</b></p> <p>The relevant best practices for dust control as stipulated in the Guidance Note on the Best Practicable Means for Mineral Works (Stone Crushing Plant) BPM 11/1 (95) as well as in the future Specified Process licence should be adopted. These include:</p>	Within Concrete Batching Plant / Duration of the construction phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>Crushers</p> <ul style="list-style-type: none"> <li>▪ The outlet of all primary crushers, and both inlet and outlet of all secondary and tertiary crushers, if not installed inside a reasonably dust tight housing, shall be enclosed and ducted to a dust extraction and collection system such as a fabric filter;</li> <li>▪ The inlet hopper of the primary crushers shall be enclosed on top and 3 sides to contain the emissions during dumping of rocks from trucks. The rock while still on the trucks shall be wetted before dumping;</li> <li>▪ Water sprayers shall be installed and operated in strategic locations at the feeding inlet of crushers; and</li> <li>▪ Crusher enclosures shall be rigid and be fitted with self-closing doors and close-fitting entrances and exits. Where conveyors pass through the crusher enclosures, flexible covers shall be installed at entries and exits of the conveyors to the enclosure.</li> </ul>		
			<p>Vibratory screens and grizzlies</p> <ul style="list-style-type: none"> <li>▪ All vibratory screens shall be totally enclosed in a housing. Screenhouses shall be rigid and reasonably dust tight with self-closing doors or close-fitted entrances and exits for access. Where conveyors pass through the screenhouse, flexible covers shall be installed at entries and exits of the conveyors to the housing. Where containment of dust within the screenhouse structure is not successful then a dust extraction and collection system shall be provided; and</li> <li>▪ All grizzlies shall be enclosed on top and 3 sides and sufficient water sprayers shall be installed at their feeding and outlet areas.</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>
			<p>Belt conveyors</p> <ul style="list-style-type: none"> <li>▪ Except for those conveyors which are placed within a totally enclosed structure such as a screenhouse or those erected at the ground level, all conveyors shall be totally enclosed with windshield on top and 2 sides;</li> <li>▪ Effective belt scraper such as the pre-cleaner blades made by hard wearing materials and provided with pneumatic tensioner, or equivalent device, shall be installed at the head pulley of designated conveyor as required to dislodge fine dust particles that may adhere to the belt surface and to reduce carry-back of fine materials on the return belt. Bottom plates shall also be provided for the conveyor unless it has been demonstrated that the corresponding belt scraper is effective and well maintained to prevent falling material from the return belt; and</li> <li>▪ Except for those transfer points which are placed within a totally enclosed structure such as a screenhouse, all transfer points to and from conveyors shall be enclosed. Where containment of dust within the enclosure is not successful, then water sprayers shall be provided. Openings for any enclosed structure for the passage of conveyors shall be fitted with flexible seals.</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	<p>N/A</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>Storage piles and bins</p> <ul style="list-style-type: none"> <li>Where practicable, free falling transfer points from conveyors to stockpiles shall be fitted with flexible curtains or be enclosed with chutes designed to minimize the drop height. Water sprays shall also be used where required.</li> <li>The surface of all surge piles and stockpiles of blasted rocks or aggregates shall be kept sufficiently wet by water spraying wherever practicable;</li> <li>All open stockpiles for aggregates of size in excess of 5 mm shall be kept sufficiently wet by water spraying where practicable; or</li> <li>The stockpiles of aggregates 5 mm in size or less shall be enclosed on 3 sides or suitably located to minimize wind-whipping. Save for fluctuations in stock or production, the average stockpile shall stay within the enclosure walls and in no case the height of the stockpile shall exceed twice the height of the enclosure walls.</li> <li>Scattered piles gathered beneath belt conveyors, inside and around enclosures shall be cleared regularly.</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	N/A
			<p>Rock drilling equipment</p> <ul style="list-style-type: none"> <li>Appropriate dust control equipment such as a dust extraction and collection system shall be used during rock drilling activities.</li> </ul>	<p>Within Concrete Batching Plant / Duration of the construction phase</p>	N/A
<b>Hazard to Human Life – Construction Phase</b>					
Table 6.40	3.2	-	<ul style="list-style-type: none"> <li>Precautionary measures should be established to request barges to move away during typhoons.</li> </ul>	<p>Construction Site / Construction Period</p>	
Table 6.40	3.2	-	<ul style="list-style-type: none"> <li>An appropriate marine traffic management system should be established to minimize risk of ship collision.</li> </ul>	<p>Construction Site / Construction Period</p>	
Table 6.40	3.2	-	<ul style="list-style-type: none"> <li>Location of all existing hydrant networks should be clearly identified prior to any construction works.</li> </ul>	<p>Construction Site / Construction Period</p>	
<b>Noise Impact – Construction Phase</b>					
7.5.6	4.3	-	<p><b>Good Site Practice</b></p> <p>Good site practice and noise management can significantly reduce the impact of construction site activities on nearby NSRs. The following package of measures should be followed during each phase of construction:</p> <ul style="list-style-type: none"> <li>only well-maintained plant to be operated on-site and plant should be serviced regularly during the construction works;</li> <li>machines and plant that may be in intermittent use to be shut down between work periods or should be throttled down to a minimum;</li> </ul>	<p>Within the Project site / During construction phase / Prior to commencement of operation</p>	

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>plant known to emit noise strongly in one direction, should, where possible, be orientated to direct noise away from the NSRs;</li> <li>mobile plant should be sited as far away from NSRs as possible; and</li> <li>material stockpiles and other structures to be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>		
7.5.6	4.3	-	<b>Adoption of QPME</b> <ul style="list-style-type: none"> <li>QPME should be adopted as far as applicable.</li> </ul>	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	<b>Use of Movable Noise Barriers</b> <ul style="list-style-type: none"> <li>Movable noise barriers should be placed along the active works area and mobile plants to block the direct line of sight between PME and the NSRs.</li> </ul>	Within the Project site / During construction phase / Prior to commencement of operation	I
7.5.6	4.3	-	<b>Use of Noise Enclosure/ Acoustic Shed</b> <ul style="list-style-type: none"> <li>Noise enclosure or acoustic shed should be used to cover stationary PME such as air compressor and generator.</li> </ul>	Within the Project site / During construction phase / Prior to commencement of operation	I
<b>Water Quality Impact – Construction Phase</b>					

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
8.8.1.2 and 8.8.1.3	5.1	2.26	<p><b>Marine Construction Activities</b></p> <p><u>General Measures to be Applied to All Works Areas</u></p> <ul style="list-style-type: none"> <li>▪ Barges or hoppers shall not be filled to a level which will cause overflow of materials or pollution of water during loading or transportation;</li> <li>▪ Use of Lean Material Overboard (LMOB) systems shall be prohibited;</li> <li>▪ Excess materials shall be cleaned from the decks and exposed fittings of barges and hopper dredgers before the vessels are moved;</li> <li>▪ Plants should not be operated with leaking pipes and any pipe leakages shall be repaired quickly;</li> <li>▪ Adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action;</li> <li>▪ All vessels shall be sized such that adequate clearance is maintained between vessels and the sea bed at all states of the tide to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash;</li> <li>▪ The works shall not cause foam, oil, grease, litter or other objectionable matter to be present in the water within and adjacent to the works site; and</li> <li>▪ For ground improvement activities including DCM, the wash water from cleaning of the drilling shaft should be appropriately treated before discharge. The Contractor should ensure the waste water meets the WPCO/TM requirements before discharge. No direct discharge of contaminated water is permitted.</li> </ul>	Within construction site / Duration of the construction phase	I
			<p><u>Specific Measures to be Applied to All Works Areas</u></p> <ul style="list-style-type: none"> <li>▪ The daily maximum production rates shall not exceed those assumed in the water quality assessment in the EIA report;</li> <li>▪ A maximum of 10 % fines content to be adopted for sand blanket and 20 % fines content for marine filling below +2.5 mPD prior to substantial completion of seawall (until end of Year 2017) shall be specified in the works contract document;</li> </ul>	Within construction site / Duration of the construction phase	I
			<ul style="list-style-type: none"> <li>▪ An advance seawall of at least 200m to be constructed (comprising either rows of contiguous permanent steel cells completed above high tide mark or partially completed seawalls with rock core to high tide mark and filter layer on the inner side) prior to commencement of marine filling activities;</li> </ul>		I
			<ul style="list-style-type: none"> <li>▪ Closed grab dredger shall be used to excavate marine sediment;</li> <li>▪ Silt curtains surrounding the closed grab dredger shall be deployed in accordance with the Silt Curtain Deployment Plan; and</li> </ul>		N/A *(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)
			<ul style="list-style-type: none"> <li>▪ The Silt Curtain Deployment Plan shall be implemented.</li> </ul>		I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p><u>Specific Measures to be Applied to Land Formation Activities prior to Commencement of Marine Filling Works</u></p> <ul style="list-style-type: none"> <li>Double layer 'Type III' silt curtains to be applied around the active eastern works areas prior to commencement of sand blanket laying activities. The silt curtains shall be configured to minimise SS release during ebb tides. A silt curtain efficiency test shall be conducted to validate the performance of the silt curtains;</li> </ul>	<p>Within construction site / Duration of the construction phase</p>	<p>N/A</p> <p>*(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)</p>
			<ul style="list-style-type: none"> <li>Double layer silt curtains to enclose WSRs C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of construction; and</li> </ul>		<p>For C7a, I</p> <p>For C8, I</p> <p>*(The requirement of silt curtain / screen has been modified. The details can be referred to Silt Curtain Deployment Plan)</p>
			<ul style="list-style-type: none"> <li>The silt curtains and silt screens should be regularly checked and maintained.</li> </ul>		<p>I</p>
			<p><u>Specific Measures to be Applied to Land Formation Activities during Marine Filling Works</u></p> <ul style="list-style-type: none"> <li>Double layer 'Type II' or 'Type III' silt curtains to be applied around the eastern openings between partially completed seawalls prior to commencement of marine filling activities. The silt curtains shall be configured to minimise SS release during ebb tides;</li> </ul>	<p>Within construction site / Duration of the construction phase</p>	<p>I</p> <p>*(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)</p>
			<ul style="list-style-type: none"> <li>Double layer silt curtains to be applied at the south-western opening prior to commencement of marine filling activities;</li> </ul>		<p>N/A</p> <p>*(The arrangement of silt curtain has been modified. The details can be referred to Silt Curtain Deployment Plan)</p>
			<ul style="list-style-type: none"> <li>Double layer silt curtain to enclose WSR C7a and silt screens installed at the intake points for both WSR C7a and C8 prior to commencement of marine filling activities; and</li> </ul>		<p>N/A</p> <p>*(The requirement of silt curtain / screen has been modified. The details can be referred to Silt Curtain Deployment Plan)</p>
			<ul style="list-style-type: none"> <li>The silt curtains and silt screens should be regularly checked and maintained.</li> </ul>		<p>I</p>

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p><u>Specific Measures to be Applied to the Field Joint Excavation Works for the Submarine Cable Diversion</u></p> <ul style="list-style-type: none"> <li>Only closed grabs designed and maintained to avoid spillage shall be used and should seal tightly when operated. Excavated materials shall be disposed at designated marine disposal area in accordance with the Dumping at Sea Ordinance (DASO) permit conditions; and</li> <li>Silt curtains surrounding the closed grab dredger to be deployed as a precautionary measure.</li> </ul>	Within construction site / Duration of the construction phase	N/A
8.8.1.4	5.1	-	<p><b>Modification of the Existing Seawall</b></p> <ul style="list-style-type: none"> <li>Silt curtains shall be deployed around the seawall modification activities to completely enclose the active works areas, and care should be taken to avoid splashing of rockfill / rock armour into the surrounding marine environment. For the connecting sections with the existing outfalls, works for these connection areas should be undertaken during the dry season in order that individual drainage culvert cells may be isolated for interconnection works.</li> </ul>	At the existing northern seawall / Duration of the construction phase	N/A
8.8.1.5	5.1	-	<p><b>Construction of New Stormwater Outfalls and Modifications to Existing Outfalls</b></p> <ul style="list-style-type: none"> <li>During operation of the temporary drainage channel, runoff control measures such as bunding or silt fence shall be provided on both sides of the channel to prevent accumulation and release of SS via the temporary channel. Measures should also be taken to minimise the ingress of site drainage into the culvert excavations.</li> </ul>	Within construction site / Duration of the construction phase	N/A
8.8.1.6 8.8.1.7	5.1	2.27	<p><b>Piling Activities for Construction of New Runway Approach Lights and HKIAAA Marker Beacons</b></p> <p>Silt curtains shall be deployed around the piling activities to completely enclose the piling works and care should be taken to avoid spillage of excavated materials into the surrounding marine environment.</p> <p><u>For construction of the eastern approach lights at the CMPs</u></p> <ul style="list-style-type: none"> <li>Ground improvement via DCM using a close-spaced layout shall be completed prior to commencement of piling works;</li> <li>Steel casings shall be installed to enclose the excavation area prior to commencement of excavation;</li> <li>The excavated materials shall be removed using a closed grab within the steel casings;</li> <li>No discharge of the cement mixed materials into the marine environment will be allowed; and</li> <li>Excavated materials shall be treated and reused on-site.</li> </ul>	Within construction site / Duration of the construction phase	N/A
8.8.1.8	5.1	-	<p><b>Construction of Site Runoff and Drainage</b></p> <p>The site practices outlined in ProPECC Note PN 1/94 should be followed as far as practicable in order to minimise surface runoff and the chance of erosion. The following measures are recommended:</p> <ul style="list-style-type: none"> <li>Install perimeter cut-off drains to direct off-site water around the site and implement internal drainage, erosion and sedimentation control facilities. Channels, earth bunds or sand bag barriers should be provided on site to direct storm water to silt removal facilities. The design of the temporary on-site</li> </ul>	Within construction site / Duration of the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>drainage system should be undertaken by the Contractors prior to the commencement of construction (for works areas located on the existing Airport island) or as soon as the new land is completed (for works areas located on the new landform);</p> <hr/> <ul style="list-style-type: none"> <li>▪ Sand/silt removal facilities such as sand/silt traps and sediment basins should be provided to remove sand/silt particles from runoff to meet the requirements of the TM-DSS standards under the WPCO. The design of efficient silt removal facilities should make reference to the guidelines in Appendix A1 of ProPECC Note PN 1/94. Sizes may vary depending upon the flow rate. The detailed design of the sand/silt traps should be undertaken by the Contractors prior to the commencement of construction;</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly during rainstorms. Deposited silt and grit should be regularly removed, at the onset of and after each rainstorm to ensure that these facilities are functioning properly;</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ Measures should be taken to minimize the ingress of site drainage into excavations. If excavation of trenches in wet periods is necessary, they should be dug and backfilled in short sections wherever practicable. Water pumped out from foundation excavations should be discharged into storm drains via silt removal facilities;</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ In the event that contaminated groundwater is identified at excavation areas, this should be treated on-site using a suitable wastewater treatment process. The effluent should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge to foul sewers or collected for proper disposal off-site. No direct discharge of contaminated groundwater is permitted; and</li> </ul> <hr/> <ul style="list-style-type: none"> <li>▪ All vehicles and plant should be cleaned before leaving a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. An adequately designed and sited wheel washing facility should be provided at construction site exits. Wash-water should have sand and silt settled out and removed regularly to ensure the continued efficiency of the process. The section of access road leading to, and exiting from, the wheel-wash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains. All washwater should be treated according to the requirements of the TM-DSS standards under the WPCO prior to discharge.</li> </ul>		I
8.8.1.9	5.1	-	<p><b>Sewage Effluent from Construction Workforce</b></p> <ul style="list-style-type: none"> <li>▪ Temporary sanitary facilities, such as portable chemical toilets, should be employed on-site where necessary to handle sewage from the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets and be responsible for appropriate disposal and maintenance.</li> </ul>	Within construction site / During construction phase	I
8.8.1.10 8.8.1.11	5.1		<p><b>General Construction Activities</b></p> <ul style="list-style-type: none"> <li>▪ Construction solid waste, debris and refuse generated on-site should be collected, handled and disposed of properly to avoid entering any nearby storm water drain. Stockpiles of cement and other construction materials should be kept covered when not being used; and</li> </ul>	Within construction site / During construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
8.8.1.12 8.8.1.13	5.1	2.28	<ul style="list-style-type: none"> <li>▪ Oils and fuels should only be stored in designated areas which have pollution prevention facilities. To prevent spillage of fuels and solvents to any nearby storm water drain, all fuel tanks and storage areas should be provided with locks and be sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank. The bund should be drained of rainwater after a rain event.</li> </ul> <p><b>Drilling Activities for the Submarine Aviation Fuel Pipelines</b></p> <p>To prevent potential water quality impacts at Sha Chau, the following measures shall be applied:</p> <ul style="list-style-type: none"> <li>▪ A 'zero-discharge' policy shall be applied for all activities to be conducted at Sha Chau;</li> <li>▪ No bulk storage of chemicals shall be permitted; and</li> <li>▪ A containment pit shall be constructed around the drill holes. This containment pit shall be lined with impermeable lining and bunded on the outside to prevent inflow from off-site areas.</li> </ul>	Within construction site / During construction phase	I
			<p>At the airport island side of the drilling works, the following measures shall be applied for treatment of wastewater:</p> <ul style="list-style-type: none"> <li>▪ During pipe cleaning, appropriate desilting or sedimentation device should be provided on site for treatment before discharge. The Contractor should ensure discharge water from the sedimentation tank meet the WPCO/TM requirements before discharge; and</li> <li>▪ Drilling fluid used in drilling activities should be reconditioned and reused as far as possible. Temporary enclosed storage locations should be provided on-site for any unused chemicals that needs to be transported away after all the related construction activities are completed. The requirements in ProPECC Note PN 1/94 should be adhered to in the handling and disposal of bentonite slurries.</li> </ul>	Within construction site / During construction phase	I
<b>Waste Management Implication – Construction Phase</b>					
10.5.1.1	7.1	-	<p>Opportunities to minimise waste generation and maximise the reuse of waste materials generated by the project have been incorporated where possible into the planning, design and construction stages, and the following measures have been recommended:</p> <ul style="list-style-type: none"> <li>▪ The relevant construction methods (particularly for the tunnel works) and construction programme have been carefully planned and developed to minimise the extent of excavation and to maximise the on-site reuse of inert C&amp;D materials generated by the project as far as practicable. Temporary stockpiling areas will also be provided to facilitate on-site reuse of inert C&amp;D materials;</li> <li>▪ Priority should be given to collect and reuse suitable inert C&amp;D materials generated from other concurrent projects and the Government's PFRF as fill materials for the proposed land formation works;</li> <li>▪ Only non-dredged ground improvement methods should be adopted in order to completely avoid the need for dredging and disposal of marine sediment for the proposed land formation work;</li> <li>▪ Excavation work for constructing the APM tunnels, BHS tunnels and airside tunnels will not be down to the CMPs beneath the fill materials in order to avoid excavating any sediments; and</li> </ul>	Project Site Area / During design and construction phase	I
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					I
					I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>▪ For the marine sediments expected to be excavated from the piling works of TRC, APM &amp; BHS tunnels, airside tunnels and other facilities on the proposed land formation area, piling work of marine sections of the approach lights and HKIAAA beacons, basement works for some of T2 expansion area and excavation works for the proposed APM depot should be treated and reused on-site as backfilling materials, although required treatment level / detail and the specific re-use mode are under development.</li> </ul>		I
10.5.1.1	7.1	-	<p>The following good site practices should be performed during the construction activities include:</p> <ul style="list-style-type: none"> <li>▪ Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</li> <li>▪ Training of site personnel in proper waste management and chemical waste handling procedures;</li> <li>▪ Provision of sufficient waste disposal points and regular collection for disposal;</li> <li>▪ Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks by tarpaulin/ similar material or by transporting wastes in enclosed containers. The cover should be extended over the edges of the sides and tailboards;</li> <li>▪ Stockpiles of C&amp;D materials should be kept wet or covered by impervious sheets to avoid wind-blown dust;</li> <li>▪ All dusty materials including C&amp;D materials should be sprayed with water immediately prior to any loading transfer operation so as to keep the dusty material wet during material handling at the barging points/ stockpile areas;</li> <li>▪ C&amp;D materials to be delivered to and from the project site by barges or by trucks should be kept wet or covered to avoid wind-blown dust;</li> <li>▪ The speed of the trucks including dump trucks carrying C&amp;D or waste materials within the site should be controlled to about 10 km/hour in order to reduce the adverse dust impact and secure the safe movement around the site; and</li> <li>▪ To avoid or minimise dust emission during transport of C&amp;D or waste materials within the site, each and every main temporary access should be paved with concrete, bituminous hardcore materials or metal plates and kept clear of dusty materials. Unpaved parts of the road should be sprayed with water or a dust suppression chemical so as to keep the entire road surface wet.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.3	7.1	-	<p>The following practices should be performed to achieve waste reduction include:</p> <ul style="list-style-type: none"> <li>▪ Use of steel or aluminium formworks and falseworks for temporary works as far as practicable;</li> <li>▪ Adoption of repetitive design to allow reuse of formworks as far as practicable;</li> <li>▪ Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> </ul>	Project Site Area / Construction Phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>Encourage collection of aluminium cans, PET bottles and paper by providing separate labelled bins to enable these wastes to be segregated from other general refuse generated by the work force;</li> <li>Any unused chemicals or those with remaining functional capacity should be collected for reused as far as practicable;</li> <li>Proper storage and site practices to minimise the potential for damage or contamination of construction materials; and</li> <li>Plan and stock construction materials carefully to minimise amount of waste generated and avoid unnecessary generation of waste.</li> </ul>		
10.5.1.5	7.1		<ul style="list-style-type: none"> <li>Inert and non-inert C&amp;D materials should be handled and stored separately to avoid mixing the two types of materials.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.5	7.1	-	<ul style="list-style-type: none"> <li>Any recyclable materials should be segregated from the non-inert C&amp;D materials for collection by reputable licensed recyclers whereas the non-recyclable waste materials should be disposed of at the designated landfill site by a reputable licensed waste collector.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.6	7.1	-	<ul style="list-style-type: none"> <li>A trip-ticket system promulgated shall be developed in order to monitor the off-site delivery of surplus inert C&amp;D materials that could not be reused on-site for the proposed land formation work at the PFRF and to control fly tipping.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.6	7.1	2.32	<ul style="list-style-type: none"> <li>The Contractor should prepare and implement a Waste Management Plan detailing various waste arising and waste management practices.</li> </ul>	Construction Phase	I
10.5.1.16	7.1	-	<p>The following mitigation measures are recommended during excavation and treatment of the sediments:</p> <ul style="list-style-type: none"> <li>On-site remediation should be carried out in an enclosed area in order to minimise odour/dust emissions;</li> <li>The loading, unloading, handling, transfer or storage of treated and untreated sediment should be carried out in such a manner to prevent or minimise dust emissions;</li> <li>All practical measures, including but not limited to speed control for vehicles, should be taken to minimise dust emission;</li> <li>Good housekeeping should be maintained at all times at the sediment treatment facility and storage area;</li> <li>Treated and untreated sediment should be clearly separated and stored separately; and</li> <li>Surface runoff from the enclosed area should be properly collected and stored separately, and then properly treated to levels in compliance with the relevant effluent standards as required by the Water Pollution Control Ordinance before final discharge.</li> </ul>	Project Site Area / Construction Phase	I I I I I
10.5.1.18	7.1	-	<p>The marine sediments to be removed from the cable field joint area would be disposed of at the designated disposal sites to be allocated by the MFC. The following mitigation measures should be strictly</p>	Project Site Area / Construction Phase	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<p>followed to minimise potential impacts on water quality during transportation of the sediments requiring Type 1 disposal:</p> <ul style="list-style-type: none"> <li>Bottom opening of barges shall be fitted with tight fitting seals to prevent leakage of material;</li> <li>Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by EPD; and</li> <li>Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.</li> </ul>		
10.5.1.19	7.1	-	<p>Contractor should register with the EPD as a chemical waste producer and to follow the relevant guidelines. The following measures should be implemented:</p> <ul style="list-style-type: none"> <li>Good quality containers compatible with the chemical wastes should be used;</li> <li>Incompatible chemicals should be stored separately;</li> <li>Appropriate labels must be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc.; and</li> <li>The contractor will use a licensed collector to transport and dispose of the chemical wastes at the approved Chemical Waste Treatment Centre or other licensed recycling facilities, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.20	7.1	-	<ul style="list-style-type: none"> <li>General refuse should be stored in enclosed bins or compaction units separated from inert C&amp;D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site for disposal at designated landfill sites. An enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material.</li> </ul>	Project Site Area / Construction Phase	I
10.5.1.21	7.1	-	<ul style="list-style-type: none"> <li>The construction contractors will be required to regularly check and clean any refuse trapped or accumulated along the newly constructed seawall. Such refuse will then be stored and disposed of together with the general refuse.</li> </ul>	Project Site Area / Construction Phase	I
<b>Land Contamination – Construction Phase</b>					
11.10.1.2 to 11.10.1.3	8.1	2.32	<p>For areas inaccessible during site reconnaissance survey</p> <ul style="list-style-type: none"> <li>Further site reconnaissance would be conducted once the areas are accessible in order to identify any land contamination concern for the areas.</li> </ul>	Project Site Area inaccessible during site reconnaissance / Prior to Construction Phase	I
			<ul style="list-style-type: none"> <li>Subject to further site reconnaissance findings, a supplementary Contamination Assessment Plan (CAP) for additional site investigation (SI) (if necessary) may be prepared and submitted to EPD for endorsement prior to the commencement of SI at these areas.</li> </ul>		I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>After completion of SI, the Contamination Assessment Report (CAR) will be prepared and submitted to EPD for approval prior to start of the proposed construction works at the golf course, the underground and above-ground fuel storage tank areas, emergency power generation units, airside petrol filling station and fuel tank room.</li> </ul>		I *(CAR for golf course and Terminal 2 Emergency Power Supply System No.1)
			<ul style="list-style-type: none"> <li>Should remediation be required, Remediation Action Plan (RAP) and Remediation Report (RR) will be prepared for EPD's approval prior to commencement of the proposed remediation and any construction works respectively.</li> </ul>		N/A
11.8.1.2	8.1	-	<p>If contaminated soil is identified, the following mitigation measures are for the excavation and transportation of contaminated materials (if any):</p> <ul style="list-style-type: none"> <li>To minimize the incidents of construction workers coming in contact with any contaminated materials, bulk earth-moving excavation equipment should be employed;</li> <li>Contact with contaminated materials can be minimised by wearing appropriate clothing and personal protective equipment such as gloves and masks (especially when working directly with contaminated material), provision of washing facilities and prohibition of smoking and eating on site;</li> <li>Stockpiling of contaminated excavated materials on site should be avoided as far as possible;</li> <li>The use of any contaminated soil for landscaping purpose should be avoided unless pre-treatment was carried out;</li> <li>Vehicles containing any excavated materials should be suitably covered to reduce dust emissions and/or release of contaminated wastewater;</li> <li>Truck bodies and tailgates should be sealed to prevent any discharge;</li> <li>Only licensed waste haulers should be used to collect and transport contaminated material to treatment/disposal site and should be equipped with tracking system to avoid fly tipping;</li> <li>Speed control for trucks carrying contaminated materials should be exercised. 8km/h is the recommended speed limit;</li> <li>Strictly observe all relevant regulations in relation to waste handling, such as Waste Disposal Ordinance (Cap 354), Waste Disposal (Chemical Waste) (General) Regulation (Cap 354) and obtain all necessary permits where required; and</li> <li>Maintain records of waste generation and disposal quantities and disposal arrangements.</li> </ul>	Project Site Area / Construction Phase	N/A
<b>Terrestrial Ecological – Construction Phase</b>					
12.10.1.1	9.2	2.14	<p><b>Pre-construction Egretty Survey</b></p> <ul style="list-style-type: none"> <li>Conduct ecological survey for Sha Chau egretty to update the latest boundary of the egretty.</li> </ul>	Breeding season (April - July) prior to commencement of	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
				HDD drilling works at HKIA	
12.7.2.3 and 12.7.2.6	9.1	2.30	<b>Avoidance and Minimisation of Direct Impact to Egret</b> <ul style="list-style-type: none"> <li>The daylighting location will avoid direct encroachment to the Sheung Sha Chau egret. The daylighting location and mooring of flat top barge, if required, will be kept away from the egret;</li> <li>In any event, controls such as demarcation of construction site boundary and confining the lighting within the site will be practised to minimise disturbance to off-site habitat at Sheung Sha Chau Island; and</li> <li>The containment pit at the daylighting location shall be covered or camouflaged.</li> </ul>	During construction phase at Sheung Sha Chau Island	
12.7.2.5	9.1	2.30	<b>Preservation of Nesting Vegetation</b> <ul style="list-style-type: none"> <li>The proposed daylighting location and the arrangement of connecting pipeline will avoid the need of tree cutting, therefore the trees that are used by ardeids for nesting will be preserved.</li> </ul>	During construction phase at Sheung Sha Chau Island	
12.7.2.4 and 12.7.2.6	9.1	2.30	<b>Timing the Pipe Connection Works outside Ardeid's Breeding Season</b> <ul style="list-style-type: none"> <li>All HDD and related construction works on Sheung Sha Chau Island will be scheduled outside the ardeids' breeding season (between April and July). No night-time construction work will be allowed on Sheung Sha Chau Island during all seasons.</li> </ul>	During construction phase at Sheung Sha Chau Island	
12.10.1.1	9.3	-	<b>Ecological Monitoring</b> <ul style="list-style-type: none"> <li>During the HDD construction works period from August to March, ecological monitoring will be undertaken monthly at the HDD daylighting location on Sheung Sha Chau Island to identify and evaluate any impacts with appropriate actions taken as required to address and minimise any adverse impact found.</li> </ul>	at Sheung Sha Chau Island	
<b>Marine Ecological Impact – Pre-construction Phase</b>					
13.11.4.1	10.2.2	-	<ul style="list-style-type: none"> <li>Pre-construction phase Coral Dive Survey.</li> </ul>	HKIAAA artificial seawall	
<b>Marine Ecological Impact – Construction Phase</b>					
13.11.1.3 to 13.11.1.6	-	-	<b>Minimisation of Land Formation Area</b> <ul style="list-style-type: none"> <li>Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for marine resources, especially the CWD population.</li> </ul>	Land formation footprint / during detailed design phase to completion of construction	
13.11.1.7 to 13.11.1.10	-	2.31	<b>Use of Construction Methods with Minimal Risk/Disturbance</b> <ul style="list-style-type: none"> <li>Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF;</li> </ul>	During construction phase at marine works area	

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on CWDs, fisheries and the marine environment;</li> </ul>		I
			<ul style="list-style-type: none"> <li>Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway;</li> </ul>		N/A
			<ul style="list-style-type: none"> <li>Avoid bored piling during CWD peak calving season (Mar to Jun);</li> </ul>		I
			<ul style="list-style-type: none"> <li>Prohibition of underwater percussive piling; and</li> </ul>		I
			<ul style="list-style-type: none"> <li>Use of horizontal directional drilling (HDD) method and water jetting methods for placement of submarine cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources.</li> </ul>		I
13.11.2.1 to 13.11.2.7	-	-	<p><b>Mitigation for Indirect Disturbance due to Deterioration of Water Quality</b></p> <ul style="list-style-type: none"> <li>Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices;</li> <li>Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains);</li> <li>Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and</li> </ul> <p>Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to the CWDs and other marine ecological resources.</p>	All works area during the construction phase	I
					I
					N/A
					I
13.11.1.12	-	-	<p><b>Strict Enforcement of No-Dumping Policy</b></p> <ul style="list-style-type: none"> <li>A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area;</li> <li>Mandatory educational programme of the no-dumping policy be made available to all construction site personnel for all project-related works;</li> <li>Fines for infractions should be implemented; and</li> <li>Unscheduled, on-site audits shall be implemented.</li> </ul>	All works area during the construction phase	I
13.11.1.13	-	-	<p><b>Good Construction Site Practices</b></p> <ul style="list-style-type: none"> <li>Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines;</li> <li>Keep the number of working or stationary vessels present on-site to the minimum anytime; and</li> <li>Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators.</li> </ul>	All works area during the construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
13.11.1.3 to 13.11.1.6	-	-	<b>Minimisation of Land Formation Area</b> <ul style="list-style-type: none"> <li>Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for marine resources, especially the CWD population.</li> </ul>	Land formation footprint / during detailed design phase to completion of construction	I
13.11.5.4 to 13.11.5.13	10.3.1	-	<b>SkyPier High Speed Ferries' Speed Restrictions and Route Diversions</b> <ul style="list-style-type: none"> <li>SkyPier HSFs operating to / from Zhuhai and Macau would divert north of SCLKC Marine Park with a 15 knot speed limit to apply for the part-journeys that cross high CWD abundance grid squares as indicatively shown in <b>Drawing No. MCL/P132/EIA/13-023</b> of the EIA Report. Both the alignment of the northerly route and the portion of routings to be subject to the speed limit of 15 knots shall be finalised prior to commencement of construction based on the future review of up-to-date CWD abundance and EM&amp;A data and taking reference to changes in total SkyPier HSF numbers; and</li> <li>A maximum of 10 knots will be enforced through the designated SCLKC Marine Park area at all times.</li> </ul> <b>Other mitigation measures</b> <ul style="list-style-type: none"> <li>The ET will audit various parameters including actual daily numbers of HSFs, compliance with the 15-knot speed limit in the speed control zone and diversion compliance for SkyPier HSFs operating to / from Zhuhai and Macau; and</li> <li>The effectiveness of the CWD mitigation measures after implementation of initial six month SkyPier HSF diversion and speed restriction will be reviewed.</li> </ul>	Area between the footprint and SCLKC Marine Park during construction phase	I
13.11.5.14 to 13.11.5.18	10.3.1	2.31	<b>Dolphin Exclusion Zone</b> <ul style="list-style-type: none"> <li>Establishment of a 24 hr Dolphin Exclusion Zone (DEZ) with a 250 m radius around the land formation works areas;</li> <li>A DEZ would also be implemented during ground improvement works (e.g. DCM), water jetting works for submarine cables diversion, open trench dredging at the field joint locations and seawall construction; and</li> <li>A DEZ would also be implemented during bored piling work but as a precautionary measure only.</li> </ul>	Marine waters around land formation works area during construction phase	I  I  N/A
13.11.5.19	10.4	2.31	<b>Acoustic Decoupling of Construction Equipment</b> <ul style="list-style-type: none"> <li>Air compressors and other noisy equipment that must be mounted on steel barges should be acoustically-decoupled to the greatest extent feasible, for instance by using rubber or air-filled tyres; and</li> <li>Specific acoustic decoupling measures shall be specified during the detailed design of the project for use during the land formation works.</li> </ul>	Around coastal works area during construction phase	I
13.11.5.20	10.6.1	2.29	<b>Spill Response Plan</b>	Construction phase	I

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
			<ul style="list-style-type: none"> <li>An oil and hazardous chemical spill response plan is proposed to be established during the construction phase as a precautionary measure so that appropriate actions to prevent or reduce risks to CWDs can be undertaken in the event of an accidental spillage.</li> </ul>		
13.11.5.21 to 13.11.5.23	10.6.1	-	<p><b>Construction Vessel Speed Limits and Skipper Training</b></p> <ul style="list-style-type: none"> <li>A speed limit of 10 knots should be strictly observed for construction vessels at areas with the highest CWD densities; and</li> <li>Vessels traversing through the work areas should be required to use predefined and regular routes (which would presumably become known to resident dolphins) to reduce disturbance to cetaceans due to vessel movements. Specific marine routes shall be specified by the Contractor prior to construction commencing.</li> </ul>	All areas north and west of Lantau Island during construction phase	
<b>Fisheries Impact – Construction Phase</b>					
14.9.1.2 to 14.9.1.5	-	-	<p><b>Minimisation of Land Formation Area</b></p> <ul style="list-style-type: none"> <li>Minimise the overall size of the land formation needed for the additional facilities to minimise the overall loss of habitat for fisheries resources.</li> </ul>	Land formation footprint / during detailed design phase to completion of construction	
14.9.1.6	-	-	<p><b>Use of Construction Methods with Minimal Risk/Disturbance</b></p> <ul style="list-style-type: none"> <li>Use of non-dredge method for the main land formation and ancillary works including the diversion of the aviation fuel pipeline to the AFRF;</li> </ul>	During construction phase at marine works area	
			<ul style="list-style-type: none"> <li>Use of Deep Cement Mixing (DCM) method instead of conventional seabed dredging for the land formation works to reduce the risk of negative impacts through the elevation of suspended solids and contaminants on fisheries and the marine environment;</li> </ul>		
			<ul style="list-style-type: none"> <li>Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and</li> </ul>		N/A
			<ul style="list-style-type: none"> <li>Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources.</li> </ul>		
14.9.1.11	-	-	<p><b>Strict Enforcement of No-Dumping Policy</b></p> <ul style="list-style-type: none"> <li>A policy prohibiting dumping of wastes, chemicals, oil, trash, plastic, or any other substance that would potentially be harmful to dolphins and/or their habitat in the work area;</li> <li>Mandatory educational programme of the no-dumping policy be made available to all construction site personnel for all project-related works;</li> <li>Fines for infractions should be implemented; and</li> <li>Unscheduled, on-site audits shall be implemented.</li> </ul>	All works area during the construction phase	

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
14.9.1.12	-		<b>Good Construction Site Practices</b> <ul style="list-style-type: none"> <li>Regular inspection of the integrity and effectiveness of all silt curtains and monitoring of effluents to ensure that any discharge meets effluent discharge guidelines;</li> <li>Keep the number of working or stationary vessels present on-site to the minimum anytime; and</li> <li>Unscheduled, on-site audits for all good site practice restrictions should be conducted, and fines or penalties sufficient to be an effective deterrent need to be levied against violators.</li> </ul>	All works area during the construction phase	
14.9.1.13 to 14.9.1.18	-		<b>Mitigation for Indirect Disturbance due to Deterioration of Water Quality</b> <ul style="list-style-type: none"> <li>Water quality mitigation measures during construction phases include consideration of alternative construction methods, deployment of silt curtain and good site practices;</li> <li>Alternative construction methods including use of non-dredge methods for ground improvement (e.g. Deep Cement Mixing (DCM), prefabricated vertical drains (PVD), sand compaction piles, steel cells, stone columns and vertical sand drains);</li> <li>Use of bored piling in short duration to form the new approach lights and marker beacons for the new runway; and</li> <li>Use of horizontal directional drilling (HDD) method and water jetting methods for placement of undersea cables and pipelines to minimise the disturbance to fisheries resources.</li> </ul>	All works area during the construction phase	
<b>Landscape and Visual Impact – Construction Phase</b>					
Table 15.6	12.3	-	<b>CM1</b> - The construction area and contractor’s temporary works areas should be minimised to avoid impacts on adjacent landscape.	All works areas for duration of works; Upon handover and completion of works.	
Table 15.6	12.3	-	<b>CM2</b> - Reduction of construction period to practical minimum.	All works areas for duration of works; Upon handover and completion of works.	
Table 15.6	12.3	-	<b>CM3</b> - Phasing of the construction stage to reduce visual impacts during the construction phase.	All works areas for duration of works; Upon handover and completion of works.	
Table 15.6	12.3	-	<b>CM4</b> - Construction traffic (land and sea) including construction plants, construction vessels and barges should be kept to a practical minimum.	All works areas for duration of works; Upon handover and completion of works.	

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
Table 15.6	12.3	-	<b>CM5</b> - Erection of decorative mesh screens or construction hoardings around works areas in visually unobtrusive colours.	All works areas for duration of works; Upon handover and completion of works. – may be disassembled in phases	I
Table 15.6	12.3	-	<b>CM6</b> - Avoidance of excessive height and bulk of site buildings and structures.	New passenger concourse, terminal 2 expansion and other proposed airport related buildings and structures under the project; Upon handover and completion of works.	N/A
Table 15.6	12.3	-	<b>CM7</b> - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	All works areas for duration of works; Upon handover and completion of works. – may be disassembled in phases	I
Table 15.6	12.3	-	<b>CM8</b> - All existing trees 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.	All existing trees to be retained; Upon handover and completion of works.	I
Table 15.6	12.3	-	<b>CM9</b> - Trees unavoidably affected by the works shall be transplanted where practical. 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.	All existing trees to be affected by the works; Upon handover and completion of works.	I
Table 15.6	12.3	-	<b>CM10</b> - Land formation works shall be followed with advanced hydroseeding around taxiways and runways as soon as practical.	All affected existing grass areas around runways and verges/Duration of works;	N/A

EIA Ref.	EM&A Ref.	EP Condition	Environmental Protection Measures	Location / Duration of measures Timing of completion of measures	Mitigation Measures Implemented?^
				Upon handover and completion of works.	
			<b>Cultural Heritage Impact – Construction Phase</b>		
			Not applicable.		
			<b>Health Impact – Aircraft Emissions</b>		
			Not applicable.		
			<b>Health Impact – Aircraft Noise</b>		
			Not applicable.		

Notes:

I= implemented where applicable;

N/A= not applicable to the construction works implemented during the reporting month.

^ Checked by ET through site inspection and record provided by the Contractor.

## **Appendix B. Monitoring Schedule**

# **Monitoring Schedule of This Reporting Period**

# Jul-20

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1	2 Site Inspection  WQ General & Regular DCM mid-ebb: 10:50 mid-flood: 17:47	3 Site Inspection	4  WQ General & Regular DCM mid-ebb: 12:23 mid-flood: 19:41
5	6 Site Inspection CWD Survey (Vessel) AR1A, AR2 NM1A, NM4, NM5, NM6	7 Site Inspection CWD Survey (Land-based)  WQ General & Regular DCM mid-ebb: 14:33 mid-flood: 07:27	8 Site Inspection CWD Survey (Vessel)	9 Site Inspection CWD Survey (Vessel)  WQ General & Regular DCM mid-ebb: 15:52 mid-flood: 08:51	10 Site Inspection CWD Survey (Vessel)	11  AR1A, AR2  WQ General & Regular DCM mid-ebb: 17:06 mid-flood: 10:24
12	13 Site Inspection CWD Survey (Vessel) NM4, NM6	14 Site Inspection  WQ General & Regular DCM mid-ebb: 08:36 mid-flood: 14:02	15 Site Inspection CWD Survey (Land-based)	16 Site Inspection  WQ General & Regular DCM mid-ebb: 10:15 mid-flood: 16:55	17 Site Inspection  AR1A, AR2 NM1A, NM5	18  WQ General & Regular DCM mid-ebb: 11:33 mid-flood: 18:40
19	20 Site Inspection CWD Survey (Vessel)	21 Site Inspection CWD Survey (Vessel)  WQ General & Regular DCM mid-ebb: 13:35 mid-flood: 06:25	22 Site Inspection CWD Survey (Vessel)	23 Site Inspection  AR1A, AR2 NM1A, NM4, NM5, NM6  WQ General & Regular DCM mid-ebb: 14:59 mid-flood: 07:59	24 Site Inspection	25  WQ General & Regular DCM mid-ebb: 16:27 mid-flood: 09:39
26	27 Site Inspection	28 Site Inspection  WQ General & Regular DCM mid-ebb: 07:18 mid-flood: 13:31	29 Site Inspection  AR1A, AR2 NM1A, NM4, NM5, NM6	30 Site Inspection  WQ General & Regular DCM mid-ebb: 09:37 mid-flood: 16:54	31 Site Inspection	
<p><b>Notes:</b></p> <p>CWD - Chinese White Dolphin</p> <p>Air quality and Noise Monitoring Station</p> <p>WQ - Water Quality DCM - Deep Cement Mixing</p> <p>NM1A/AR1A - Man Tung Road Park NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan</p>						

# **Tentative Monitoring Schedule of Next Reporting Period**

# Aug-20

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						<b>1</b>  WQ General & Regular DCM mid-ebb: 11:26 mid-flood: 18:54
<b>2</b>	<b>3</b> Site Inspection  NM4, NM6	<b>4</b> Site Inspection  AR1A, AR2 NM1A, NM5  WQ General & Regular DCM mid-ebb: 13:36 mid-flood: 06:36	<b>5</b> Site Inspection  CWD Survey (Vessel)	<b>6</b> Site Inspection  WQ General & Regular DCM mid-ebb: 14:49 mid-flood: 07:59	<b>7</b> Site Inspection	<b>8</b>  AR1A, AR2  WQ General & Regular DCM mid-ebb: 15:51 mid-flood: 09:20
<b>9</b>	<b>10</b> Site Inspection  CWD Survey (Vessel)	<b>11</b> Site Inspection  CWD Survey (Vessel)  WQ General & Regular DCM mid-ebb: 17:37 mid-flood: 11:56	<b>12</b> Site Inspection  CWD Survey (Vessel)	<b>13</b> Site Inspection  WQ General & Regular DCM mid-ebb: 08:18 mid-flood: 15:26	<b>14</b> Site Inspection  AR1A, AR2 NM1A, NM4, NM5, NM6	<b>15</b>  WQ General & Regular DCM mid-ebb: 10:16 mid-flood: 17:46
<b>16</b>	<b>17</b> Site Inspection  CWD Survey (Vessel, Land-based)	<b>18</b> Site Inspection  CWD Survey (Vessel)  WQ General & Regular DCM mid-ebb: 12:34 mid-flood: 05:29	<b>19</b> Site Inspection  CWD Survey (Vessel) NM4, NM6	<b>20</b> Site Inspection  CWD Survey (Land-based) AR1A, AR2 NM1A, NM5  WQ General & Regular DCM mid-ebb: 14:00 mid-flood: 07:09	<b>21</b> Site Inspection	<b>22</b>  WQ General & Regular DCM mid-ebb: 15:24 mid-flood: 08:48
<b>23</b>	<b>24</b> Site Inspection CWD Survey (Vessel)	<b>25</b> Site Inspection  WQ General & Regular DCM mid-ebb: 17:55 mid-flood: 12:03	<b>26</b> Site Inspection  AR1A, AR2 NM1A, NM4, NM5, NM6	<b>27</b> Site Inspection  WQ General & Regular DCM mid-ebb: 07:54 mid-flood: 15:44	<b>28</b> Site Inspection	<b>29</b>  WQ General & Regular DCM mid-ebb: 10:22 mid-flood: 18:05
<b>30</b>	<b>31</b>	<b>Notes:</b> CWD - Chinese White Dolphin  Air quality and Noise Monitoring Station  WQ - Water Quality DCM - Deep Cement Mixing  NM1A/AR1A - Man Tung Road Park NM4 - Ching Chung Hau Po Woon Primary School NM5/AR2 - Village House, Tin Sum NM6 - House No. 1, Sha Lo Wan				

## **Appendix C. Monitoring Results**

## **Air Quality Monitoring Results**

**1-hour TSP Results**

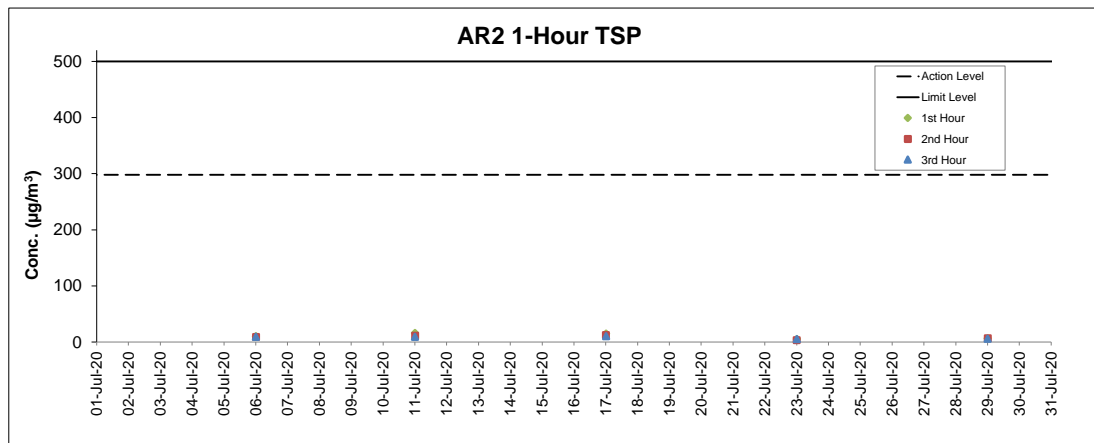
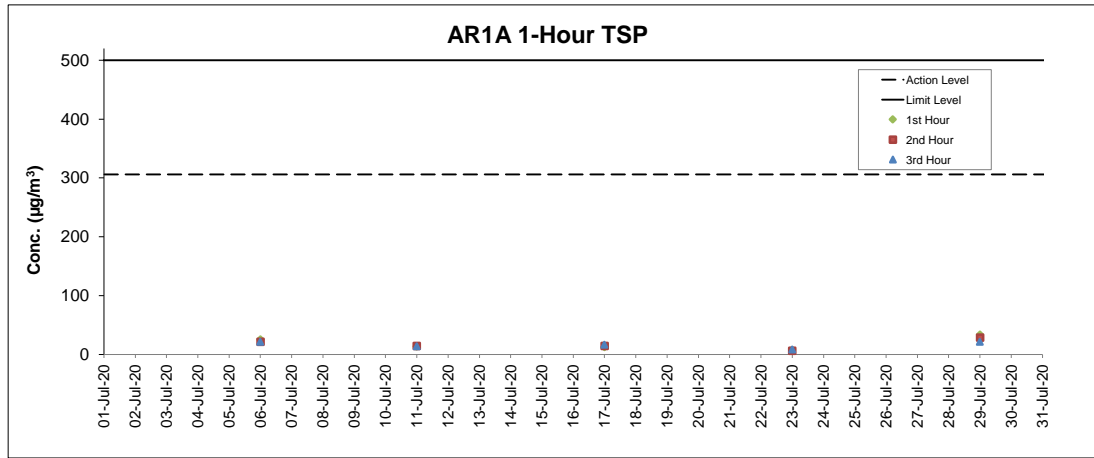
**Station: AR1A- Man Tung Road Park**

Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
06-Jul-20	13:20	Sunny	7.5	233	26	306	500
06-Jul-20	14:20	Sunny	7.8	227	22	306	500
06-Jul-20	15:20	Sunny	7.2	223	22	306	500
11-Jul-20	13:35	Sunny	6.1	200	14	306	500
11-Jul-20	14:35	Sunny	6.1	190	15	306	500
11-Jul-20	15:35	Sunny	6.7	198	14	306	500
17-Jul-20	14:09	Sunny	8.6	227	13	306	500
17-Jul-20	15:09	Sunny	6.4	205	15	306	500
17-Jul-20	16:09	Sunny	8.1	222	17	306	500
23-Jul-20	08:40	Sunny	1.7	27	8	306	500
23-Jul-20	09:40	Sunny	2.5	258	7	306	500
23-Jul-20	10:40	Sunny	1.7	280	9	306	500
29-Jul-20	13:03	Cloudy	2.2	255	34	306	500
29-Jul-20	14:03	Cloudy	2.2	variable	29	306	500
29-Jul-20	15:03	Cloudy	5.3	63	22	306	500

**1-hour TSP Results**

**Station: AR2- Village House, Tin Sum**

Date	Time	Weather	Wind Speed (m/s)	Wind Direction (deg)	1-hr TSP ( $\mu\text{g}/\text{m}^3$ )	Action Level ( $\mu\text{g}/\text{m}^3$ )	Limit Level ( $\mu\text{g}/\text{m}^3$ )
06-Jul-20	09:46	Sunny	5.0	228	10	298	500
06-Jul-20	10:46	Sunny	6.7	226	9	298	500
06-Jul-20	11:46	Sunny	6.4	223	9	298	500
11-Jul-20	09:49	Sunny	6.7	183	16	298	500
11-Jul-20	10:49	Sunny	6.7	201	11	298	500
11-Jul-20	11:49	Sunny	6.1	221	9	298	500
17-Jul-20	09:35	Sunny	5.8	202	15	298	500
17-Jul-20	10:35	Sunny	5.8	205	12	298	500
17-Jul-20	11:35	Sunny	5.0	225	10	298	500
23-Jul-20	13:15	Sunny	6.1	255	5	298	500
23-Jul-20	14:15	Sunny	6.1	247	3	298	500
23-Jul-20	15:17	Sunny	4.4	262	5	298	500
29-Jul-20	09:19	Sunny	2.2	281	6	298	500
29-Jul-20	10:19	Sunny	3.3	305	6	298	500
29-Jul-20	11:19	Sunny	2.8	291	6	298	500



**Notes**

1. Major site activities carried out during the reporting period are summarized in Section 1.4 of the monthly EM&A report.
2. Weather conditions during monitoring are presented in the data tables above.
3. QA/QC requirements as stipulated in the EM&A Manual were carried out during measurement.

## Noise Monitoring Results

### Noise Measurement Results

#### Station: NM1A- Man Tung Road Park

Date	Weather	Time	Measured L <sub>10</sub> dB(A)	Measured L <sub>90</sub> dB(A)	L <sub>eq(30mins)</sub> dB(A)
06-Jul-20	Sunny	15:25	69.5	51.0	71
06-Jul-20	Sunny	15:30	70.3	52.8	
06-Jul-20	Sunny	15:35	71.2	54.9	
06-Jul-20	Sunny	15:40	71.9	52.2	
06-Jul-20	Sunny	15:45	72.1	53.5	
06-Jul-20	Sunny	15:50	68.5	53.8	
17-Jul-20	Sunny	15:12	74.1	51.2	73
17-Jul-20	Sunny	15:17	71.7	50.9	
17-Jul-20	Sunny	15:22	70.5	52.2	
17-Jul-20	Sunny	15:27	73.8	65.7	
17-Jul-20	Sunny	15:32	73.7	61.9	
17-Jul-20	Sunny	15:37	71.7	54.9	
23-Jul-20	Sunny	14:18	68.4	61.4	67
23-Jul-20	Sunny	14:23	62.9	55.3	
23-Jul-20	Sunny	14:28	62.1	57.3	
23-Jul-20	Sunny	14:33	61.8	56.6	
23-Jul-20	Sunny	14:38	68.4	60.6	
23-Jul-20	Sunny	14:43	68.3	62.2	
29-Jul-20	Cloudy	13:31	69.4	50.9	70
29-Jul-20	Cloudy	13:36	69.9	51.9	
29-Jul-20	Cloudy	13:41	70.3	51.4	
29-Jul-20	Cloudy	13:46	72.0	54.1	
29-Jul-20	Cloudy	13:51	68.3	57.0	
29-Jul-20	Cloudy	13:56	70.5	64.7	

Remarks:

+3dB (A) correction was applied to free-field measurement.

### Noise Measurement Results

#### Station: NM4- Ching Chung Hau Po Woon Primary School

Date	Weather	Time	Measured L <sub>10</sub> dB(A)	Measured L <sub>90</sub> dB(A)	L <sub>eq(30mins)</sub> dB(A)
06-Jul-20	Sunny	13:41	63.9	57.9	63
06-Jul-20	Sunny	13:46	60.6	55.6	
06-Jul-20	Sunny	13:51	59.0	54.9	
06-Jul-20	Sunny	13:56	64.3	56.4	
06-Jul-20	Sunny	14:01	62.4	56.6	
06-Jul-20	Sunny	14:06	61.4	57.3	
13-Jul-20	Sunny	10:57	61.9	55.2	61
13-Jul-20	Sunny	11:02	59.8	55.7	
13-Jul-20	Sunny	11:07	62.7	55.4	
13-Jul-20	Sunny	11:12	59.2	55.3	
13-Jul-20	Sunny	11:17	59.9	55.9	
13-Jul-20	Sunny	11:22	60.5	55.7	
23-Jul-20	Sunny	13:01	61.1	56.9	64
23-Jul-20	Sunny	13:06	62.0	57.3	
23-Jul-20	Sunny	13:11	61.9	57.4	
23-Jul-20	Sunny	13:16	63.6	59.1	
23-Jul-20	Sunny	13:21	63.6	58.0	
23-Jul-20	Sunny	13:26	60.9	57.6	
29-Jul-20	Cloudy	14:20	62.5	56.3	64
29-Jul-20	Cloudy	14:25	63.1	56.7	
29-Jul-20	Cloudy	14:30	61.3	57.0	
29-Jul-20	Cloudy	14:35	66.9	57.5	
29-Jul-20	Cloudy	14:40	73.8	57.2	
29-Jul-20	Cloudy	14:45	70.2	58.6	

Remarks:

+3dB (A) correction was applied to free-field measurement.

### Noise Measurement Results

#### Station: NM5- Village House, Tin Sum

Date	Weather	Time	Measured L <sub>10</sub> dB(A)	Measured L <sub>50</sub> dB(A)	L <sub>eq(30mins)</sub> dB(A)
06-Jul-20	Sunny	10:34	58.9	54.7	61
06-Jul-20	Sunny	10:39	56.5	54.1	
06-Jul-20	Sunny	10:44	59.6	54.7	
06-Jul-20	Sunny	10:49	67.0	55.4	
06-Jul-20	Sunny	10:54	55.8	53.1	
06-Jul-20	Sunny	10:59	64.6	53.5	
17-Jul-20	Sunny	9:38	49.3	43.1	53
17-Jul-20	Sunny	9:43	59.1	41.1	
17-Jul-20	Sunny	9:48	50.3	41.5	
17-Jul-20	Sunny	9:53	55.9	41.2	
17-Jul-20	Sunny	9:58	46.6	41.5	
17-Jul-20	Sunny	10:03	44.9	41.2	
23-Jul-20	Sunny	13:19	54.9	51.3	59
23-Jul-20	Sunny	13:24	54.2	51.5	
23-Jul-20	Sunny	13:29	62.1	52.3	
23-Jul-20	Sunny	13:34	62.9	51.6	
23-Jul-20	Sunny	13:39	61.4	51.9	
23-Jul-20	Sunny	13:44	55.3	51.4	
29-Jul-20	Cloudy	9:19	51.8	45.0	55
29-Jul-20	Cloudy	9:24	49.9	46.1	
29-Jul-20	Cloudy	9:29	51.2	46.0	
29-Jul-20	Cloudy	9:34	53.7	45.8	
29-Jul-20	Cloudy	9:39	60.7	45.2	
29-Jul-20	Cloudy	9:44	49.3	45.9	

Remarks:

+3dB (A) correction was applied to free-field measurement.

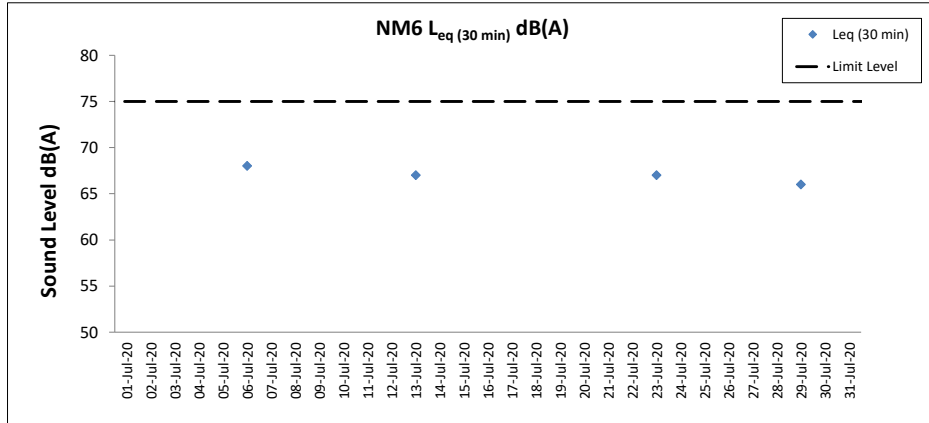
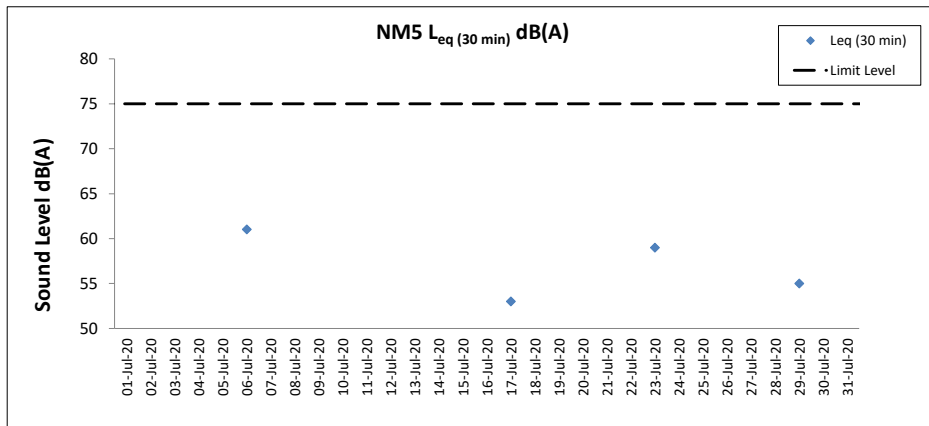
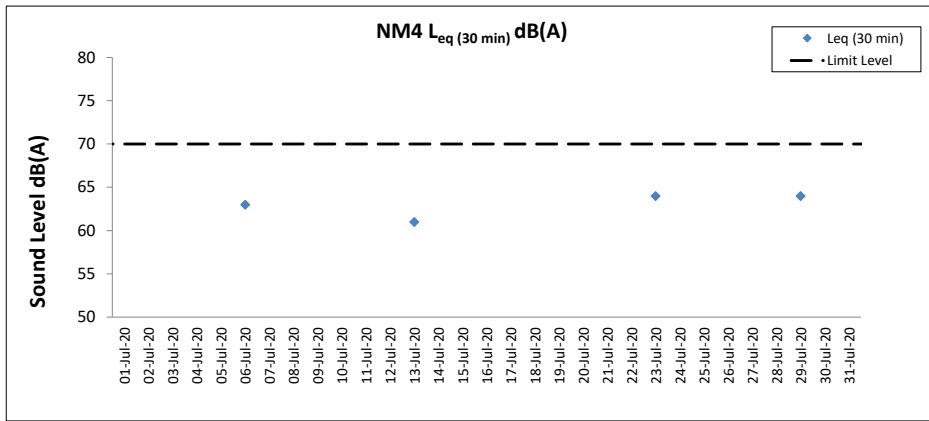
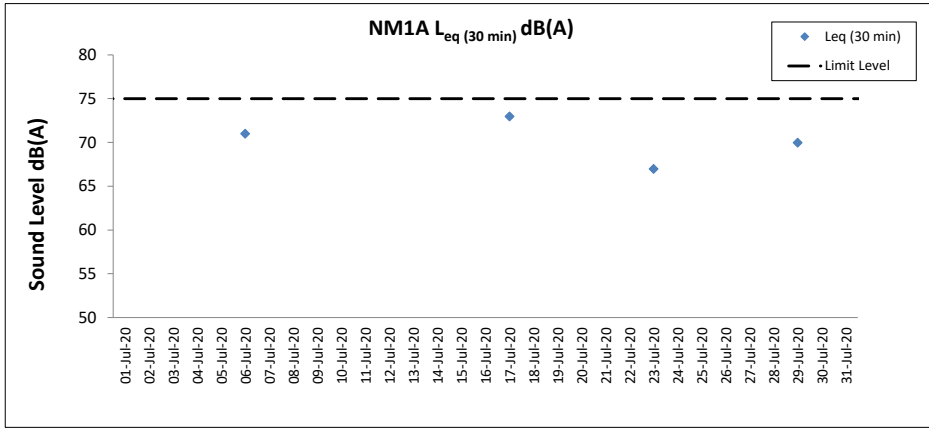
### Noise Measurement Results

#### Station: NM6- House No.1 Sha Lo Wan

Date	Weather	Time	Measured L <sub>10</sub> dB(A)	Measured L <sub>50</sub> dB(A)	L <sub>eq(30mins)</sub> dB(A)
06-Jul-20	Sunny	15:46	71.3	55.2	68
06-Jul-20	Sunny	15:51	73.6	53.0	
06-Jul-20	Sunny	15:56	67.2	54.3	
06-Jul-20	Sunny	16:01	69.3	54.5	
06-Jul-20	Sunny	16:06	72.7	54.7	
06-Jul-20	Sunny	16:11	67.2	52.7	
13-Jul-20	Sunny	9:38	64.5	47.6	67
13-Jul-20	Sunny	9:43	70.6	48.7	
13-Jul-20	Sunny	9:48	53.9	44.1	
13-Jul-20	Sunny	9:53	60.2	45.1	
13-Jul-20	Sunny	9:58	63.1	45.3	
13-Jul-20	Sunny	10:03	55.9	47.0	
23-Jul-20	Sunny	15:47	71.3	57.4	67
23-Jul-20	Sunny	15:52	62.8	54.9	
23-Jul-20	Sunny	15:57	67.1	54.8	
23-Jul-20	Sunny	16:02	70.1	54.4	
23-Jul-20	Sunny	16:07	66.9	55.8	
23-Jul-20	Sunny	16:12	65.3	55.6	
29-Jul-20	Cloudy	15:45	66.7	55.9	66
29-Jul-20	Cloudy	15:50	67.7	57.5	
29-Jul-20	Cloudy	15:55	65.2	56.0	
29-Jul-20	Cloudy	16:00	67.0	52.8	
29-Jul-20	Cloudy	16:05	65.8	53.8	
29-Jul-20	Cloudy	16:10	67.3	51.3	

Remarks:

+3dB (A) correction was applied to free-field measurement.



**Notes**

1. Major site activities carried out during the reporting period are summarized in Section 1.4 of the monthly EM&A report.
2. Weather conditions during monitoring are presented in the data tables above.
3. QA/QC requirements as stipulated in the EM&A Manual were carried out during measurement.

## **Water Quality Monitoring Results**

































































































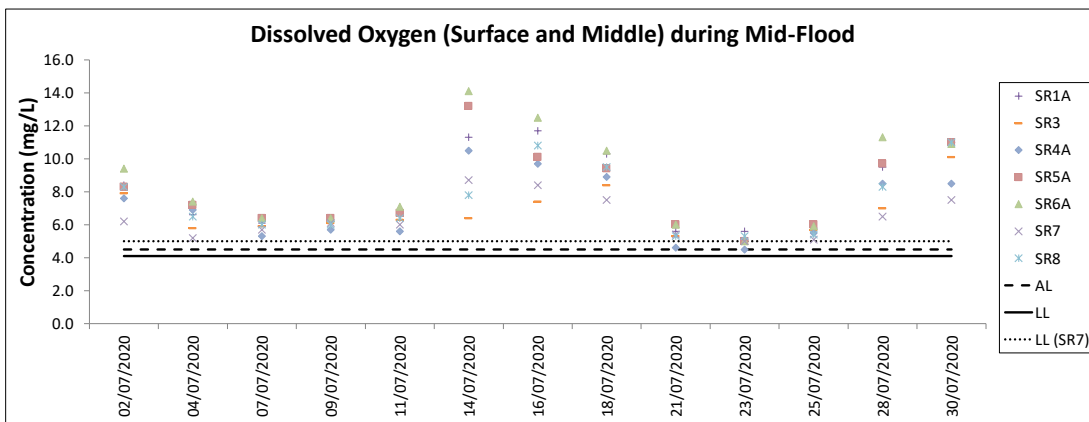
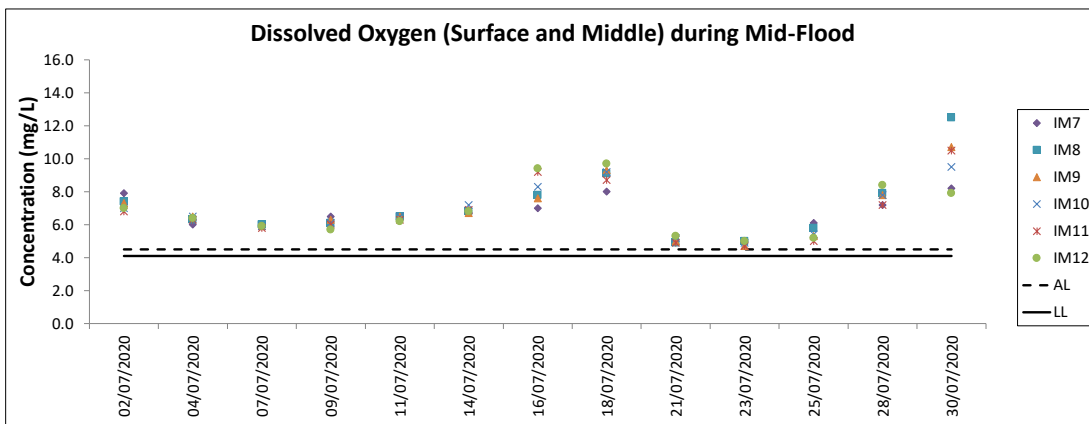
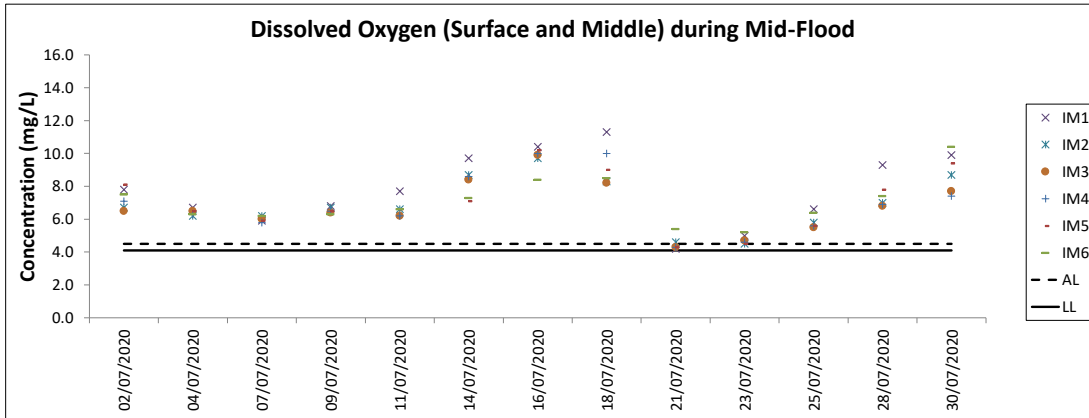
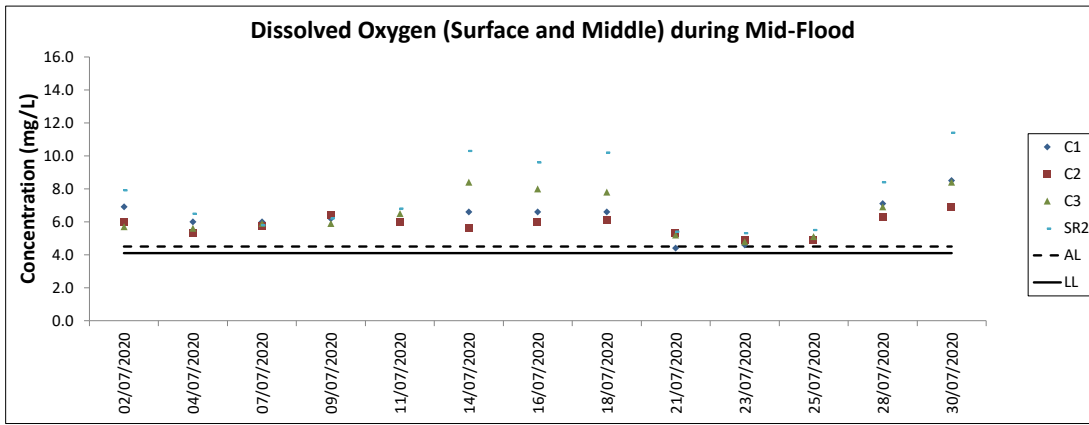




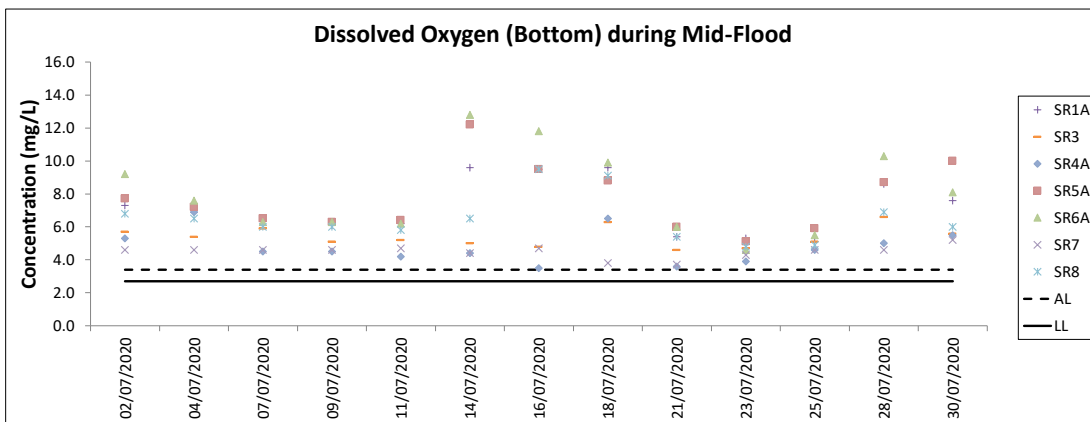
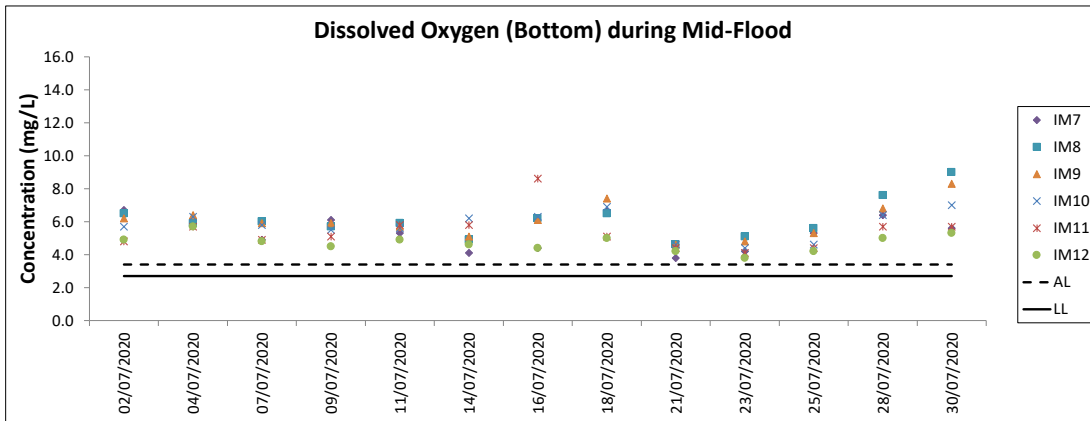
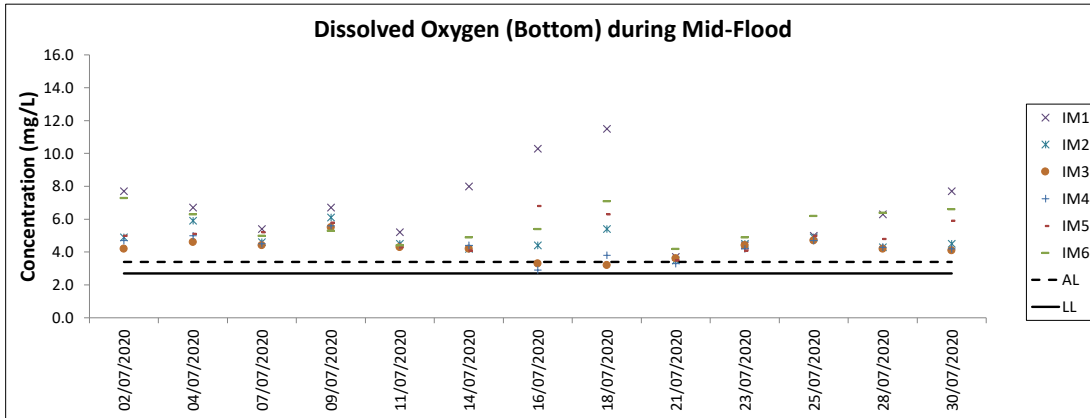
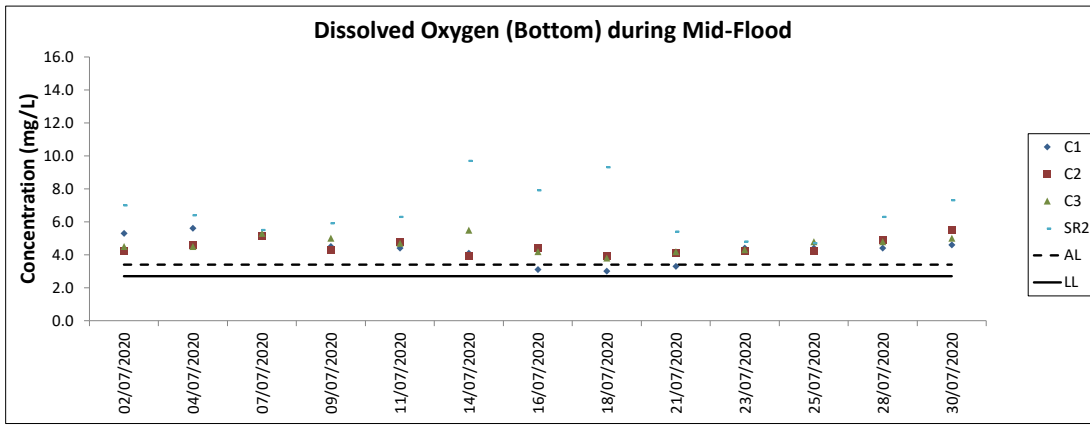


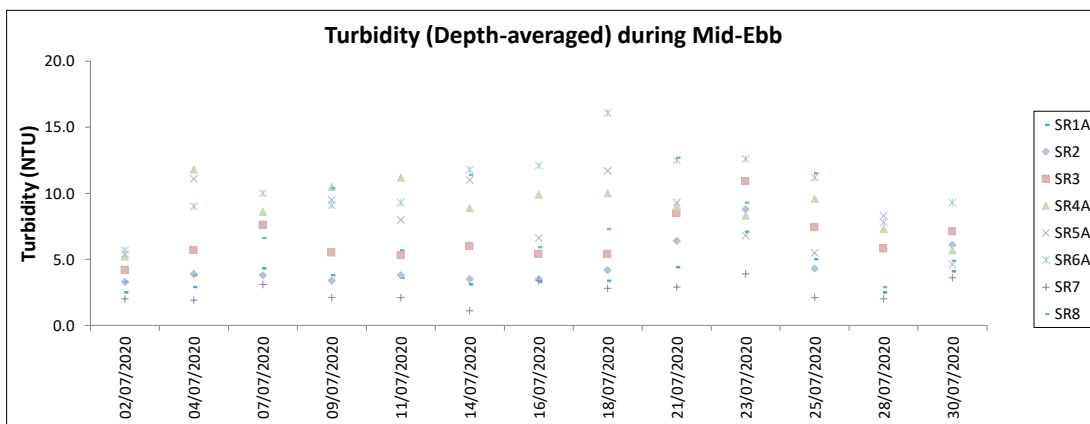
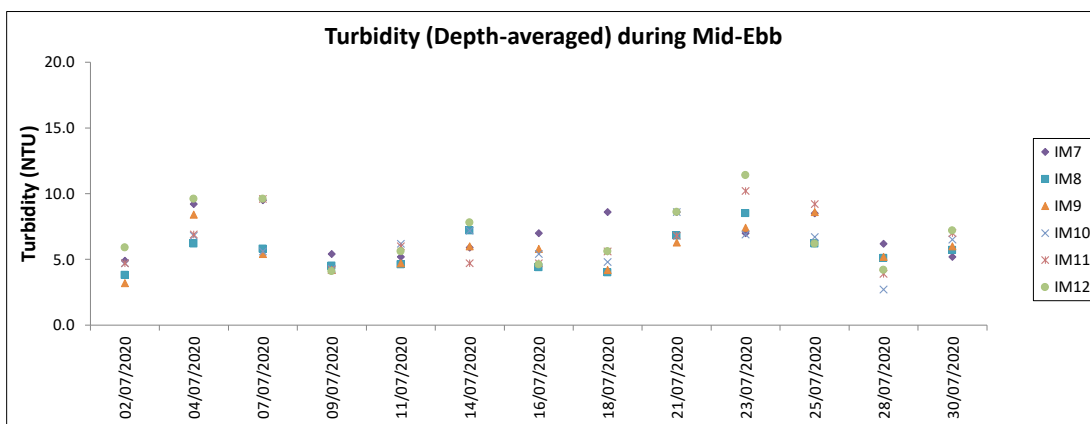
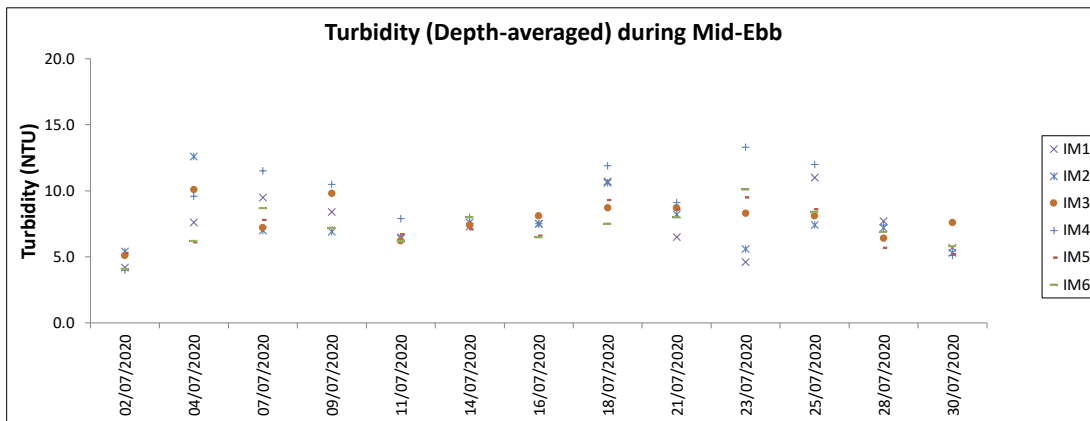
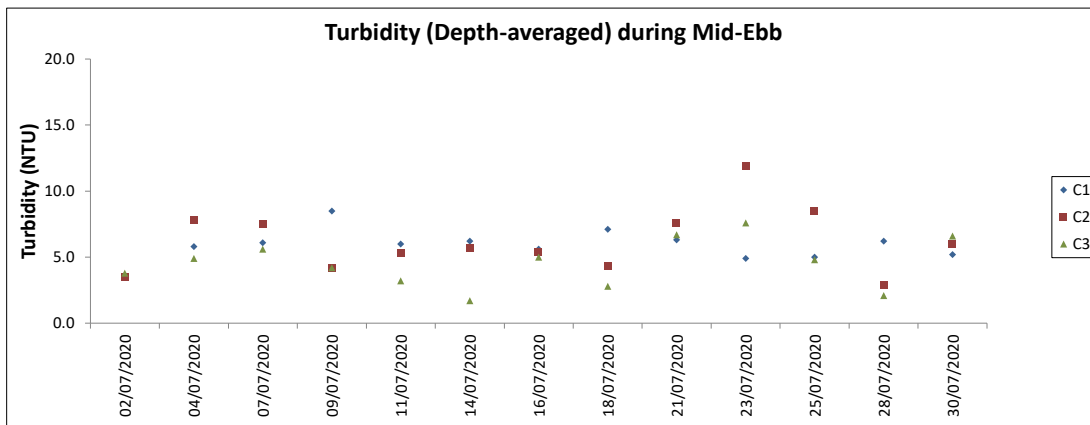




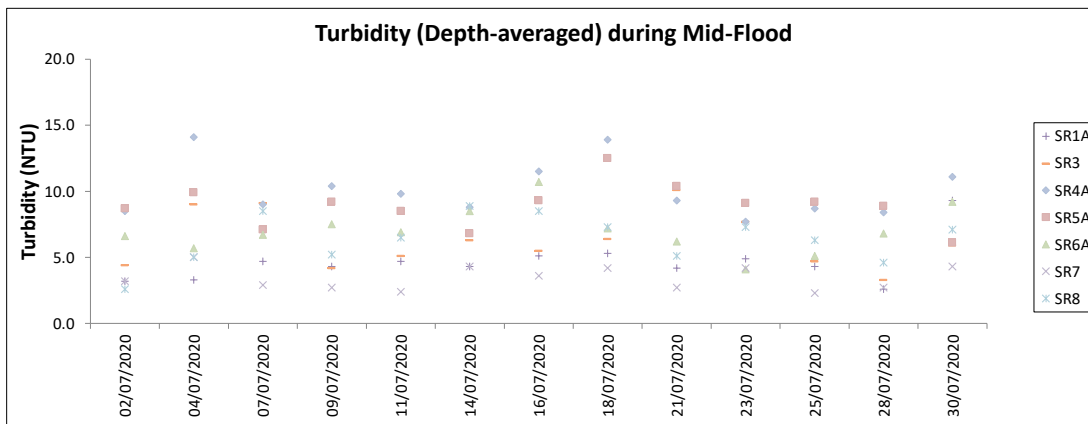
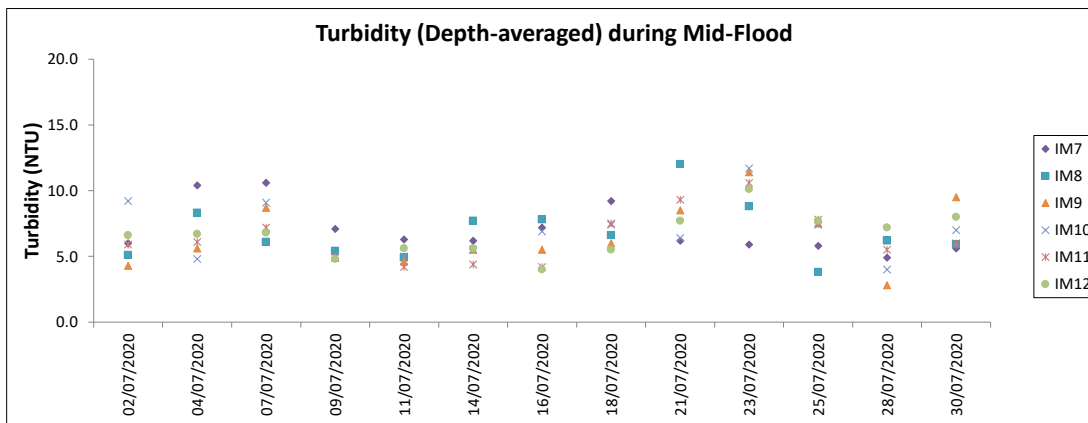
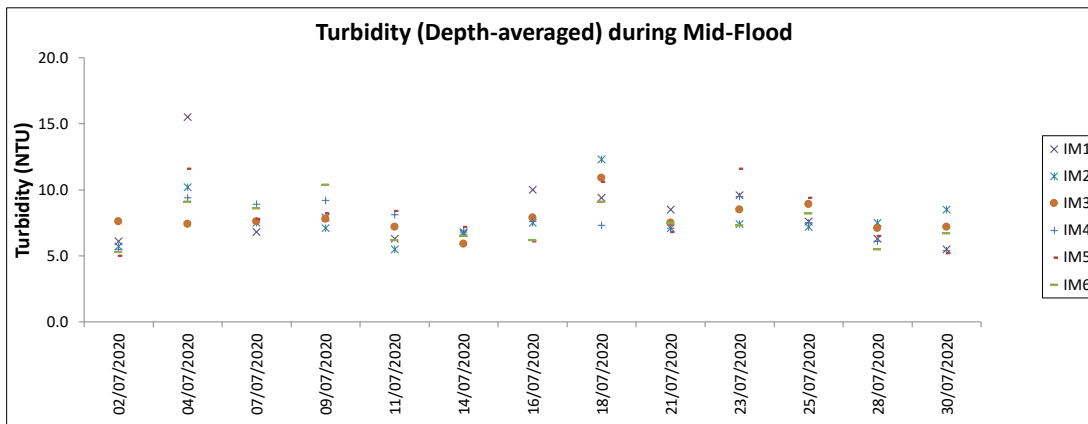
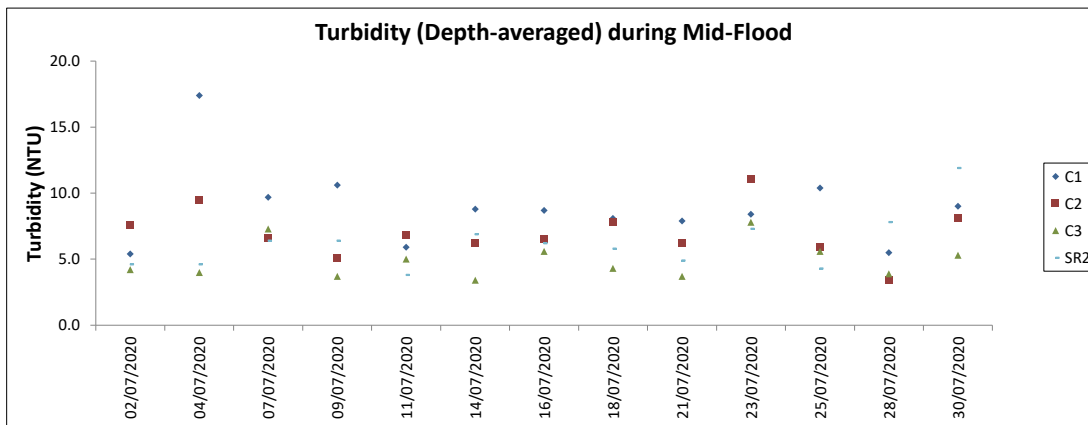




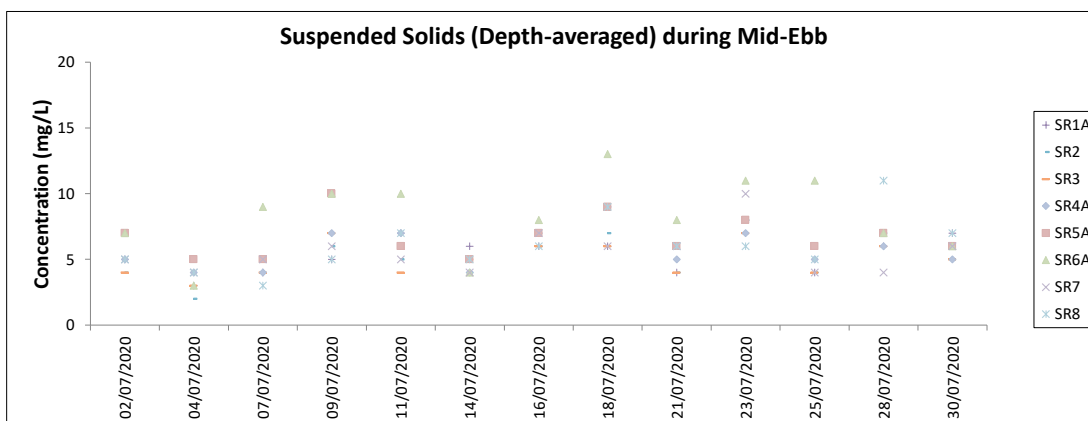
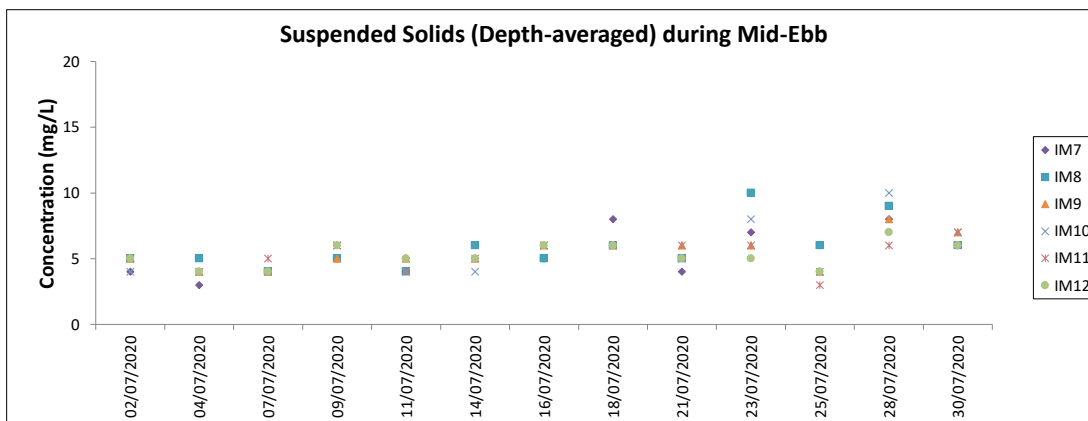
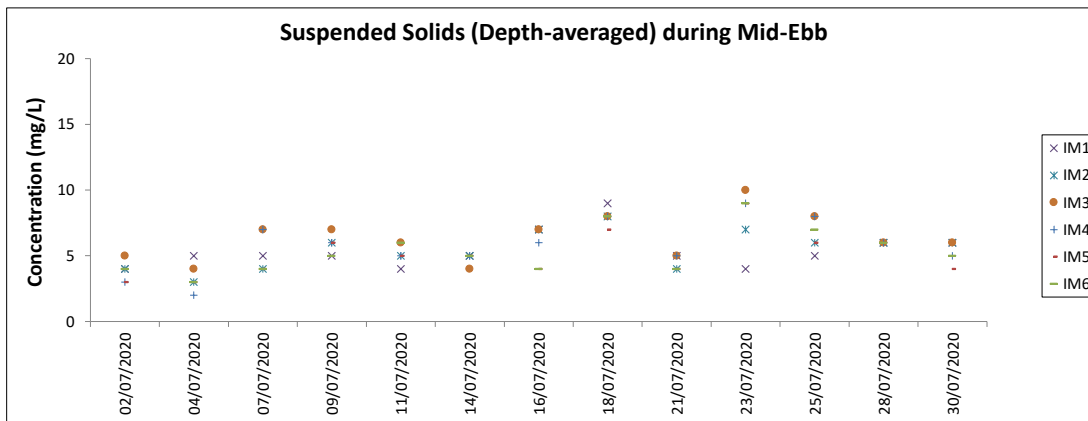
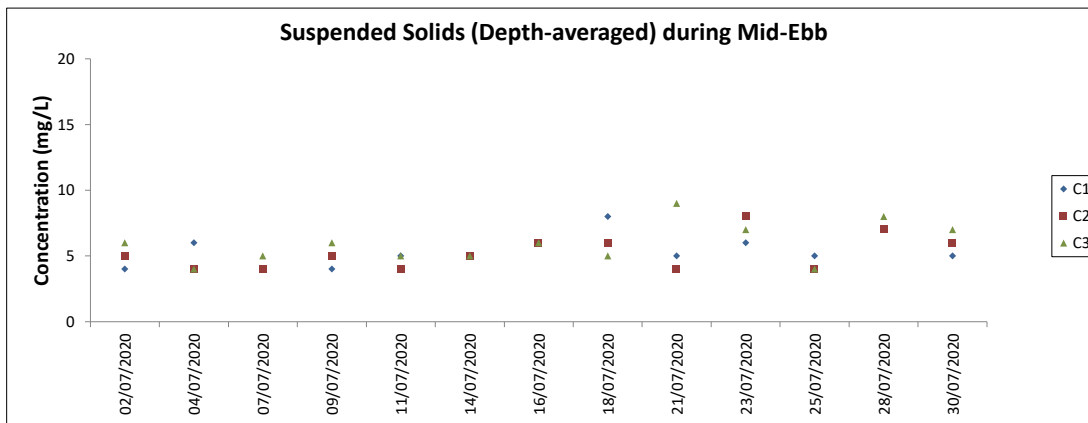




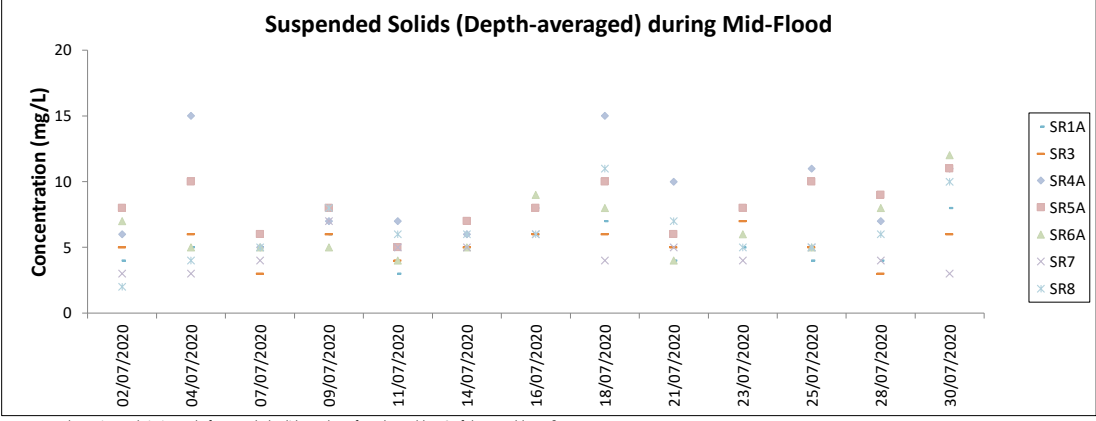
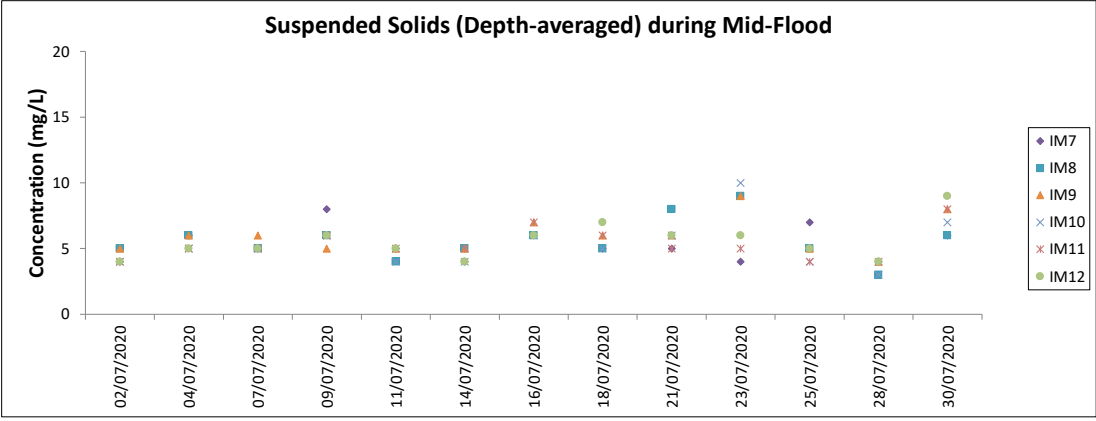
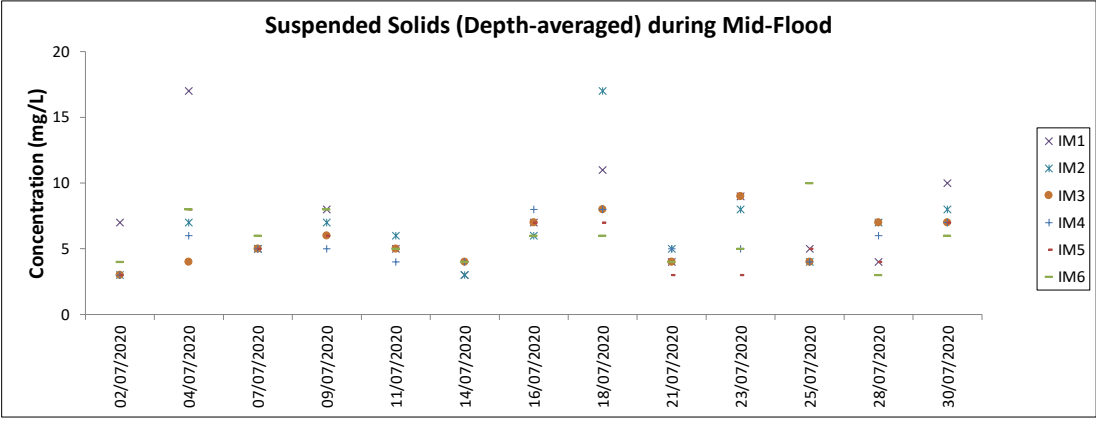
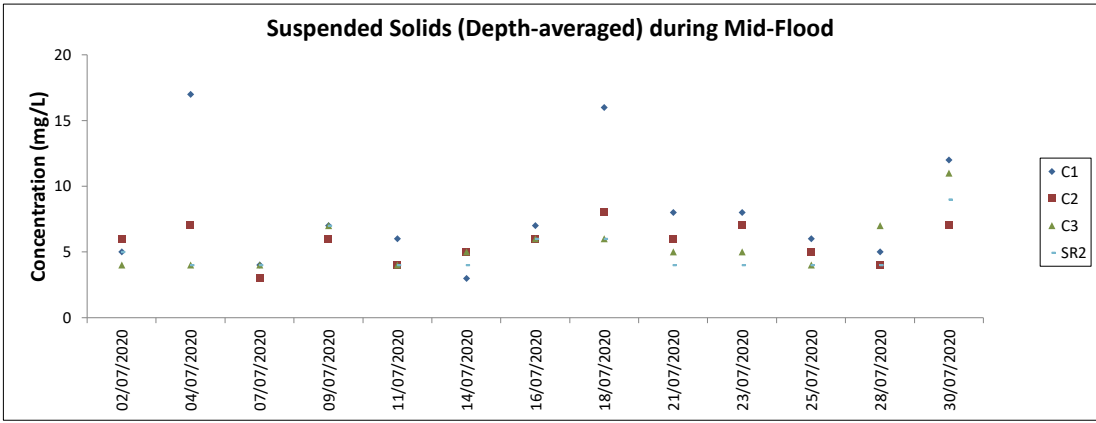
Note: The Action and Limit Level of turbidity can be referred to Table 4.2 of the monthly EM&A report.



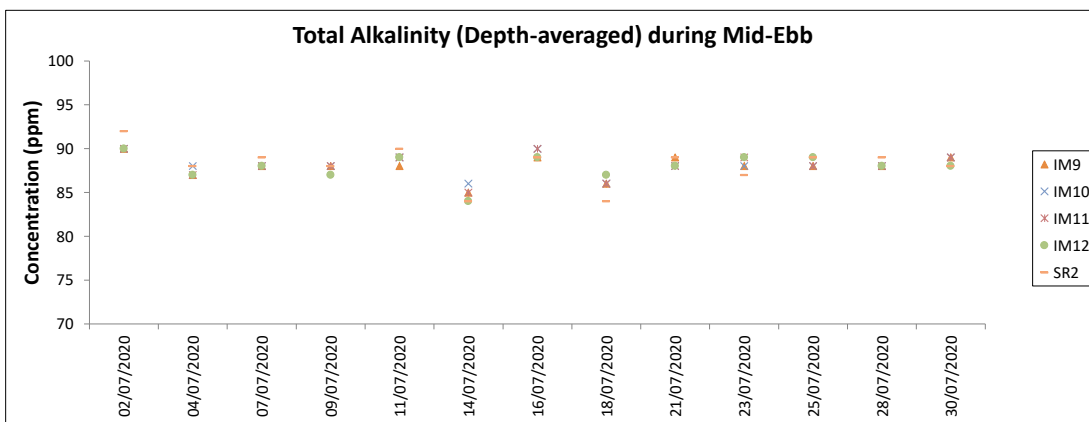
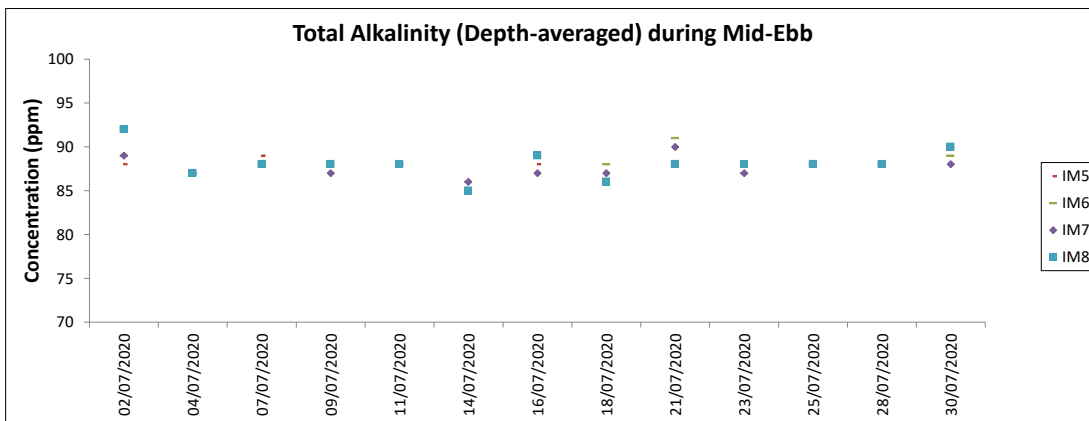
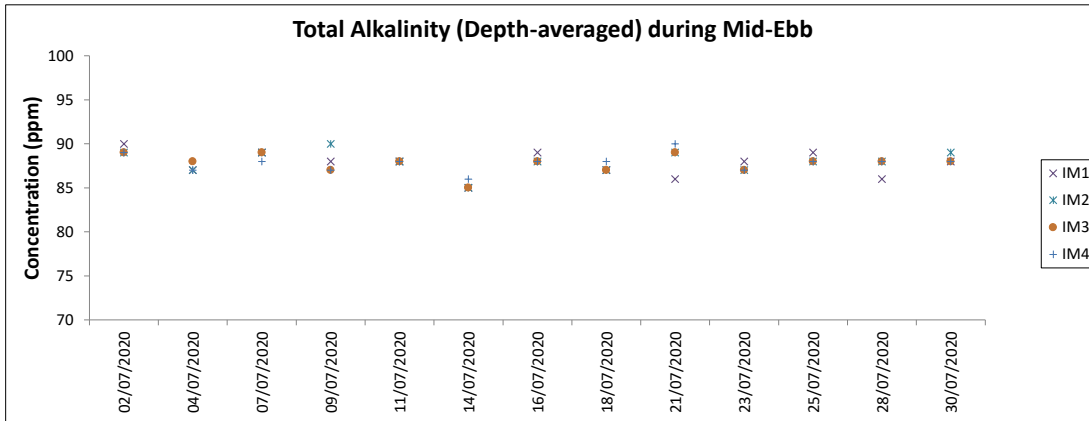
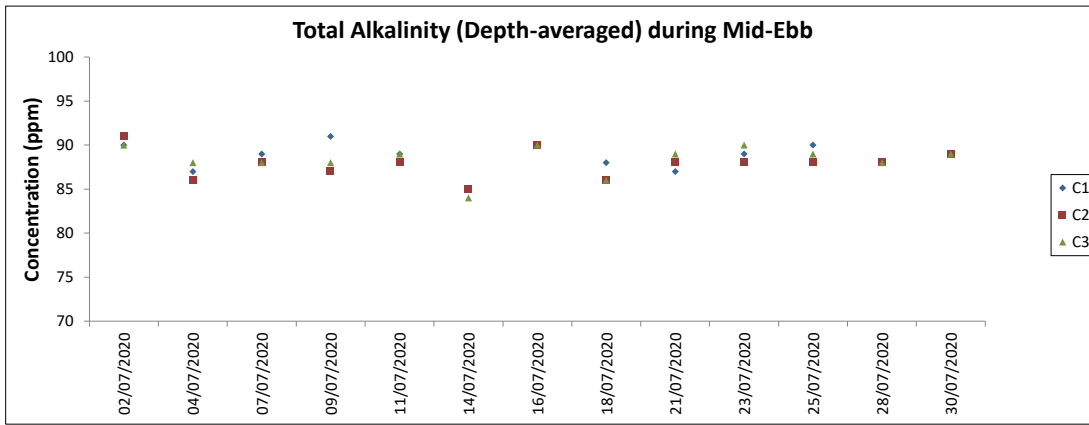
Note: The Action and Limit Level of turbidity can be referred to Table 4.2 of the monthly EM&A report.



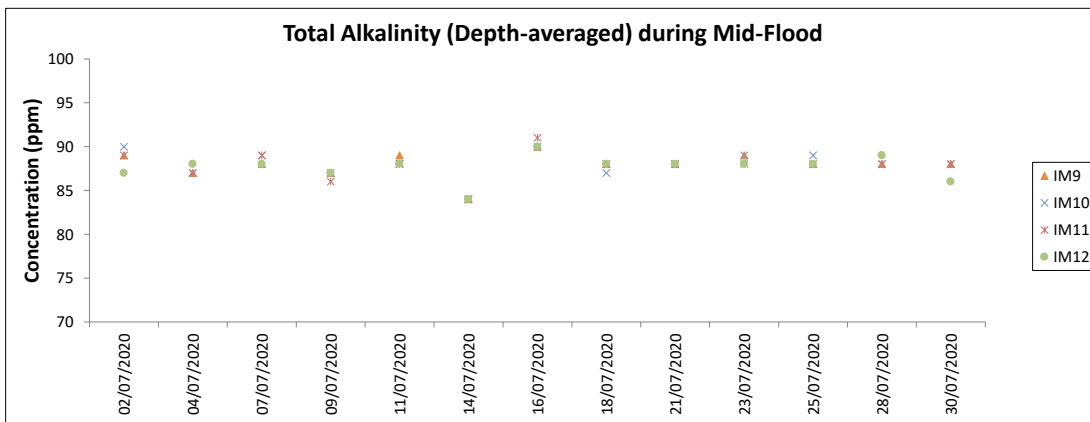
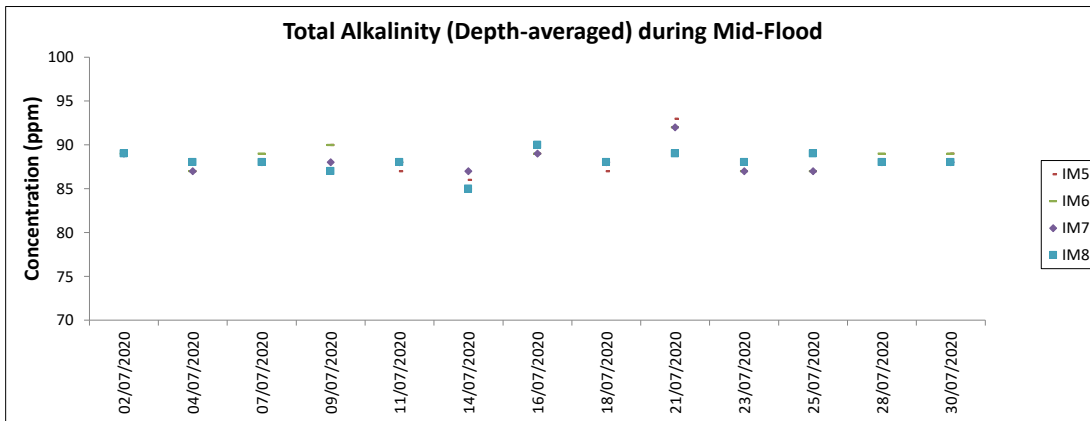
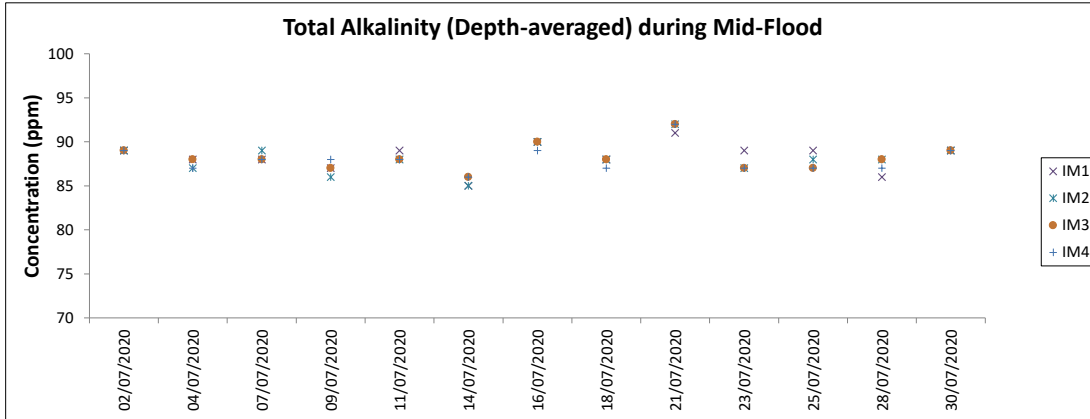
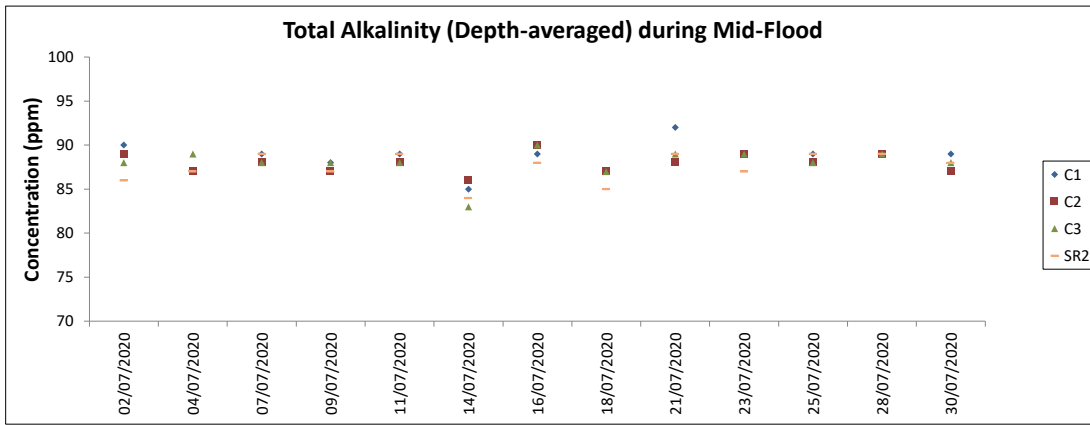
Note: The Action and Limit Level of suspended solids can be referred to Table 4.2 of the monthly EM&A report.



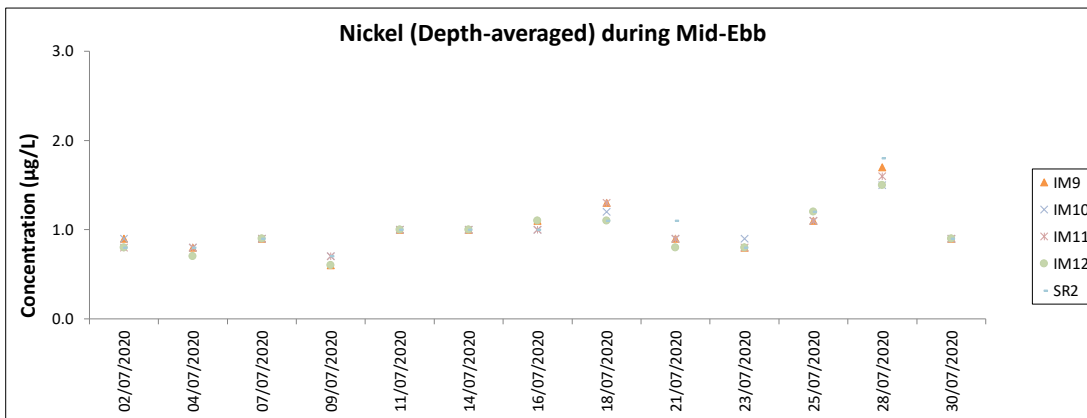
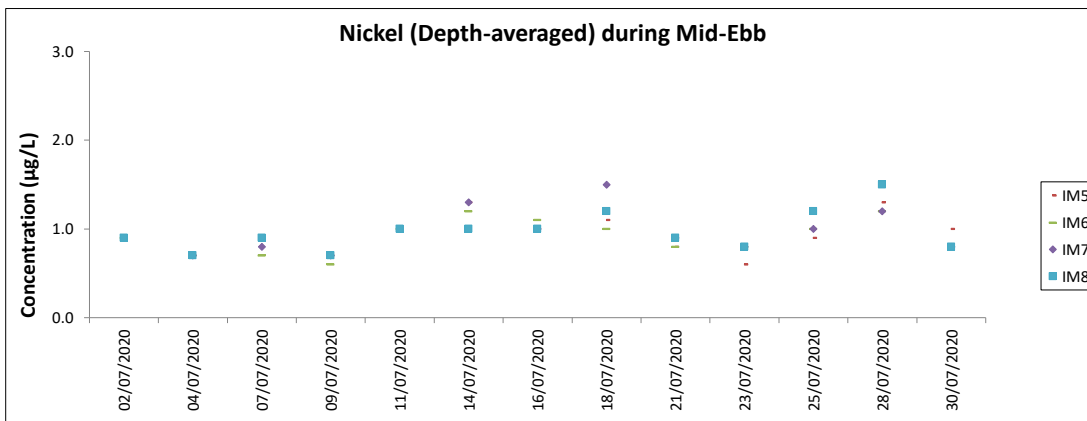
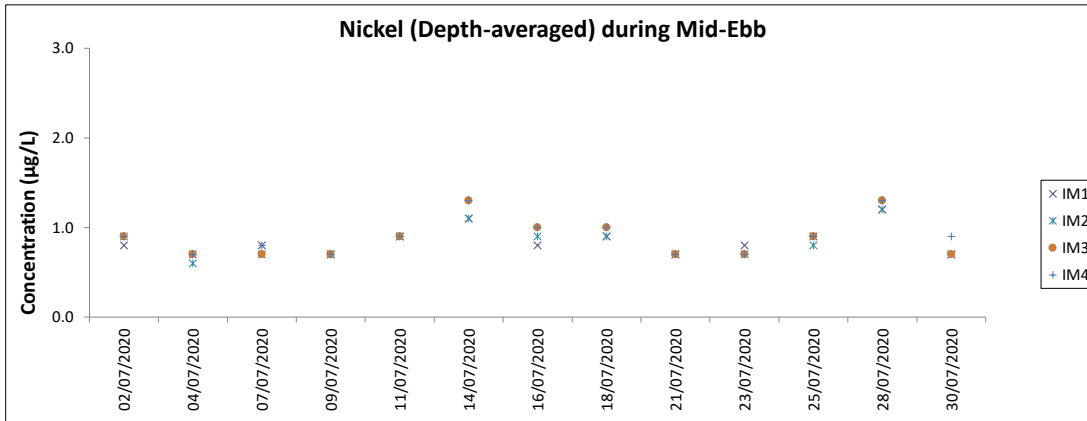
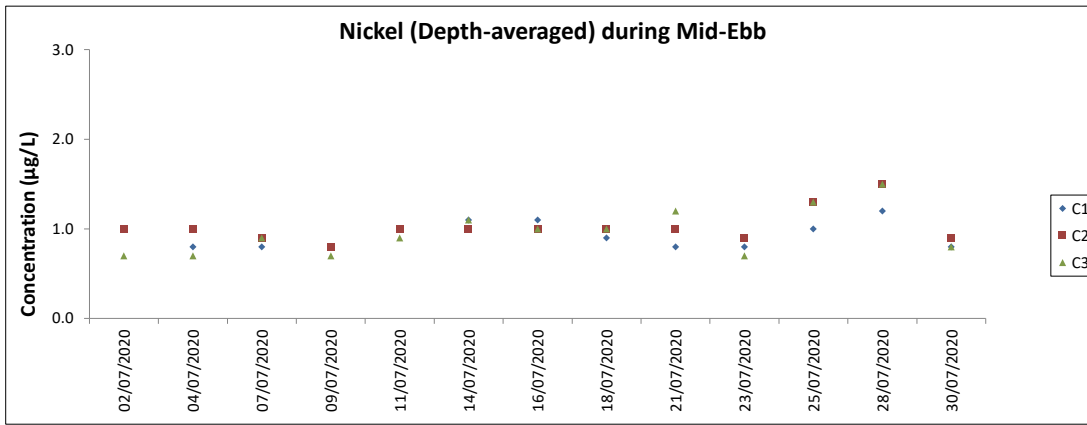
Note: The Action and Limit Level of suspended solids can be referred to Table 4.2 of the monthly EM&A report.



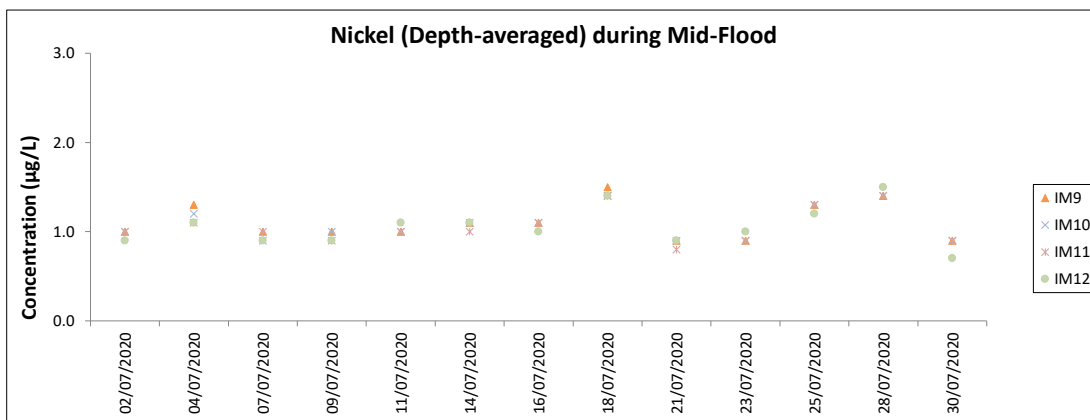
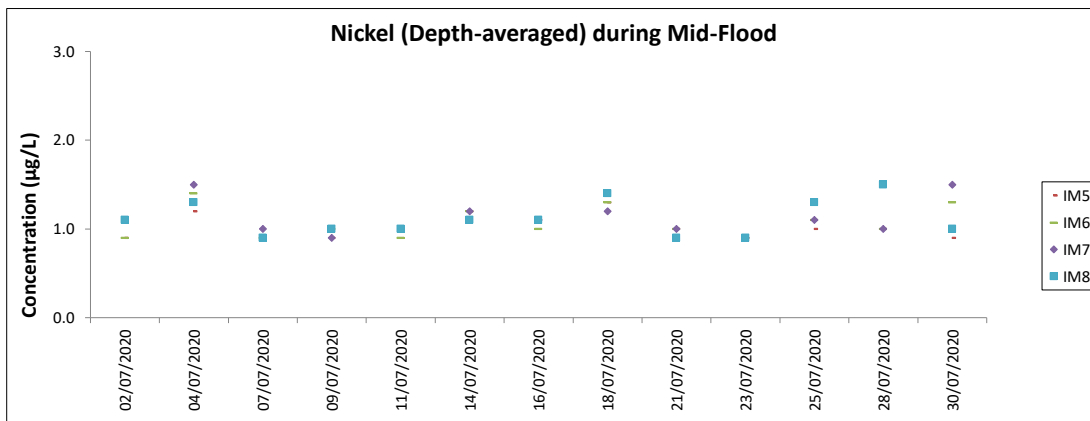
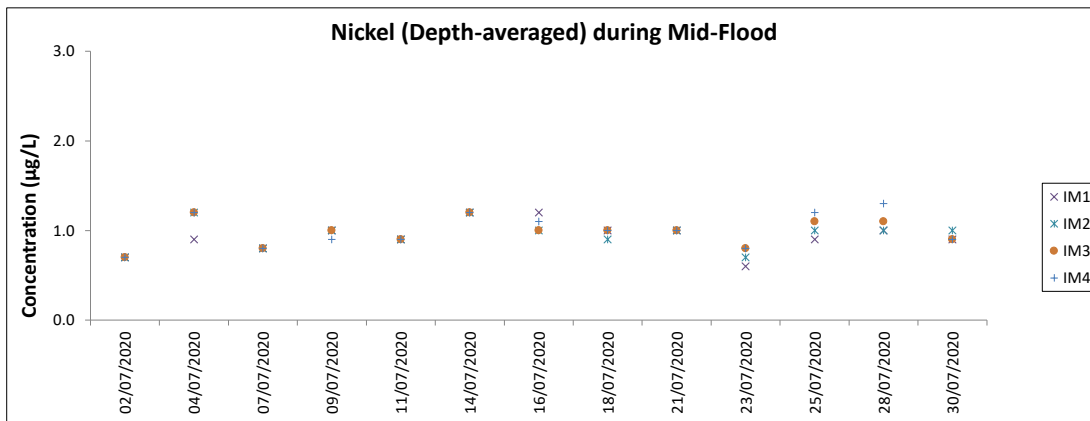
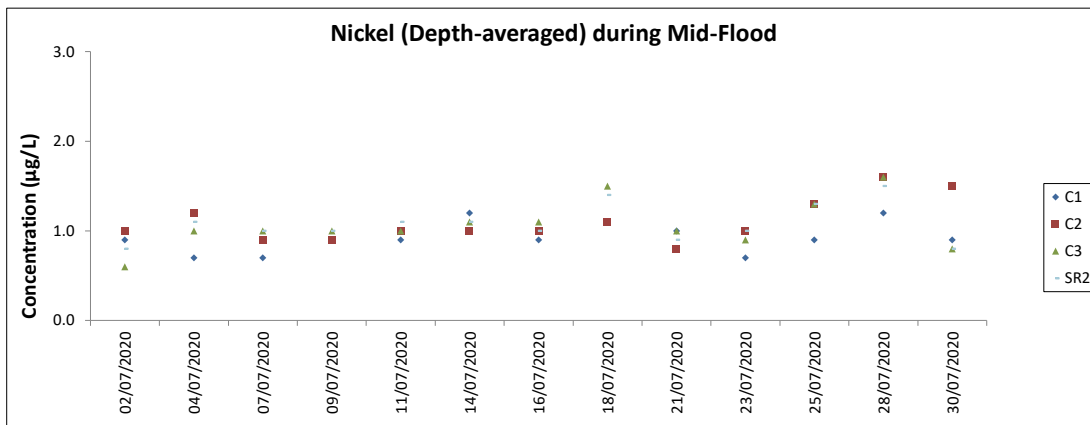
Note: The Action and Limit Level of total alkalinity can be referred to Table 4.2 of the monthly EM&A report.



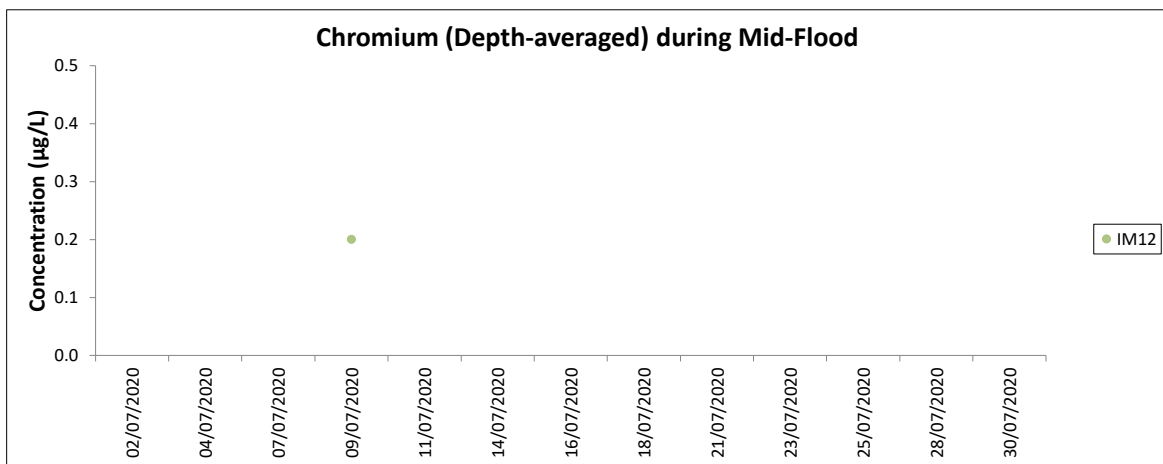
Note: The Action and Limit Level of total alkalinity can be referred to Table 4.2 of the monthly EM&A report.



Note: The Action and Limit Level of nickel can be referred to Table 4.2 of the monthly EM&A report.



Note: The Action and Limit Level of nickel can be referred to Table 4.2 of the monthly EM&A report.  
 Major site activities carried out during the reporting period are summarized in Section 1.4 of the monthly EM&A report.  
 Weather conditions during monitoring are presented in the data tables above.  
 QA/ QC requirements as stipulated in the EM&A Manual were carried out during measurement.



Note: The Action and Limit Level of chromium can be referred to Table 4.2 of the monthly EM&A report.  
All other chromium in the reporting period was below the reporting limit 0.2 µg/L.

### Investigation for Cases Triggered the Action and Limit Levels during June 2020

Further to Section 4.4 of Construction Phase Monthly EM&A Report No. 54, the investigation of the downstream monitoring stations with consecutive DO levels triggered Action and Limit Level is updated and presented as follows.

For the cases recorded between 11 and 25 June 2020, further investigation comprising additional monitoring in the vicinity of the affected IM stations (i.e. IM2, IM3 and IM4) was carried out and analysed together with the details of the construction activities undertaken during the water quality monitoring events. Additional monitoring of DO measurement was carried out on 23, 24, 26 June 2020 at the western part of the 3RS marine work site and in-situ water quality monitoring was also conducted around the closest DCM barge which was in operation during the monitoring of 9 July 2020. The further investigation analysed all potential causes of the sustained low DO levels that were particularly prevalent in the area of IM2 to IM4. These included possible sources from the marine construction activities in the vicinity; and whether the low DO levels were associated with natural phenomena. Based on the additional monitoring results and analysis carried out, there was no evidence linking the construction activities to the low DO levels, and no evidence of any malpractices that would result in the low DO levels. Conversely, the additional monitoring showed the low DO levels were present over a large area, covering the western part of the 3RS marine work site, with similarly low DO levels observed at SR4A which is also located nearby. It is also noted that similar sustained low DO levels have occurred in this area in the previous wet seasons (i.e. June 2017 and July 2019). These findings suggest that the area of IM2 to IM4, similar to SR4A, is likely naturally susceptible to low DO levels during the wet season as a result of the combination of climatic and hydrological conditions in this area.

For DO results recorded in ebb tide at IM2, IM3, IM4 and SR4A between 11 and 25 June 2020 and IM1 on 11 June 2020 which triggered Action or Limit Level, no silt plume was observed at the monitoring stations when impact water quality monitoring was undertaken at these monitoring stations and appropriate mitigation measures including localized silt curtain and enhanced silt curtain were implemented by contractors between 11 and 25 June 2020. DO levels recorded at most of the impact stations were within their baseline range. These findings, coupled with the findings of the further investigation, suggest that these cases were not caused by the Project.

For DO results recorded in flood tide at IM5, IM6 and SR3 on 13 June 2020 and IM7 on 11 and 13 June 2020 which triggered Action Level, no silt plume was observed at the monitoring stations when impact water quality monitoring was undertaken at these water quality monitoring stations and appropriate mitigation measures including localized silt curtain and enhanced silt curtain were implemented by contractors between 11 and 25 June 2020. During the same tide, DO Action Levels were also triggered at adjacent upstream monitoring stations (i.e. IM2, IM3 and IM4). In addition, DO levels recorded at most of the impact and sensitive stations were also within their baseline ranges. These suggest the presence of external sources might affect the water quality at western part of the 3RS marine work site. Therefore, the cases were considered unlikely due to the Project.

### Investigation for Cases Triggered the Action and Limit Levels during July 2020

During the reporting period, all the DO results which triggered Action or Limit Level were recorded at monitoring stations located at the western part of the 3RS marine work site. The ET checked with all contractors and confirmed that only DCM works and marine filling activities were undertaking at this area, localised and enhanced silt curtains were deployed and there was no abnormal operation. The contractors had also checked the maintenance record of all plant and equipment and confirmed that there was no spillage incident or abnormal observation.

For DO results recorded in ebb tide at IM2, IM3 and IM4 on 16 July 2020 which triggered Action Level, no silt plume was observed at the monitoring stations. DO Action Level at IM3 and IM4 were also triggered during flood tide when these IM stations were located upstream of the Project area. This suggested that the source of the low DO levels was not restricted to the areas downstream of the Project. Low DO level was also recorded at C1, which was located upstream of the Project area during flood tide and outside the influence of the Project. In addition, DO levels at these stations were within

their baseline ranges during baseline monitoring of the Project. In accordance with the Event and Action Plan, repeat measurement was conducted on 17 July 2020 during ebb tide. Similar DO levels were also recorded during repeat measurement, which suggested that the low DO levels were not due to one-off or localized incident.

For DO results recorded in ebb tide at IM1, IM2, IM3, IM4 and SR4A on 18 July 2020 which triggered Action Level, no silt plume was observed at the monitoring stations. DO levels recorded at these downstream impact and sensitive receiver stations were also similar to that recorded at their upstream control station C2. This suggested the presence of external sources that might affect the DO levels around the western part of the 3RS marine work site. In addition, DO levels recorded at these monitoring stations were within their baseline ranges during baseline monitoring of the Project. In accordance with the Event and Action Plan, repeat measurement was conducted on 19 July 2020 during ebb tide. Similar DO levels were also recorded during repeat measurement, which suggested that the low DO levels were not due to one-off or localized incident.

For DO results recorded in ebb tide at IM2, IM3, IM4 and SR4A, and in flood tide at IM5 on 21 July 2020 which triggered Action or Limit Level, no silt plume was observed at the monitoring stations. As DO Action Level were triggered at adjacent upstream monitoring stations during the same tide (i.e. IM5 and IM6 during ebb tide; IM1, IM3 and IM4 during flood tide), downstream cases at IM2, IM3 and IM4 during ebb tide and IM5 during flood tide were considered due to external factors. For SR4A, no Action or Limit Level was triggered at downstream impact station located closer to the Project Area, namely IM1. In accordance with the Event and Action Plan, repeat measurement was conducted on 22 July 2020 during ebb tide at IM2, IM3, IM4 and SR4A. Monitoring results showed that only DO levels at IM4 and SR4A still triggered the Action Level. For the repeat measurement undertaken at IM5 during the flood tide of 22 July 2020, the measured DO levels still triggered the Action Level.

The low DO levels recorded on 16, 18 and 21 July 2020 around the western part of the 3RS marine works site have been investigated. There were no evidence showing that the low DO levels were associated with the construction activities near the monitoring stations. In addition, some of the repeat measurement results still triggered the Action Level. Therefore, it is likely that the cases were caused by a potential large scale event affecting the DO levels in the western part of the 3RS marine work site. Hence, these cases were considered not due to the Project.

# **Chinese White Dolphin Monitoring Results**

## CWD Small Vessel Line-transect Survey

## Survey Effort Data

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
4-May-20	NEL	2	32.350	SPRING	32166	3RS ET	P
4-May-20	NEL	3	4.500	SPRING	32166	3RS ET	P
4-May-20	NEL	2	8.050	SPRING	32166	3RS ET	S
4-May-20	NEL	3	1.800	SPRING	32166	3RS ET	S
6-May-20	NWL	2	17.400	SPRING	32166	3RS ET	P
6-May-20	NWL	3	45.000	SPRING	32166	3RS ET	P
6-May-20	NWL	3	13.400	SPRING	32166	3RS ET	S
7-May-20	AW	3	4.890	SPRING	32166	3RS ET	P
7-May-20	WL	3	19.292	SPRING	32166	3RS ET	P
7-May-20	WL	3	11.318	SPRING	32166	3RS ET	S
11-May-20	SWL	1	2.700	SPRING	32166	3RS ET	P
11-May-20	SWL	2	51.714	SPRING	32166	3RS ET	P
11-May-20	SWL	1	1.300	SPRING	32166	3RS ET	S
11-May-20	SWL	2	14.740	SPRING	32166	3RS ET	S
12-May-20	SWL	2	42.776	SPRING	32166	3RS ET	P
12-May-20	SWL	3	11.880	SPRING	32166	3RS ET	P
12-May-20	SWL	2	13.052	SPRING	32166	3RS ET	S
12-May-20	SWL	3	2.150	SPRING	32166	3RS ET	S
13-May-20	AW	1	5.060	SPRING	32166	3RS ET	P
13-May-20	WL	1	1.220	SPRING	32166	3RS ET	P
13-May-20	WL	2	9.124	SPRING	32166	3RS ET	P
13-May-20	WL	3	2.062	SPRING	32166	3RS ET	P
13-May-20	WL	4	6.239	SPRING	32166	3RS ET	P
13-May-20	WL	2	4.441	SPRING	32166	3RS ET	S
13-May-20	WL	3	1.748	SPRING	32166	3RS ET	S
13-May-20	WL	4	3.271	SPRING	32166	3RS ET	S
18-May-20	NEL	2	24.600	SPRING	32166	3RS ET	P
18-May-20	NEL	3	12.500	SPRING	32166	3RS ET	P
18-May-20	NEL	2	6.200	SPRING	32166	3RS ET	S
18-May-20	NEL	3	3.900	SPRING	32166	3RS ET	S
20-May-20	NWL	2	2.300	SPRING	32166	3RS ET	P
20-May-20	NWL	3	43.690	SPRING	32166	3RS ET	P
20-May-20	NWL	4	17.310	SPRING	32166	3RS ET	P
20-May-20	NWL	3	9.100	SPRING	32166	3RS ET	S
20-May-20	NWL	4	2.600	SPRING	32166	3RS ET	S
9-Jun-20	NWL	2	2.300	SUMMER	32166	3RS ET	P
9-Jun-20	NWL	3	61.400	SUMMER	32166	3RS ET	P
9-Jun-20	NWL	2	1.500	SUMMER	32166	3RS ET	S
9-Jun-20	NWL	3	10.200	SUMMER	32166	3RS ET	S
11-Jun-20	AW	2	4.760	SUMMER	32166	3RS ET	P
11-Jun-20	WL	2	1.520	SUMMER	32166	3RS ET	P
11-Jun-20	WL	3	16.937	SUMMER	32166	3RS ET	P
11-Jun-20	WL	2	1.060	SUMMER	32166	3RS ET	S
11-Jun-20	WL	3	7.545	SUMMER	32166	3RS ET	S
16-Jun-20	AW	3	4.970	SUMMER	32166	3RS ET	P
16-Jun-20	WL	2	3.459	SUMMER	32166	3RS ET	P
16-Jun-20	WL	3	15.008	SUMMER	32166	3RS ET	P

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
16-Jun-20	WL	4	1.050	SUMMER	32166	3RS ET	P
16-Jun-20	WL	2	1.080	SUMMER	32166	3RS ET	S
16-Jun-20	WL	3	8.877	SUMMER	32166	3RS ET	S
17-Jun-20	NWL	2	3.700	SUMMER	32166	3RS ET	P
17-Jun-20	NWL	3	52.050	SUMMER	32166	3RS ET	P
17-Jun-20	NWL	4	7.600	SUMMER	32166	3RS ET	P
17-Jun-20	NWL	2	1.200	SUMMER	32166	3RS ET	S
17-Jun-20	NWL	3	8.000	SUMMER	32166	3RS ET	S
17-Jun-20	NWL	4	3.200	SUMMER	32166	3RS ET	S
18-Jun-20	SWL	2	5.388	SUMMER	32166	3RS ET	P
18-Jun-20	SWL	3	34.630	SUMMER	32166	3RS ET	P
18-Jun-20	SWL	4	12.720	SUMMER	32166	3RS ET	P
18-Jun-20	SWL	2	3.312	SUMMER	32166	3RS ET	S
18-Jun-20	SWL	3	11.120	SUMMER	32166	3RS ET	S
18-Jun-20	SWL	4	1.870	SUMMER	32166	3RS ET	S
22-Jun-20	SWL	2	9.376	SUMMER	32166	3RS ET	P
22-Jun-20	SWL	3	31.756	SUMMER	32166	3RS ET	P
22-Jun-20	SWL	4	3.650	SUMMER	32166	3RS ET	P
22-Jun-20	SWL	2	3.471	SUMMER	32166	3RS ET	S
22-Jun-20	SWL	3	10.290	SUMMER	32166	3RS ET	S
23-Jun-20	NEL	2	21.700	SUMMER	32166	3RS ET	P
23-Jun-20	NEL	3	15.280	SUMMER	32166	3RS ET	P
23-Jun-20	NEL	2	6.500	SUMMER	32166	3RS ET	S
23-Jun-20	NEL	3	3.820	SUMMER	32166	3RS ET	S
24-Jun-20	NEL	2	31.670	SUMMER	32166	3RS ET	P
24-Jun-20	NEL	3	5.950	SUMMER	32166	3RS ET	P
24-Jun-20	NEL	2	6.880	SUMMER	32166	3RS ET	S
24-Jun-20	NEL	3	3.100	SUMMER	32166	3RS ET	S
6-Jul-20	AW	3	4.900	SUMMER	32166	3RS ET	P
6-Jul-20	WL	3	14.052	SUMMER	32166	3RS ET	P
6-Jul-20	WL	4	4.029	SUMMER	32166	3RS ET	P
6-Jul-20	WL	3	5.088	SUMMER	32166	3RS ET	S
6-Jul-20	WL	4	3.731	SUMMER	32166	3RS ET	S
8-Jul-20	NEL	2	0.500	SUMMER	32166	3RS ET	P
8-Jul-20	NEL	3	33.650	SUMMER	32166	3RS ET	P
8-Jul-20	NEL	4	3.230	SUMMER	32166	3RS ET	P
8-Jul-20	NEL	2	2.000	SUMMER	32166	3RS ET	S
8-Jul-20	NEL	3	7.720	SUMMER	32166	3RS ET	S
9-Jul-20	NEL	2	1.300	SUMMER	32166	3RS ET	P
9-Jul-20	NEL	3	25.670	SUMMER	32166	3RS ET	P
9-Jul-20	NEL	4	9.820	SUMMER	32166	3RS ET	P
9-Jul-20	NEL	2	1.000	SUMMER	32166	3RS ET	S
9-Jul-20	NEL	3	9.910	SUMMER	32166	3RS ET	S
10-Jul-20	NWL	3	49.090	SUMMER	32166	3RS ET	P
10-Jul-20	NWL	4	14.710	SUMMER	32166	3RS ET	P
10-Jul-20	NWL	2	2.100	SUMMER	32166	3RS ET	S
10-Jul-20	NWL	3	10.000	SUMMER	32166	3RS ET	S
13-Jul-20	AW	2	0.980	SUMMER	32166	3RS ET	P
13-Jul-20	AW	3	3.950	SUMMER	32166	3RS ET	S

DATE	AREA	BEAU	KM SEARCHED	SEASON	VESSEL	TYPE	P/S
13-Jul-20	WL	2	7.997	SUMMER	32166	3RS ET	P
13-Jul-20	WL	3	6.388	SUMMER	32166	3RS ET	P
13-Jul-20	WL	2	2.175	SUMMER	32166	3RS ET	S
13-Jul-20	WL	3	5.392	SUMMER	32166	3RS ET	S
20-Jul-20	SWL	2	44.018	SUMMER	32166	3RS ET	P
20-Jul-20	SWL	3	3.890	SUMMER	32166	3RS ET	P
20-Jul-20	SWL	2	12.803	SUMMER	32166	3RS ET	S
20-Jul-20	SWL	3	1.000	SUMMER	32166	3RS ET	S
21-Jul-20	SWL	1	8.130	SUMMER	32166	3RS ET	P
21-Jul-20	SWL	2	26.735	SUMMER	32166	3RS ET	P
21-Jul-20	SWL	3	15.310	SUMMER	32166	3RS ET	P
21-Jul-20	SWL	1	1.034	SUMMER	32166	3RS ET	S
21-Jul-20	SWL	2	12.790	SUMMER	32166	3RS ET	S
21-Jul-20	SWL	3	0.920	SUMMER	32166	3RS ET	S
22-Jul-20	NWL	1	14.280	SUMMER	32166	3RS ET	P
22-Jul-20	NWL	2	35.930	SUMMER	32166	3RS ET	P
22-Jul-20	NWL	3	12.500	SUMMER	32166	3RS ET	P
22-Jul-20	NWL	1	1.300	SUMMER	32166	3RS ET	S
22-Jul-20	NWL	2	9.190	SUMMER	32166	3RS ET	S
22-Jul-20	NWL	3	1.100	SUMMER	32166	3RS ET	S

Notes: CWD monitoring survey data of the two preceding survey months are presented for reference only.

## CWD Small Vessel Line-transect Survey

## Sighting Data

DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.	P/S
7-May-20	1	1032	CWD	1	WL	3	177	ON	3RS ET	22.2692	113.8499	SPRING	NONE	P
7-May-20	2	1115	CWD	1	WL	3	19	ON	3RS ET	22.2409	113.8395	SPRING	NONE	P
7-May-20	3	1121	CWD	15	WL	3	257	ON	3RS ET	22.2411	113.8362	SPRING	NONE	P
11-May-20	1	1052	FP	1	SWL	2	421	ON	3RS ET	22.1620	113.9362	SPRING	NONE	P
11-May-20	2	1055	FP	4	SWL	2	22	ON	3RS ET	22.1606	113.9360	SPRING	NONE	P
11-May-20	3	1058	FP	2	SWL	2	181	ON	3RS ET	22.1554	113.9361	SPRING	NONE	P
11-May-20	4	1513	CWD	13	SWL	2	191	ON	3RS ET	22.1850	113.8500	SPRING	NONE	P
12-May-20	1	1051	FP	4	SWL	2	14	ON	3RS ET	22.1543	113.9363	SPRING	NONE	P
12-May-20	2	1057	FP	3	SWL	2	120	ON	3RS ET	22.1474	113.9330	SPRING	NONE	S
12-May-20	3	1101	FP	2	SWL	2	188	ON	3RS ET	22.1451	113.9301	SPRING	NONE	S
12-May-20	4	1215	FP	2	SWL	2	17	ON	3RS ET	22.1550	113.9057	SPRING	NONE	S
12-May-20	5	1441	CWD	5	SWL	2	170	ON	3RS ET	22.1954	113.8685	SPRING	NONE	P
12-May-20	6	1546	CWD	1	SWL	3	279	ON	3RS ET	22.1946	113.8500	SPRING	NONE	P
13-May-20	1	1056	CWD	6	WL	2	331	ON	3RS ET	22.2447	113.8495	SPRING	NONE	S
13-May-20	2	1127	CWD	1	WL	2	179	ON	3RS ET	22.2416	113.8370	SPRING	NONE	P
13-May-20	3	1140	CWD	16	WL	3	78	ON	3RS ET	22.2414	113.8286	SPRING	PURSE SEINER	P
13-May-20	4	1231	CWD	1	WL	4	60	ON	3RS ET	22.2149	113.8309	SPRING	NONE	P
11-Jun-20	1	1028	CWD	2	WL	3	396	ON	3RS ET	22.2636	113.8574	SUMMER	NONE	S
11-Jun-20	2	1050	CWD	3	WL	3	6	ON	3RS ET	22.2552	113.8359	SUMMER	NONE	S
11-Jun-20	3	1121	CWD	5	WL	3	323	ON	3RS ET	22.2408	113.8315	SUMMER	NONE	P
11-Jun-20	4	1213	CWD	5	WL	3	689	ON	3RS ET	22.2140	113.8257	SUMMER	NONE	P
11-Jun-20	5	1243	CWD	7	WL	3	1028	ON	3RS ET	22.2055	113.8330	SUMMER	NONE	P
11-Jun-20	6	1311	CWD	3	WL	3	86	ON	3RS ET	22.1958	113.8329	SUMMER	NONE	P
11-Jun-20	7	1325	CWD	6	WL	3	70	ON	3RS ET	22.1958	113.8408	SUMMER	NONE	P
16-Jun-20	1	1041	CWD	1	WL	2	75	ON	3RS ET	22.2609	113.8522	SUMMER	NONE	P
16-Jun-20	2	1055	CWD	6	WL	3	124	ON	3RS ET	22.2607	113.8495	SUMMER	NONE	P
16-Jun-20	3	1244	CWD	1	WL	3	112	ON	3RS ET	22.2049	113.8345	SUMMER	NONE	P
16-Jun-20	4	1310	CWD	3	WL	2	65	ON	3RS ET	22.2532	113.8336	SUMMER	NONE	P
16-Jun-20	5	1345	CWD	8	WL	2	203	ON	3RS ET	22.1945	113.8423	SUMMER	NONE	S
18-Jun-20	1	1248	CWD	5	SWL	2	118	ON	3RS ET	22.1970	113.9082	SUMMER	NONE	P
18-Jun-20	2	1321	CWD	6	SWL	3	85	ON	3RS ET	22.1937	113.8972	SUMMER	GILLNETTER	P
18-Jun-20	3	1550	CWD	2	SWL	3	46	ON	3RS ET	22.1852	113.8492	SUMMER	NONE	P

DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.	P/S
22-Jun-20	1	1144	CWD	4	SWL	2	807	ON	3RS ET	22.1939	113.9179	SUMMER	NONE	P
22-Jun-20	2	1256	CWD	4	SWL	3	178	ON	3RS ET	22.1881	113.9054	SUMMER	NONE	S
22-Jun-20	3	1321	CWD	3	SWL	2	898	ON	3RS ET	22.2123	113.8979	SUMMER	NONE	P
22-Jun-20	4	1344	CWD	4	SWL	2	386	ON	3RS ET	22.1934	113.8979	SUMMER	NONE	P
22-Jun-20	5	1432	CWD	1	SWL	3	520	ON	3RS ET	22.1688	113.8879	SUMMER	NONE	P
22-Jun-20	6	1453	CWD	5	SWL	3	305	ON	3RS ET	22.1898	113.8883	SUMMER	NONE	P
22-Jun-20	7	1548	CWD	1	SWL	3	225	ON	3RS ET	22.1795	113.8686	SUMMER	NONE	P
22-Jun-20	8	1607	CWD	1	SWL	2	67	ON	3RS ET	22.1904	113.8593	SUMMER	NONE	P
22-Jun-20	9	1614	CWD	2	SWL	2	36	ON	3RS ET	22.1824	113.8596	SUMMER	NONE	P
6-Jul-20	1	1037	CWD	1	WL	3	326	ON	3RS ET	22.2643	113.8574	SUMMER	NONE	S
6-Jul-20	2	1111	CWD	11	WL	4	634	ON	3RS ET	22.2468	113.8514	SUMMER	NONE	S
6-Jul-20	3	1216	CWD	1	WL	3	284	ON	3RS ET	22.2120	113.8363	SUMMER	NONE	P
6-Jul-20	4	1245	CWD	2	WL	3	329	ON	3RS ET	22.1961	113.8400	SUMMER	NONE	P
13-Jul-20	1	1033	CWD	5	WL	2	1238	ON	3RS ET	22.2672	113.8600	SUMMER	NONE	S
13-Jul-20	2	1126	CWD	4	WL	3	601	ON	3RS ET	22.2416	113.8299	SUMMER	NONE	P
13-Jul-20	3	1144	CWD	5	WL	3	1020	ON	3RS ET	22.2377	113.8266	SUMMER	NONE	S
13-Jul-20	4	1203	CWD	1	WL	3	13	ON	3RS ET	22.2235	113.8242	SUMMER	NONE	P
13-Jul-20	5	1223	CWD	4	WL	3	322	ON	3RS ET	22.2142	113.8266	SUMMER	NONE	P
13-Jul-20	6	1304	CWD	18	WL	3	211	ON	3RS ET	22.2020	113.8240	SUMMER	NONE	S
13-Jul-20	7	1338	CWD	19	WL	3	221	ON	3RS ET	22.1962	113.8332	SUMMER	NONE	P
13-Jul-20	8	1410	CWD	4	WL	3	129	ON	3RS ET	22.1910	113.8419	SUMMER	NONE	S
20-Jul-20	1	1028	CWD	1	SWL	2	171	ON	3RS ET	22.2119	113.9359	SUMMER	NONE	P
20-Jul-20	2	1237	CWD	1	SWL	2	268	ON	3RS ET	22.1767	113.9072	SUMMER	NONE	S
20-Jul-20	3	1249	CWD	4	SWL	2	362	ON	3RS ET	22.1845	113.9046	SUMMER	NONE	S
20-Jul-20	4	1407	CWD	9	SWL	3	255	ON	3RS ET	22.1673	113.8883	SUMMER	NONE	P
20-Jul-20	5	1424	CWD	5	SWL	2	243	ON	3RS ET	22.1776	113.8883	SUMMER	NONE	P
20-Jul-20	6	1510	CWD	1	SWL	2	130	ON	3RS ET	22.1765	113.8784	SUMMER	NONE	P
20-Jul-20	7	1532	CWD	5	SWL	3	247	ON	3RS ET	22.1682	113.8685	SUMMER	NONE	P
20-Jul-20	8	1604	CWD	3	SWL	2	51	ON	3RS ET	22.1962	113.8586	SUMMER	NONE	P
20-Jul-20	9	1640	CWD	2	SWL	2	42	ON	3RS ET	22.1921	113.8494	SUMMER	NONE	P
21-Jul-20	1	1054	FP	7	SWL	1	146	ON	3RS ET	22.1486	113.9340	SUMMER	NONE	S
21-Jul-20	2	1255	CWD	3	SWL	3	46	ON	3RS ET	22.1928	113.8977	SUMMER	NONE	P
21-Jul-20	3	1410	CWD	2	SWL	2	161	ON	3RS ET	22.1915	113.8790	SUMMER	NONE	P

DATE	STG #	TIME	CWD/FP	GP SZ	AREA	BEAU	PSD	EFFORT	TYPE	DEC LAT	DEC LON	SEASON	BOAT ASSOC.	P/S
21-Jul-20	4	1426	CWD	3	SWL	2	241	ON	3RS ET	22.1723	113.8788	SUMMER	NONE	P
21-Jul-20	5	1511	CWD	4	SWL	2	21	ON	3RS ET	22.1962	113.8587	SUMMER	NONE	P
21-Jul-20	6	1537	CWD	1	SWL	2	524	ON	3RS ET	22.1700	113.8560	SUMMER	NONE	S
21-Jul-20	7	1551	CWD	3	SWL	3	188	ON	3RS ET	22.1862	113.8493	SUMMER	PURSE SEINER	P
22-Jul-20	1	1202	CWD	2	NWL	2	308	ON	3RS ET	22.3963	113.8876	SUMMER	NONE	P

Abbreviations: STG# = Sighting Number; GP SZ = Group Size; BEAU = Beaufort Sea State; PSD = Perpendicular Distance (in metres); N/A = Not Applicable; DEC LAT = Latitude (WGS84 in Decimal), DEC LON = Longitude (WGS84 in Decimal); BOAT ASSOC. = Fishing Boat Association; P/S = Primary Transect / Secondary Transect

Notes:

CWD monitoring survey data of the two preceding survey months are presented for reference only. No relevant figure or text will be mentioned in this monthly EM&A report.

Sighting data of finless porpoise (FP) are presented for reference only. No relevant figure or text will be mentioned in the monthly EM&A report. All FP sightings are excluded in calculation.

Calculation of the encounter rates STG and ANI in the whole survey area (NEL, NWL, AW, WL, SWL):

A total of 394.792 km of survey effort was collected under Beaufort Sea State 3 or below with favourable visibility; total no. of 27 on-effort sightings and total number of 113 dolphins from on-effort sightings were collected under such condition. Calculation of the encounter rates in July 2020 are shown as below:

Encounter Rate by Number of Dolphin Sightings (STG) in July 2020

$$STG = \frac{27}{394.792} \times 100 = 6.84$$

Encounter Rate by Number of Dolphins (ANI) in July 2020

$$ANI = \frac{113}{394.792} \times 100 = 28.62$$

Calculation of the running quarterly STG and ANI in the whole survey area (NEL, NWL, AW, WL, SWL):

A total of 1228.858 km of survey effort was collected under Beaufort Sea State 3 or below with favourable visibility; total no. of 60 on-effort sightings and total number of 260 dolphins from on-effort sightings were collected under such condition. Calculation of the running quarterly encounter rates are shown as below:

Running Quarterly Encounter Rate by Number of Dolphin Sightings (STG)


$$STG = \frac{60}{1228.858} \times 100 = 4.88$$

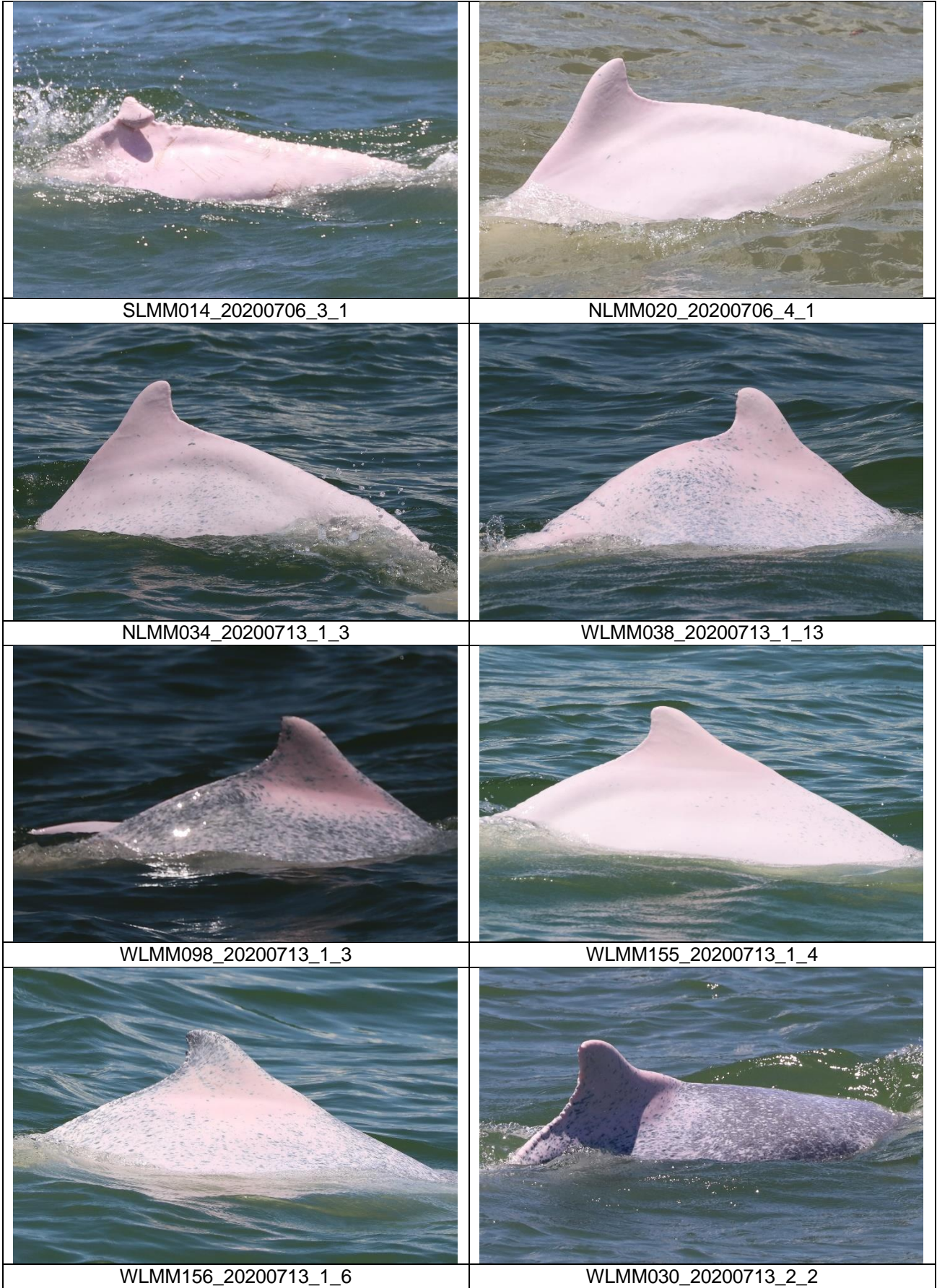
Running Quarterly Encounter Rate by Number of Dolphins (ANI)









$$ANI = \frac{260}{1228.858} \times 100 = 21.16$$

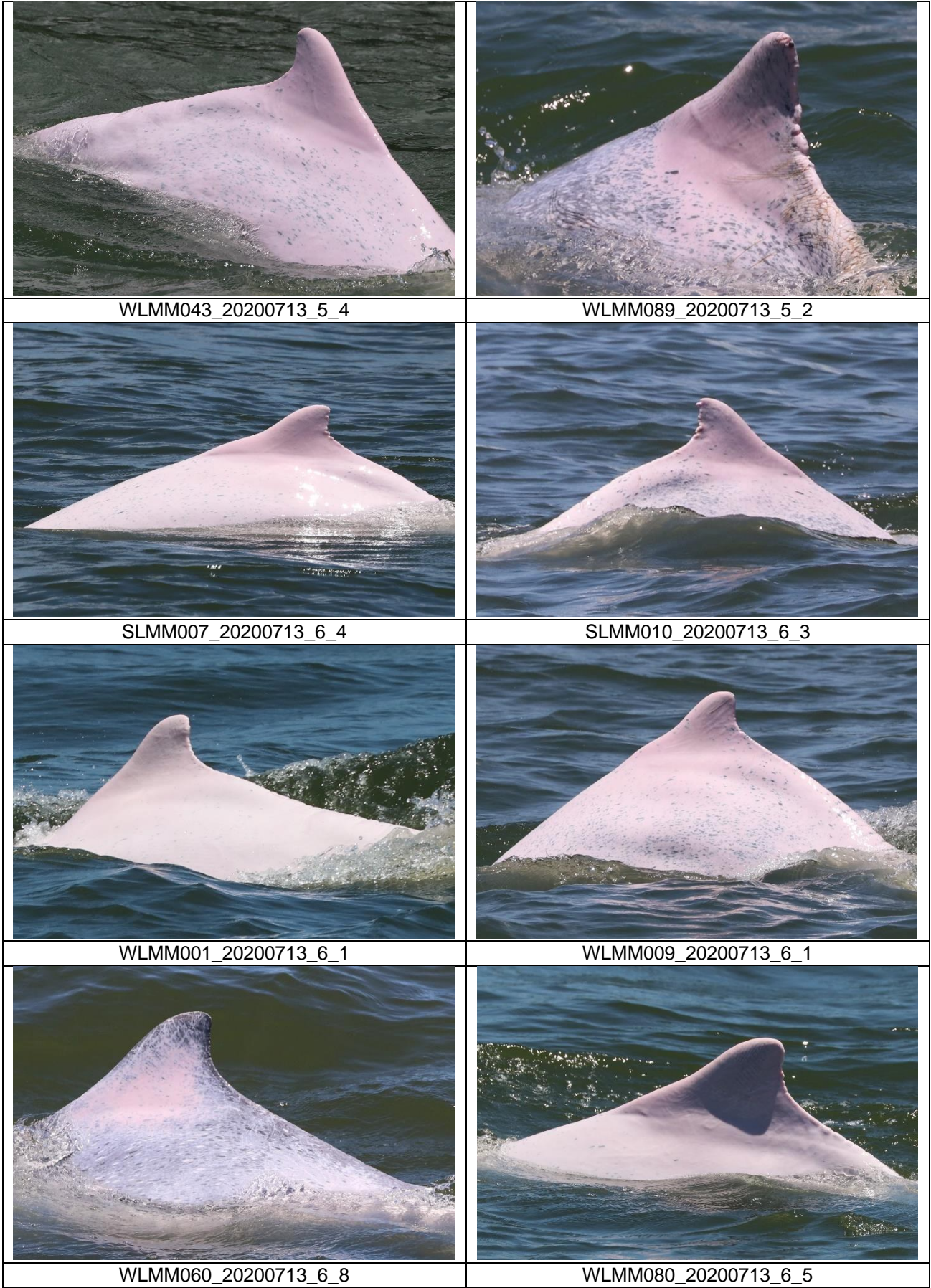
CWD Small Vessel Line-transect Survey

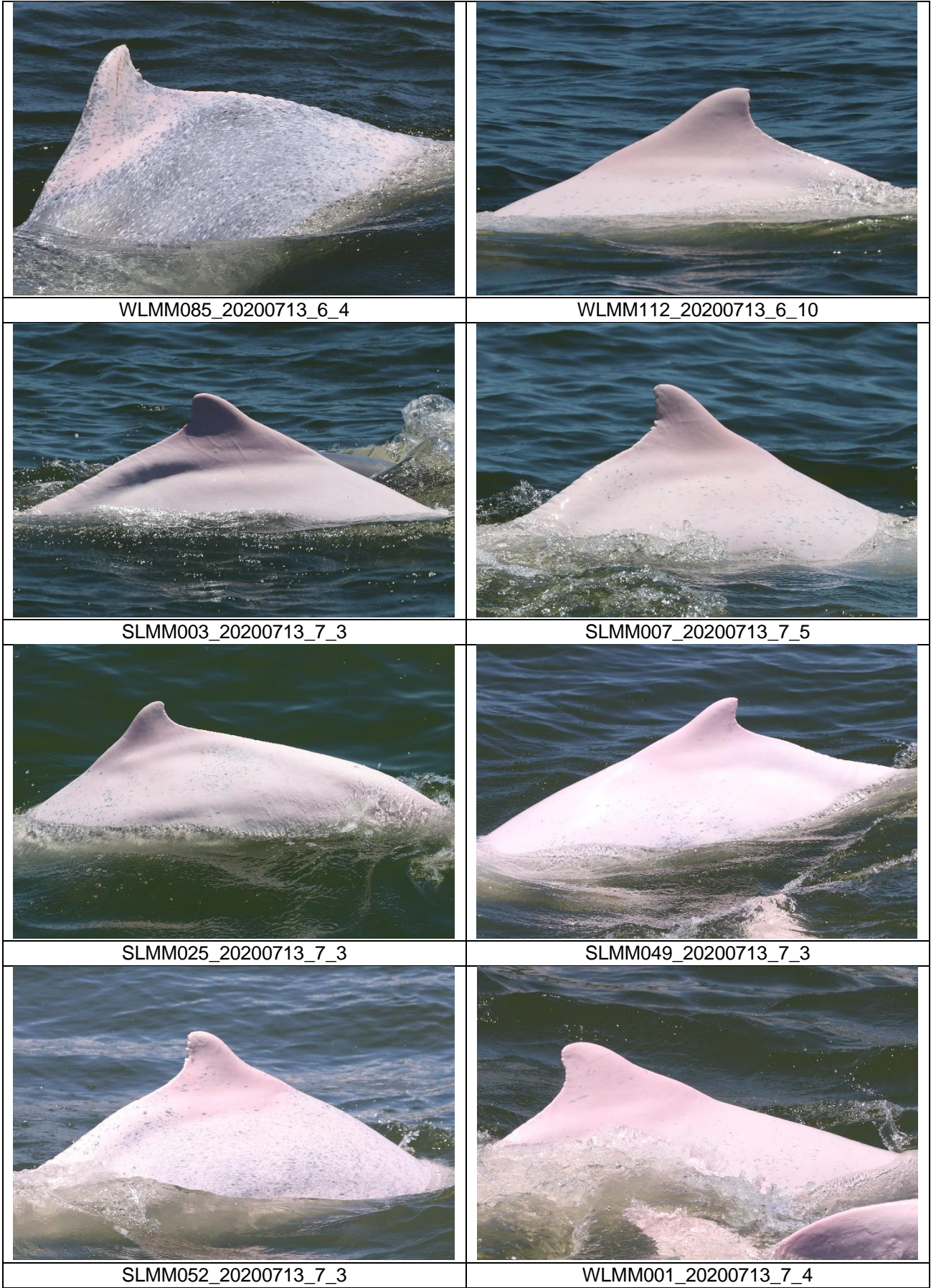
Photo Identification

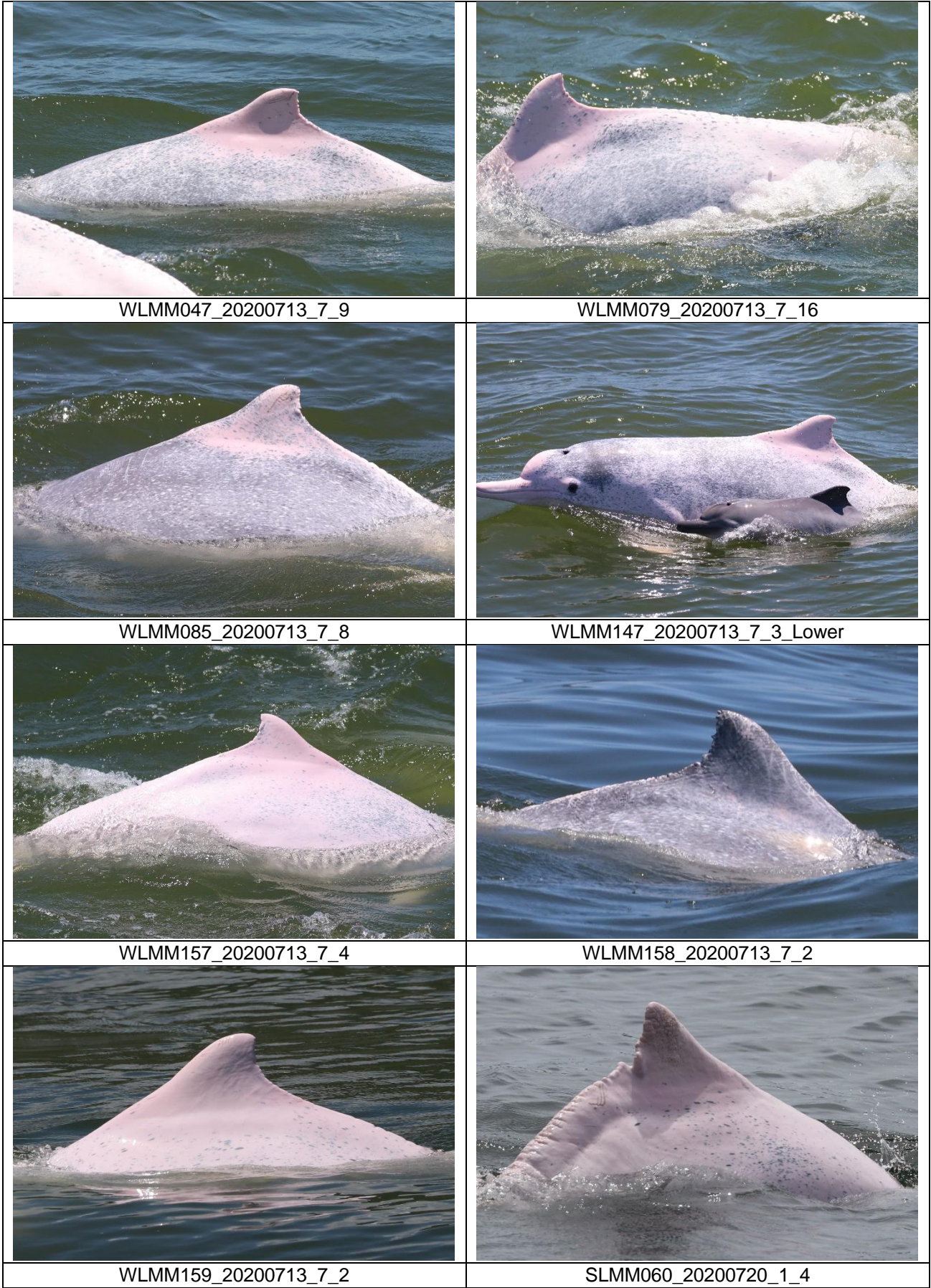
	
WLMM102_20200706_1_6	NLMM060_20200706_2_8
	
WLMM030_20200706_2_3	WLMM071_20200706_2_2
	
WLMM107_20200706_2_6	WLMM136_20200706_2_5
	
WLMM149_20200706_2_10	WLMM154_20200706_2_11



















	
WLMM086_20200713_2_5	WLMM091_20200713_2_1
	
WLMM092_20200713_2_2	WLMM091_20200713_3_2
	
WLMM092_20200713_3_4	NLMM012_20200713_4_4
	
NLMM013_20200713_5_3	NLMM052_20200713_5_2


















	
NLMM027_20200720_3_2	SLMM025_20200720_3_5
	
SLMM062_20200720_3_6	NLMM019_20200720_4_1
	
WLMM009_20200720_4_5	WLMM028_20200720_4_1
	
WLMM029_20200720_4_5	SLMM037_20200720_5_2

	
SLMM049_20200720_5_3	WLMM079_20200720_5_3_Upper
	
WLMM147_20200720_5_3_Lower	NLMM037_20200720_8_3
	
NLMM037_20200720_9_6	SLMM012_20200721_2_6
	
SLMM062_20200721_2_3	SLMM070_20200721_2_1_Upper

	
WLMM063_20200721_3_14	SLMM003_20200721_4_1
	
WLMM079_20200721_4_10_Right	WLMM147_20200721_4_3_Left
	
NLMM052_20200721_5_5	SLMM027_20200721_5_1
	
WLMM008_20200721_5_5	SLMM060_20200721_7_1

	
<p>WLMM122_20200721_7_3</p>	<p>NLMM063_20200722_1_4</p>
	
<p>WLMM019_20200722_1_5</p>	

**CWD Land-based Theodolite Tracking Survey****CWD Groups by Survey Date**

<b>Date</b>	<b>Station</b>	<b>Start Time</b>	<b>End Time</b>	<b>Duration</b>	<b>Beaufort Range</b>	<b>Visibility</b>	<b>No. of Focal Follow Dolphin Groups Tracked</b>	<b>Dolphin Group Size Range</b>
7/Jul/20	Sha Chau	10:45	16:45	6:00	2-3	1	0	-
15/Jul/20	Lung Kwu Chau	8:54	14:54	6:00	2	1	0	-

Visibility: 1=Excellent, 2=Good, 3=Fair, 4=Poor

## **Appendix D. Calibration Certificates**



# Certificate of Calibration 校正證書

Certificate No. : C203701  
證書編號

ITEM TESTED / 送檢項目 ( Job No. / 序引編號 : IC20-1374 )

Date of Receipt / 收件日期 : 26 June 2020

Description / 儀器名稱 : Acoustic Calibrator  
Manufacturer / 製造商 : Castle  
Model No. / 型號 : GA607  
Serial No. / 編號 : 040162  
Supplied By / 委託者 : Mott MacDonald Hong Kong Limited  
3/F., International Trade Tower,  
348 Kwun Tong Road, Kowloon, Hong Kong

## TEST CONDITIONS / 測試條件

Temperature / 溫度 :  $(23 \pm 2)^{\circ}\text{C}$   
Line Voltage / 電壓 : ---

Relative Humidity / 相對濕度 :  $(50 \pm 25)\%$

## TEST SPECIFICATIONS / 測試規範

Calibration check

DATE OF TEST / 測試日期 : 4 July 2020

## TEST RESULTS / 測試結果

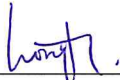
The results apply to the particular unit-under-test only.  
The results do not exceed manufacturer's specification.  
The results are detailed in the subsequent page(s).

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
- Fluke Everett Service Center, USA

Tested By  
測試

:

  
H T Wong  
Assistant Engineer

Certified By  
核證

:

  
K C Lee  
Engineer

Date of Issue  
簽發日期

:

7 July 2020

The test equipment used for calibration is traceable to the National 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室所書面批准。



# Certificate of Calibration

## 校正證書

Certificate No. : C203701  
證書編號

- The unit-under-test (UUT) was allowed to stabilize in the laboratory for over 12 hours before the commencement of the test.
- The results presented are the mean of 3 measurements at each calibration point.
- Test equipment :

<u>Equipment ID</u>	<u>Description</u>	<u>Certificate No.</u>
CL130	Universal Counter	C193756
CL281	Multifunction Acoustic Calibrator	CDK1806821
TST150A	Measuring Amplifier	C201309

- Test procedure : MA100N.

- 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	± 0.3	± 0.2
104 dB, 1 kHz	104.0		± 0.3

### 5.2 Frequency Accuracy

UUT Nominal Value (kHz)	Measured Value (kHz)	Mfr's Spec.	Uncertainty of Measured Value (Hz)
1	1.000	1 kHz ± 1 %	± 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 is traceable to the National 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室書面批准。

Sun Creation Engineering Limited – Calibration & Testing Laboratory

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Email: info@qualityprotest.com; Website: www.qualityprotest.com  
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# REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ070066  
Date of Issue : 21 July 2020  
Page No. : 1 of 2

## 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 : Jul 20, 2020  
Date of Calibration : Jul 20, 2020  
Date of Next Calibration<sup>(a)</sup> : Oct 19, 2020

## PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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<sup>(b,c)</sup>

### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.02	0.02	Satisfactory
7.42	7.44	0.02	Satisfactory
10.01	10.09	0.08	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
10	10.0	0.0	Satisfactory
28	27.5	-0.5	Satisfactory
48	49.0	1.0	Satisfactory

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

~ CONTINUED ON NEXT PAGE ~

### Remark(s): -

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

  
LEE Chun-ning, Desmond  
Senior Chemist



專業化驗有限公司  
QUALITY PRO TEST-CONSULT LIMITED

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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

Report No. : AJ070066  
Date of Issue : 21 July 2020  
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### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.10	0.29	0.19	Satisfactory
1.89	2.04	0.15	Satisfactory
4.51	4.22	-0.29	Satisfactory
6.90	7.10	0.20	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading ( $\mu\text{S/cm}$ )	Displayed Reading ( $\mu\text{S/cm}$ )	Tolerance (%)	Results
0.001	146.9	147.2	0.20	Satisfactory
0.01	1412	1462	3.54	Satisfactory
0.1	12890	12417	-3.67	Satisfactory
0.5	58670	57942	-1.24	Satisfactory
1.0	111900	111098	-0.72	Satisfactory

Tolerance limit of conductivity should be less than  $\pm 10.0$  (%)

#### (5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	9.98	-0.20	Satisfactory
20	20.09	0.45	Satisfactory
30	30.31	1.03	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (6) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.21	--	Satisfactory
10	10.11	1.1	Satisfactory
20	20.22	1.1	Satisfactory
100	104.37	4.4	Satisfactory
800	793.41	-0.8	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

**Remark(s): -**

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

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### 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 6920V2 (Multi-Parameters)  
Manufacturer : YSI (a xylem brand)  
Serial Number : 0001C6A7  
Date of Received : Jul 20, 2020  
Date of Calibration : Jul 20, 2020  
Date of Next Calibration<sup>(a)</sup> : Oct 19, 2020

### PART C – REFERENCE METHODS/ DOCUMENTS FOR THE CALIBRATION

Parameter	Reference Method
pH at 25°C	APHA 21e 4500-H <sup>+</sup> 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<sup>(b,c)</sup>

#### (1) pH at 25°C

Target (pH unit)	Displayed Reading <sup>(d)</sup> (pH Unit)	Tolerance <sup>(e)</sup> (pH Unit)	Results
4.00	4.01	0.01	Satisfactory
7.42	7.44	0.02	Satisfactory
10.01	10.10	0.09	Satisfactory

Tolerance of pH should be less than  $\pm 0.20$  (pH unit)

#### (2) Temperature

Reading of Ref. thermometer (°C)	Displayed Reading (°C)	Tolerance (°C)	Results
10	10.03	0.03	Satisfactory
28	28.06	0.06	Satisfactory
48	47.90	-0.10	Satisfactory

Tolerance limit of temperature should be less than  $\pm 2.0$  (°C)

~ CONTINUED ON NEXT PAGE ~

#### Remark(s): -

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

  
LEE Chun-ning, Desmond  
Senior Chemist



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## REPORT OF EQUIPMENT PERFORMANCE CHECK/ CALIBRATION

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### PART D – CALIBRATION RESULTS (Cont'd)

#### (3) Dissolved Oxygen

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)	Results
0.10	0.32	0.22	Satisfactory
1.89	2.02	0.13	Satisfactory
4.51	4.24	-0.27	Satisfactory
6.90	7.12	0.22	Satisfactory

Tolerance limit of dissolved oxygen should be less than  $\pm 0.50$  (mg/L)

#### (4) Conductivity at 25°C

Conc. of KCl (M)	Expected Reading ( $\mu\text{S}/\text{cm}$ )	Displayed Reading ( $\mu\text{S}/\text{cm}$ )	Tolerance (%)	Results
0.001	146.9	147.9	0.68	Satisfactory
0.01	1412	1453	2.90	Satisfactory
0.1	12890	12360	-4.11	Satisfactory
0.5	58670	58122	-0.93	Satisfactory
1.0	111900	110812	-0.97	Satisfactory

Tolerance limit of conductivity should be less than  $\pm 10.0$  (%)

#### (5) Salinity

Expected Reading (g/L)	Displayed Reading (g/L)	Tolerance (%)	Results
10	10.01	0.10	Satisfactory
20	20.11	0.55	Satisfactory
30	30.28	0.93	Satisfactory

Tolerance limit of salinity should be less than  $\pm 10.0$  (%)

#### (6) Turbidity

Expected Reading (NTU)	Displayed Reading <sup>(f)</sup> (NTU)	Tolerance <sup>(g)</sup> (%)	Results
0	0.18	--	Satisfactory
10	10.12	1.2	Satisfactory
20	20.19	1.0	Satisfactory
100	103.98	4.0	Satisfactory
800	795.11	-0.6	Satisfactory

Tolerance limit of turbidity should be less than  $\pm 10.0$  (%)

~ END OF REPORT ~

#### Remark(s): -

<sup>(f)</sup> "Displayed Reading" presents the figures shown on item under calibration/ checking regardless of equipment precision or significant figures.

<sup>(g)</sup> The "Tolerance Limit" mentioned is the acceptance criteria applicable for similar equipment used by Quality Pro Test-Consult Ltd. or quoted from relevant international standards.

## Appendix E. Status of Environmental Permits and Licences

	Description	Permit/ Reference No.	Status
EIAO	Environmental Permit	EP-489/2014	Approved on 7 Nov 2014

Contract No.	Description	Location	Permit/ Reference No.	Status
3205	Notification of Construction Work under APCO	Works area of 3205	453653	Receipt acknowledged by EPD on 25 Feb 2020
	Registration as Chemical Waste Producer	Works Area of 3205	WPN 5213-951-B2502-01	Registration was updated on 25 Sep 2017
		Works Area of 3205	WPN 5111-421-B2509-01	Registration was updated on 25 Sep 2017
	Construction Noise Permit (General Works)	Works Area of 3205	GW-RS0436-20	Valid from 30 Jun 2020 to 29 Dec 2020
	Discharge License under WPCO	Works area of 3205	WT00028370-2017	Valid from 21 Jun 2017 to 30 Jun 2022
	Bill Account for disposal	Works area of 3205	A/C 7026295	Approval granted from EPD on 9 Nov 2016
3206	Notification of Construction Work under APCO	Works area of 3206	409237	Receipt acknowledged by EPD on 25 Oct 2016
		Works area of 3206 (Area 11)	447899	Receipt acknowledged by EPD on 8 Aug 2019
	Registration as Chemical Waste Producer	Site office of 3206	WPN 5213-951-Z4035-01	Completion of Registration on 18 Nov 2016
		Works area of 3206	WPN 5213-951-Z4035-02	Completion of Registration on 18 Nov 2016
		Works Area of 3206 (Area 11)	WPN 5213-951-Z4035-04	Completion of Registration on 4 Sep 2019
	Construction Noise Permit (General Works)	Works Area of 3206	GW-RS0423-20	Valid from 30 Jun 2020 to 15 Dec 2020
		Works Area of 3206 (Area 11)	GW-RS0414-20	Valid from 25 Jun 2020 to 24 Dec 2020
		Works Area of 3206	GW-RS0156-20	Superseded by GW-RS0501-20
			GW-RS0501-20	Valid from 20 Jul 2020 to 20 Dec 2020
	Bill Account for disposal	Works area of 3206	A/C 7026398	Approval granted from EPD on 16 Nov 2016
3301	Notification of Construction Work under APCO	Works area of 3301	415821	Receipt acknowledged by EPD on 19 Apr 2017
	Registration as Chemical Waste Producer	Works area of 3301	WPN 5213-951-F2718-02	Completion of Registration on 9 Jun 2017

Contract No.	Description	Location	Permit/ Reference No.	Status
	Discharge License under WPCO	Works area of 3301	WT00029286-2017	Valid from 20 Sep 2017 to 30 Sep 2022
	Bill Account for disposal	Works area of 3301	A/C 7027728	Approval granted from EPD on 8 May 2017
	Construction Noise Permit (General Works)	Works area of 3301 (Cable ducting works)	GW-RS0129-20	Valid from 4 Mar 2020 to 13 Sep 2020
		Works area of 3301	GW-RS0212-20	Valid until from 12 Apr 2020 to 11 Oct 2020
3302	Notification of Construction Work under APCO	Works area of 3302	440222	Receipt acknowledged by EPD on 10 Dec 2018
		Staging area of 3302	2018CES1	Receipt acknowledged by EPD on 21 Dec 2018
			454882	Receipt acknowledged by EPD on 2 Apr 2020
	Registration as Chemical Waste Producer	Works area of 3302	5296-951-C4331-01	Completion of Registration on 4 Jan 2019
	Discharge License under WPCO	Works area of 3302	WT00034539-2019	Valid from 11 Mar 2020 to 31 Mar 2025
		Works area of 3302	WT00034541-2019	Valid from 14 Oct 2019 to 31 Oct 2024
	Bill Account for disposal	Works area of 3302	A/C 7032881	Approval granted from EPD on 8 Jan 2019
	Construction Noise Permit (General Works)	Works area of 3302	GW-RS1162-19	Valid from 7 Jan 2020 to 6 Jul 2020
			GW-RS0438-20	Valid from 7 Jul 2020 to 6 Jan 2021
			GW-RS0447-20	Valid from 7 Jul 2020 to 6 Jan 2021
3303	Notification of Construction Work under APCO	Works area of 3303	445611	Receipt acknowledged by EPD on 27 May 2019
	Registration as Chemical Waste Producer	Works area of 3303	5213-951-S4174-01	Completion of Registration on 17 Jun 2019
	Discharge License under WPCO	Works area of 3303	WT00035689-2020	Valid from 11 May 2020 to 31 May 2025
	Bill Account for disposal	Works area of 3303	A/C 7034272	Approval granted from EPD on 10 Jun 2019
	Construction Noise Permit (General Works)	Works area of 3303 (Existing airport)	GW-RS0335-20	Valid from 27 May 2020 to 15 Nov 2020
			GW-RS0154-20	Superseded by GW-RS0476-20
			GW-RS0476-20	Valid from 20 July 2020 to 14 Jan 2021
3307	Notification of Construction Work under APCO	Works area of 3307	454964	Receipt acknowledged by EPD on 6 Apr 2020
	Registration as Chemical Waste Producer	Works area of 3307	5211-951-P3379-01	Completion of Registration on 8 Jun 2020
	Bill Account for disposal	Works area of 3307	A/C 7037129	Approval granted from EPD on 5 May 2020
	Construction Noise Permit (General Works)	Works area of 3307	GW-RS0495-20	Valid from 19 July 2020 to 15 Jan 2021

Contract No.	Description	Location	Permit/ Reference No.	Status
3402	Notification of Construction Work under APCO	Works area of 3402	440808	Receipt acknowledged by EPD on 31 Dec 2018
		Stockpiling area of 3402	441960	Receipt acknowledged by EPD on 8 Feb 2019
	Registration as Chemical Waste Producer	Works area of 3402	WPN 5213-951-W1172-05	Registration was updated on 25 Feb 2019
	Discharge License under WPCO	Works area of 3402	WT00033685-2019	Valid from 20 Jun 2019 to 30 Jun 2024
	Bill Account for disposal	Works area of 3402	A/C 7032577	Approval granted from EPD on 27 Nov 2018
	Construction Noise Permit (General Works)	Works area of 3402	GW-RS0070-20	Valid from 3 Feb 2020 to 1 Aug 2020
3403	Notification of Construction Work under APCO	Works area of 3403	450860	Receipt acknowledged by EPD on 11 Nov 2019
		Registration as Chemical Waste Producer	Works area of 3403	WPN 5213-951-S4218-01
	Discharge License under WPCO	Works area of 3403	WT00035841-2020	Valid from 5 Jun 2020 to 30 Jun 2025
	Bill Account for disposal	Works area of 3403	A/C 7035267	Approval granted from EPD on 30 Sep 2019
	Construction Noise Permit (General Works)	Works area of 3403	GW-RS0334-20	Valid from 29 May 2020 to 28 Nov 2020
3405	Notification of Construction Work under APCO	Works area of 3405	453447	Receipt acknowledged by EPD on 18 Feb 2020
		Registration as Chemical Waste Producer	Works area of 3405	WPN 5218-951-C4431-01
	Bill Account for disposal	Works area of 3405	A/C 7036796	Approval granted from EPD on 20 Mar 2020
	Construction Noise Permit (General Works)	Works area of 3405	GW-RS0429-20	Valid from 30 Jun 2020 to 29 Dec 2020
3503	Notification of Construction Work under APCO	Works area of 3503	435180	Receipt acknowledged by EPD on 29 Jun 2018
		Stockpiling area of 3503	454450	Receipt acknowledged by EPD on 17 Mar 2020
		Stockpiling area of 3503	449570	Receipt acknowledged by EPD on 30 Sep 2019
	Registration as Chemical Waste Producer	Works area of 3503	WPN 5113-951-L2845-02	Completion of Registration on 8 Jan 2018
	Discharge License under WPCO	Works area of 3503	WT00031258-2018	Valid from 7 Jun 2018 to 30 Jun 2023
	Bill Account for disposal	Works area of 3503	A/C 7029665	Approval granted from EPD on 27 Dec 2017
	Construction Noise Permit (General Works)	Works area of 3503	GW-RS0351-20	Valid from 24 May 2020 to 31 Oct 2020
		Stockpiling area of 3503	GW-RS0385-20	Valid from 11 Jul 2020 to 31 Dec 2020

Contract No.	Description	Location	Permit/ Reference No.	Status
		Works area of 3503 (Special Case)	GW-RS0261-20	Valid from 26 Apr 2020 to 1 Jul 2020
		Works area of 3503 (Special Case)	GW-RS0442-20	Valid from 2 Jul 2020 to 31 Dec 2020
3601	Notification of Construction Work under APCO	Works area of 3601	451765	Receipt acknowledged by EPD on 10 Dec 2019
	Registration as Chemical Waste Producer	Works area of 3601	WPN 7119-951-C4421-01	Completion of Registration on 9 Jan 2020
	Bill Account for disposal	Works area of 3601	A/C 7029991	Approval granted from EPD on 1 Feb 2018
3602	Notification of Construction Work under APCO	Works area of 3602	421278	Receipt acknowledged by EPD on 18 Sep 2017
	Registration as Chemical Waste Producer	Works area of 3602	WPN 5296-951-N2673-01	Completion of Registration on 9 Oct 2017
		Site office of 3602	WPN 5296-951-N2673-02	Completion of Registration on 11 Dec 2017
	Bill Account for disposal	Works area of 3602	A/C 7028942	Approval granted from EPD on 6 Oct 2017
	Construction Noise Permit (General Works)	Works area of 3602	GW-RS0133-20	Valid from 1 Apr 2020 to 30 Sep 2020
3603	Notification of Construction Work under APCO	Site office of 3603	433604	Receipt acknowledged by EPD on 16 May 2018
	Registration as Chemical Waste Producer	Works area of 3603	WPN 5296-951-S4069-01	Completion of Registration on 22 Jan 2018
	Bill Account for disposal	Works area of 3603	A/C 7030002	Approval granted from EPD on 1 Feb 2018
	Construction Noise Permit (General Works)	Works area of 3603	GW-RS0165-20	Valid from 8 Apr 2020 to 7 Oct 2020
3721	Notification of Construction Work under APCO	Works area of 3721	448657	Receipt acknowledged by EPD on 02 Sep 2019
	Registration as Chemical Waste Producer	Works area of 3721	WPN 5218-951-C4412-01	Completion of Registration on 9 Dec 2019
	Bill Account for disposal	Works area of 3721	A/C 705234	Approval granted from EPD on 25 Sep 2019
	Construction Noise Permit (General Works)	Works area of 3721	GW-RS0419-20	Valid from 30 Jun 2020 to 29 Dec 2020
3722	Notification of Construction Work under APCO	Works area of 3722A	453195	Receipt acknowledged by EPD on 11 Feb 2020
		Works area of 3722B	453671	Receipt acknowledged by EPD on 25 Feb 2020
		Works area of 3722C	453673	Receipt acknowledged by EPD on 25 Feb 2020
		Works area of 3722D	453675	Receipt acknowledged by EPD on 25 Feb 2020

Contract No.	Description	Location	Permit/ Reference No.	Status
	Registration as Chemical Waste Producer	Works area of 3722A	WPN 5218-951-T3863-01	Completion of Registration on 18 Mar 2020
		Works area of 3722B	WPN 5218-951-T3864-01	Completion of Registration on 18 Mar 2020
		Works area of 3722C	WPN 5218-951-T3862-01	Completion of Registration on 18 Mar 2020
		Works area of 3722D	WPN 5218-951-T3865-01	Completion of Registration on 18 Mar 2020
	Bill Account for disposal	Works area of 3722A	A/C 7036752	Approval granted from EPD on 11 Mar 2020
		Works area of 3722B	A/C 7036966	Approval granted from EPD on 6 Apr 2020
		Works area of 3722C	A/C 7036967	Approval granted from EPD on 6 Apr 2020
		Works area of 3722D	A/C 7036795	Approval granted from EPD on 20 Mar 2020
	Construction Noise Permit (General Works)	Works area of 3722A, 3722B, 3722C and 3722D	GW-RS0304-20	Valid from 9 May 2020 to 7 Nov 2020
	3801	Notification of Construction Work under APCO	Works area of 3801	418345
430372				Receipt acknowledged by EPD on 2 Feb 2018
435652				Receipt acknowledged by EPD on 16 Jul 2018
451991				Receipt acknowledged by EPD on 18 Dec 2019
Stockpiling area of 3801			450940	Receipt acknowledged by EPD on 13 Nov 2019
Registration as Chemical Waste Producer		Works area of 3801	WPN 5296-951-C1169-53	Completion of Registration on 14 Aug 2018
Discharge License under WPCO		Works and stockpiling area of 3801	WT00029535-2017	Valid from 24 Nov 2017 to 30 Nov 2022
Bill Account for disposal		Works area of 3801	A/C 7028254	Approval granted from EPD on 3 Jul 2017
Construction Noise Permit (General Works)		Works and stockpiling area of 3801	GW-RS1212-19	Valid from 9 Jan 2020 to 8 Jul 2020
			GW-RS0475-20	Valid from 12 Jul 2020 to 8 Jan 2021
	Works area of 3801 (Special Case)	GW-RS0366-20	Valid from 2 Jun 2020 to 1 Aug 2020	
3802	Notification of Construction Work under APCO	Works area of 3802	458122	Receipt acknowledged by EPD on 14 Jul 2020
	Bill Account for disposal	Works area of 3802	A/C 7037575	Approval granted from EPD on 15 Jun 2020
3901A	Notification of Construction Work under APCO	Works area of 3901A	456240	Receipt acknowledged by EPD on 18 May 2020
	Specified Process license under APCO	Works area of 3901A	443180	Receipt acknowledged by EPD on 15 Mar 2019

Contract No.	Description	Location	Permit/ Reference No.	Status
	Registration as Chemical Waste Producer	Works area of 3901A	WPN 5218-951-K3400-01	Completion of Registration on 17 Jul 2020
	Construction Noise Permit (General Works)	Works area of 3901A	GW-RS0298-20	Valid from 25 May 2020 to 24 Nov 2020
3901B	Notification of Construction Work under APCO	Works area of 3901B	452168	Receipt acknowledged by EPD on 23 Dec 2019
	Specified Process license under APCO	Works area of 3901B	443181	Receipt acknowledged by EPD on 15 Mar 2019
	Registration as Chemical Waste Producer	Works area of 3901B	WPN 5218-951-G2880-01	Completion of Registration on 17 Jan 2020
	Bill Account for disposal	Works area of 3901B	A/C 7032417	Approval granted from EPD on 13 Nov 2018
	Construction Noise Permit (General Works)	Works area of 3901B	GW-RS0106-20	Valid from 2 Mar 2020 to 19 Aug 2020

## Appendix F. Cumulative Statistics on Exceedances, Environmental Complaints, Notification of Summons and Status of Prosecutions

### Statistics for Exceedances for 1-hour TSP, Noise, Water, Waste, CWD Monitoring

		Total no. recorded in the reporting period	Total no. recorded since the project commenced
1-hr TSP	Action	0	0
	Limit	0	0
Noise	Action	0	0
	Limit	0	0
Water	Action	0	0
	Limit	0	0
Waste	Action	0	0
	Limit	0	0
CWD	Action	0	0
	Limit	0	0

Remark: Exceedances, which are not project related, are not shown in this table.

### Statistics for Complaints, Notifications of Summons and Prosecutions

Reporting Period	Cumulative Statistics		
	Complaints	Notifications of Summons	Prosecutions
This reporting period	2	0	0
From 28 December 2015 to end of the reporting period	19	1	1

## **Appendix G. Data of SkyPier HSF Movements to/from Zhuhai and Macau (between 1 and 31 July 2020)**

**Data of SkyPier HSF Movements to/from Zhuhai and Macau (between 1 and 31 July 2020)**

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [XZM- Macao (Maritime Ferry Terminal) YFT- Macao (Taipa) ZUL- Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
1-Jul	10:16	3A061	YFT	Arrival	12.1	-	-
1-Jul	13:53	3A161	YFT	Departure	12.4	-	-
1-Jul	19:54	3A065	YFT	Arrival	12.3	-	-
1-Jul	23:18	3A165	YFT	Departure	13.2	-	-
2-Jul	9:56	3A061	YFT	Arrival	12.2	-	-
2-Jul	13:53	3A161	YFT	Departure	12.4	-	-
2-Jul	19:53	3A065	YFT	Arrival	12.6	-	-
2-Jul	22:56	3A165	YFT	Departure	13.1	-	-
3-Jul	10:06	8S912	YFT	Arrival	11.1	-	-
3-Jul	13:49	8S192	YFT	Departure	11.9	-	-
3-Jul	19:37	8S916	YFT	Arrival	12.1	-	-
3-Jul	22:57	8S198	YFT	Departure	11.3	-	-
4-Jul	9:42	8S912	YFT	Arrival	12.5	-	-
4-Jul	13:37	8S192	YFT	Departure	12.1	-	-
4-Jul	19:32	8S916	YFT	Arrival	12.7	-	-
4-Jul	22:51	8S198	YFT	Departure	13.1	-	-
5-Jul	9:54	3A061	YFT	Arrival	12.3	-	-
5-Jul	13:48	3A161	YFT	Departure	11.4	-	-
5-Jul	19:54	3A065	YFT	Arrival	11.5	-	-
5-Jul	22:36	3A165	YFT	Departure	12	-	-
6-Jul	10:06	3A061	YFT	Arrival	11.7	-	-
6-Jul	13:46	3A161	YFT	Departure	12.1	-	-
6-Jul	19:52	3A065	YFT	Arrival	11.7	-	-
6-Jul	22:49	3A165	YFT	Departure	12.2	-	-
7-Jul	9:48	8S912	YFT	Arrival	12.3	-	-
7-Jul	13:54	8S192	YFT	Departure	13.2	-	-
7-Jul	19:47	8S916	YFT	Arrival	12.5	-	-
7-Jul	22:29	8S198	YFT	Departure	13.4	-	-
8-Jul	9:46	8S912	YFT	Arrival	12.5	-	-
8-Jul	13:41	8S192	YFT	Departure	12.6	-	-
8-Jul	19:37	8S916	YFT	Arrival	11.9	-	-
8-Jul	22:42	8S198	YFT	Departure	12.5	-	-
9-Jul	10:08	3A061	YFT	Arrival	11.7	-	-
9-Jul	13:50	3A161	YFT	Departure	12.2	-	-
9-Jul	20:00	3A065	YFT	Arrival	11.9	-	-
9-Jul	23:19	3A165	YFT	Departure	13.4	-	-

Date	Time [Arrival at / Departure from HKIA SkyPier]	Ferry No.	Connecting Port [XZM - Macao (Maritime Ferry Terminal) YFT - Macao (Taipa) ZUL - Zhuhai Jiuzhou]	Travel Direction [Arrival at / Departure from HKIA SkyPier]	Average Speed within Speed Control Zone (knots)	Extent of Instantaneous Speeding by SkyPier HSFs across SCZ (knots)	Duration of the Instantaneous Speeding (min)
10-Jul	10:05	3A061	YFT	Arrival	11.6	-	-
10-Jul	13:52	3A161	YFT	Departure	12.3	-	-
10-Jul	19:54	3A065	YFT	Arrival	12.6	-	-
10-Jul	22:52	3A165	YFT	Departure	13.4	-	-
11-Jul	9:58	8S912	YFT	Arrival	12.7	-	-
11-Jul	13:46	8S192	YFT	Departure	12.2	-	-
11-Jul	20:10	8S916	YFT	Arrival	11.9	-	-
11-Jul	23:12	8S198	YFT	Departure	12.8	-	-
12-Jul	10:11	8S912	YFT	Arrival	10.6	-	-
12-Jul	13:51	8S192	YFT	Departure	12.7	-	-
12-Jul	19:45	8S916	YFT	Arrival	10.8	-	-
12-Jul	23:29	8S198	YFT	Departure	13	-	-
13-Jul	9:50	3A061	YFT	Arrival	12.4	-	-
13-Jul	13:53	3A161	YFT	Departure	12.5	-	-
13-Jul	19:53	3A065	YFT	Arrival	12.2	-	-
13-Jul	22:29	3A165	YFT	Departure	11.4	-	-
14-Jul	10:03	3A061	YFT	Arrival	12.2	-	-
14-Jul	13:50	3A161	YFT	Departure	12.1	-	-
14-Jul	20:09	3A065	YFT	Arrival	12.6	-	-
14-Jul	22:35	3A165	YFT	Departure	12.3	-	-
15-Jul	10:22	8S912	YFT	Arrival	12.7	-	-
15-Jul	13:50	8S192	YFT	Departure	12.1	-	-
15-Jul	20:12	8S916	YFT	Arrival	11.4	-	-
15-Jul	23:04	8S198	YFT	Departure	13	-	-
16-Jul	10:42	8S912	YFT	Arrival	12.7	-	-
16-Jul	14:03	8S192	YFT	Departure	12.7	-	-
16-Jul	19:38	8S916	YFT	Arrival	12.5	-	-
16-Jul	23:01	8S198	YFT	Departure	12.5	-	-