

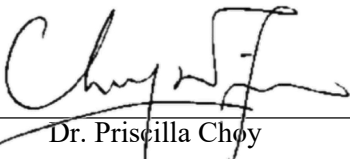
**Civil Engineering and Development Department**

**Service Contract No. WD/04/2020  
Development of Lok Ma Chau Loop:  
Main Works Package 1 –  
Environmental Team**

**Environmental Permit No.:  
EP-477/2013/A  
- Development of Lok Ma Chau Loop**

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

**(Version 1.0)**

Certified By   
\_\_\_\_\_  
Dr. Priscilla Choy  
(Environmental Team Leader)

REMARKS:

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

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

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Our ref.: LES/J2021-04/CS/L112  
Date : 17 April 2023

**By Post & Email**

Civil Engineering and Development Department  
West Development Office  
West Division (5)  
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38 Sai Lau Kok Road, Tsuen Wan,  
New Territories

**Attn: Ms. TAM Im Fei**

Dear Ms. TAM,

**Agreement No. WD/01/2020  
Development of Lok Ma Chau Loop: Main Works Package 1 – Independent  
Environmental Checker**

**Verification of Monthly EM&A Report (March 2023)**

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report of certified by the Environmental Team Leader in April 2023. We hereby verify the captioned submission in accordance with Clause 3.4 of the Environmental Permit No. EP-477/2013/A for the project of Development of Lok Ma Chau Loop.

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

Yours faithfully,  
For and On Behalf Of  
**Lam Environmental Services Limited**

Raymond Dai  
Independent Environmental Checker

c.c. AECOM  
Wellab Limited

Mr. Eric Wong  
Dr. Priscilla Choy

By Email  
By Email

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## EXECUTIVE SUMMARY

### Introduction

1. This is the 51<sup>st</sup> Monthly Environmental Monitoring and Audit (EM&A) Report prepared for Environmental Permit No.: EP-477/2013/A - Development of Lok Ma Chau Loop (hereinafter called “the Project”). This report documents the findings of Environmental Monitoring and Audit (EM&A) works conducted in the period from 1<sup>st</sup> to 31<sup>st</sup> March 2023 (hereinafter called “the reporting month”).
2. During the reporting month, the following Works Contracts were undertaken for the Project:
  - Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the “Contract 1”)
  - Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1 (hereinafter called the “Contract 2”)
  - Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

### Environmental Monitoring and Audit Activities

3. A summary of the EM&A activities in the reporting month is listed in **Table I** below:

**Table I Summary Table for EM&A Activities in the Reporting Month**

Environmental Aspect		Monitoring Parameter	Date
Air Quality		1-hr Total Suspended Particulates (TSP) Monitoring	1 <sup>st</sup> , 7 <sup>th</sup> , 13 <sup>th</sup> , 17 <sup>th</sup> , 23 <sup>rd</sup> and 29 <sup>th</sup> March 2023
		24-hr TSP Monitoring	6 <sup>th</sup> , 10 <sup>th</sup> , 16 <sup>th</sup> , 22 <sup>nd</sup> and 28 <sup>th</sup> March 2023
Construction Noise		Leq30mins	1 <sup>st</sup> , 7 <sup>th</sup> , 13 <sup>th</sup> , 23 <sup>rd</sup> and 29 <sup>th</sup> March 2023
Water Quality		<ul style="list-style-type: none"> <li>• Temperature</li> <li>• pH</li> <li>• Turbidity</li> <li>• Water depth</li> <li>• Salinity</li> <li>• Dissolved Oxygen (DO)</li> <li>• Suspended Solids (SS)</li> </ul>	1 <sup>st</sup> , 3 <sup>rd</sup> , 6 <sup>th</sup> , 8 <sup>th</sup> , 10 <sup>th</sup> , 13 <sup>th</sup> , 15 <sup>th</sup> , 17 <sup>th</sup> , 20 <sup>th</sup> , 22 <sup>nd</sup> , 24 <sup>th</sup> , 27 <sup>th</sup> , 29 <sup>th</sup> and 31 <sup>st</sup> March 2023
Ecological	Lok Ma Chau (LMC) Loop	Avifauna flight line survey	24 <sup>th</sup> March 2023
		Mammal monitoring (by infra-red flash cameras)	Temporary suspended as the connectivity between the reed marsh in the LMC Loop and the EA Zone has been fenced off due to other project’s land occupier (i.e. emergency hospital)

Environmental Aspect		Monitoring Parameter	Date
Ecological	Western Connection Road (WCR)	Avifauna flight line survey	24 <sup>th</sup> March 2023
		Avifauna survey at Pond 12	1 <sup>st</sup> , 6 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023
		Herpetofauna survey	3 <sup>rd</sup> March 2023
		Aquatic Fauna survey	27 <sup>th</sup> March 2023
		Water Quality Monitoring for Aquatic Fauna	<u>LMC Meander</u> 1 <sup>st</sup> , 3 <sup>rd</sup> , 6 <sup>th</sup> , 8 <sup>th</sup> , 10 <sup>th</sup> , 13 <sup>th</sup> , 15 <sup>th</sup> , 17 <sup>th</sup> , 20 <sup>th</sup> , 22 <sup>nd</sup> , 24 <sup>th</sup> , 27 <sup>th</sup> , 29 <sup>th</sup> and 31 <sup>st</sup> March 2023 <u>Stream and associated ponds south of Lung Hau Road</u> 8 <sup>th</sup> , 17 <sup>th</sup> , 20 <sup>th</sup> and 27 <sup>th</sup> March 2023
Site Environmental Audit	Environmental protection and pollution control measures	<u>Contract 1</u> 1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023 <u>Contract 2</u> 1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023 <u>Contract 3</u> 6 <sup>th</sup> , 13 <sup>th</sup> , 20 <sup>th</sup> and 27 <sup>th</sup> March 2023	

#### Breaches of Action and Limit Levels

4. Summary of the environmental exceedances of the reporting month is tabulated in **Table II**.

**Table II Summary Table for Environmental Exceedances in the Reporting Month**

Environmental Monitoring	Parameter	Action Level	Limit Level	Event & Action		
				Investigation Result	No. of Exceedance related to the Construction Works of the	Corrective Action
Air Quality	1-hr TSP	0	0	--	0	--
	24-hr TSP	0	0	--	0	--
Construction Noise	<u>Daytime</u> Leq(30min)	1	0	Refer to Appendix P	0	Refer to Appendix P
Water Quality	DO	0	0	--	0	--
	Turbidity	0	0	--	0	--
	SS	0	0	--	0	--

#### 1-hour TSP Monitoring

5. All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.



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24-hour TSP Monitoring

6. All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Construction Noise

7. All construction noise monitoring was conducted as scheduled in the reporting month. One Action Level exceedance was recorded due to the noise complaint received in the reporting month. No Limit Level exceedance was recorded.

Water Quality

8. All water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Ecological MonitoringLMC Loop*Avifauna (Flight Line Survey)*

9. Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. It demonstrates that the large waterbirds including migratory waterbirds such as Great Cormorant and Black-faced Spoonbill prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

*Mammals*

10. According the Clause 11.4.1.2 of EM&A Manual, the objective of mammals monitoring is to monitor the connectivity between the reed marsh in the LMC Loop and the EA Zone. In view of current site condition of Loop, the connectivity between the reed marsh in the LMC Loop and the EA Zone has been fenced off due to other project's land occupier.
11. In addition, the 12-month establishment period of EA zone has also been completed. The mammals monitoring in the Loop has therefore been temporarily suspended since March 2022 and will be resumed subject to the site condition.

Western Connection Road*Avifauna (Flight Line Survey)*

12. Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. It demonstrates that the large waterbirds including migratory waterbirds such as Great Cormorant and Black-faced Spoonbill prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

*Avifauna (Pond 12)*

13. Avifauna survey at Pond 12 was conducted as scheduled in the reporting month. Weekly count of birds using the Pond was recorded. No significant impact of construction activities on bird use of the pond was observed.

*Herpetofauna*

14. Herpetofauna survey was conducted as scheduled in the reporting month. It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population. However, no significant impact of construction activities on this species was observed.

*Aquatic fauna*

15. Aquatic fauna survey was conducted as scheduled in the reporting month. No significant impact of construction activities on the stream was observed.

**Land Contamination**

16. Decontamination for five arsenic-contaminated zones (LD01 - LD05) identified in LMC Loop was completed and the final Remediation Report was submitted and approved by EPD in accordance with Condition 2.16 of the EP-477/2013/A under Contract No. YL/2017/03.
17. No work related to land contamination was conducted in the reporting month.

**Site Environmental Audit**

18. In the reporting month, weekly joint site inspections to evaluate the site environmental performance had been carried out by the representatives of the Consultants, Independent Environmental Checker (IEC), Environmental Team (ET) and the Contractors. The date(s) of the weekly site environmental audit conducted under the Project are summarized in **Table III**.

**Table III Summary Table for Site Environmental Audit in the Reporting Month**

<b>Contract(s)</b>	<b>Date(s) of Site Environmental Audit</b>
Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023
Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1	1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	6 <sup>th</sup> , 13 <sup>th</sup> , 20 <sup>th</sup> and 27 <sup>th</sup> March 2023

19. No non-compliance was recorded during the site inspections.

**Complaint Log**

20. One environmental complaint related to noise nuisance was received in the reporting month.

**Notification of Summons and Successful Prosecutions**

21. No notification of summons or successful prosecution was received in the reporting month.

**Reporting Change**

22. This report has been prepared in compliance with the reporting requirements for the subsequent monthly EM&A Report as required by the EM&A Manual for Development of Lok Ma Chau Loop (EM&A Manual). No reporting change was made in the reporting month.

**Future Key Issues**

23. Major site activities for the coming reporting months will include:

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

- (a) Wetland Compensation Establishment Works and Ecological Monitoring
- (b) Additional Ground Investigation
- (c) Deep Cement Mixing Work for Vehicular Bridge over the Old Shenzhen River Meander and Western Connection Road
- (d) Piling Construction for Vehicular Bridge over the old Shenzhen River Meander
- (e) Structure Construction for Box Culverts
- (f) Drainage Works and Roadworks
- (g) Woodland Compensation Works

Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1

**Section 1**

- (a) Tree Felling and Site Clearance along RW8 area and immediate vicinity. Forming of temporary carriageway to divert traffic
- (b) UU detection / trial pit to locate 132kv line and protection measures for subway modification works
- (c) Demolition of Subway Cycle Track top portion and ramp walls Bay 12, 13 & 14
- (d) Reconstruction of the Subway
- (e) Excavation and lateral support for RW9

- (f) Construction of retaining wall RW9 base slab and wall stem
- (g) Commence construction of retaining wall RW8

#### Section 2A

- (h) Demolition of Existing Structures along Lok Ma Chau Road is pending VR/AECOM coordination
- (i) Continue Bored Piling for Retaining Wall BPW1
- (j) Site Clearance at LMC Road Zone 3, Zone 4, Zone 5 and Zone 6
- (k) Trial Pit to expose and shift existing Utilities in Zone 4
- (l) Trial Pit to expose and shift existing Utilities in Zone 5
- (m) Liaison with utility companies for utility diversion
- (n) UU works along Lok Ma Chau Road
- (o) Construction of Noise Barrier NB16
- (p) Drainage construction along Lok Ma Chau Road
- (q) Waterworks along Lok Ma Chau Road

#### Section 2B

- (r) Modification to Box Culvert (design change to foundation DK01 and FBP04 proposed to Integrated Structure EIBC)
- (s) Continue Predrilling / G.I. to foundation of proposed EIBC (under section 2C)

#### Section 2C

- (t) Pre-drilling and Trial Pits for Bridge ST01 and CTFB, including integrated structure of Box Culvert.
- (u) Bored pile and socketed H-Pile for Bridge ST01
- (v) Drainage diversion for Pier ST01-P04 foundation construction (PMI-018)
- (w) Pile Loading test to trial pile of FBA-01
- (x) Pile head treatment for ST01-P02 & P03
- (y) Construction of Pile Cap and Pier at ST01-P02 & P03

#### Section 3

- (z) Ground investigation / Pre-drilling and Trial Pits for Bridge DRL
- (aa) Bored pile and socketed H-Pile for Bridge DRL
- (bb) ELS to Cofferdam, Pile Trimming/Treatment for DRL-P12 & P13
- (cc) Commence construction of Pile Cap and Pier at DRL-P12 & P13
- (dd) Forming site access for piling of DRL-P02 & P03
- (ee) Interim watermain along TAR1

Section 5

(ff) Construction of Pai Lau Columns, Structure and Finishes

Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

- (a) LMC Station L1 Structural Opening for E&M Diversion
- (b) UU Diversion for Eatermain (MTR) and Diversion at EPTI
- (c) Traffic Diversion for Stage 2 Works at DDFB

## 1 INTRODUCTION

- 1.1 Wellab Limited (WELLAB) was appointed by the Civil Engineering and Development Department (CEDD) under Service Contract No. WD/04/2020 as the Environmental Team to undertake the Environmental Monitoring and Audit (EM&A) programme for the Works Contracts under Main Works Package 1 and the remaining works under Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works to ensure that the environmental performance of the Works Contracts comply with the requirements specified in the Environmental Permit (EP), Environmental Monitoring & Audit (EM&A) Manual, Environmental Impact Assessment (EIA) Report of the Project and other relevant statutory requirements.

### **Purpose of the report**

- 1.2 This is the 51<sup>st</sup> EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in the period from 1<sup>st</sup> to 31<sup>st</sup> March 2023.

### **Structure of the report**

- 1.3 The structure of the report is as follows:

Section 1: **Introduction** - purpose and structure of the report.

Section 2: **Project Information** - summarises background and scope of the Project, site description, project organisation and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licences during the reporting month.

Section 3: **Air Quality Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: **Noise Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: **Water Quality Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 6: **Ecological Monitoring** - summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequencies, monitoring locations and monitoring results.

Section 7 **Land Contamination** - summarises the remediation works progress for contamination soil and relevant submission.

Section 8 **Waste Management** – summarises the implementation status of waste management.

Section 9: **Environmental Site Inspection** - summarises the audit findings of the

weekly site inspections undertaken within the reporting month.

Section 10: **Implementation Status of Environmental Mitigation Measures** - summarises the compliance status of environmental mitigation measures.

Section 11: **Environmental Non-conformance** - summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 12: **Future Key Issues** - summarises the impact forecast and monitoring schedule for the next three months.

Section 13: **Conclusions and Recommendations**

## 2 PROJECT INFORMATION

### Background

- 2.1 The development at Lok Man Chau (LMC) Loop is one of the ten major infrastructure projects for economic growth of the Hong Kong Special Administrative Region (HKSAR). The HKSAR Government would work with the Shenzhen authorities to tap the land resources of the LMC Loop to meet future development needs and consolidate the strategic position of both cities in the Pan-Pearl River Delta region. The Project is to develop LMC Loop with higher education as the leading land use, complemented by high-tech research and development facilities and cultural and creative industries.
- 2.2 The planning and engineering study for the Loop development is a designated project (DP) classified under Item 1 Schedule 3 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). In October 2013, the EIA Report (AEIAR-176/2013) of the Project was approved by the Director of Environmental Protection pursuant to the EIA Ordinance in accordance with the EIA Study Brief (No. ESB-201/2008 and ESB-238/2011) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The Environmental Permit (EP) (EP no.: EP-477/2013) was also granted in November 2013.
- 2.3 Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-477/2013) based on the Application No. VEP- 595/2021 and the environmental Permit (Permit No. E EP-477/2013/A) was issued on 12<sup>th</sup> August 2021 for Development of Lok Ma Chau Loop.
- 2.4 The Loop development is implemented by three works packages in stages, namely: Advance Works, Main Works Package 1 (MWP1) and Main Works Package 2 (MWP2).
- 2.5 Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works (hereinafter called the “Contract”) was awarded to Sang Hing – Kuly Joint Venture (hereinafter called the “Contractor 1”) in June 2018 for the Advance Works. All construction works of Contract No. YL/2017/03 have been completed and the works were successfully handed over to AFCD and DSD on 30<sup>th</sup> December 2021.
- 2.6 For MWP1, there will be a total of 5 Works Contracts and the contract packaging is shown below.
- 1) Contract 1 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1
  - 2) Contract 2 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1
  - 3) Contract 3 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 – Direct Road Link Phase 2
  - 4) Contract 4 - Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 4 – Fresh Water Service Reservoir and Associated Waterworks
  - 5) Contract 5 - Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 5 – Landscaping Works within Lok Ma Chau Loop



- 2.7 Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the “Contract 1”) was awarded to CRCC-Kwan Lee-Paul Y. JV (hereinafter called the “Contractor 2”) in July 2021.
- 2.8 Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1 (hereinafter called the “Contract 2”) was awarded to China Road and Bridge Corporation (hereinafter called the “Contractor 3”) in September 2021.
- 2.9 Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2 (hereinafter called the “Contract 3”) was awarded to Paul Y.-Chun Wo-CRCC JV (hereinafter called the “Contractor 4”) in February 2022.
- 2.10 During the reporting month, the following Works Contracts were undertaken for the Project:
- Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (Contract 1)
  - Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1 (Contract 2)
  - Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2 (Contract 3)
- 2.11 The layout of the construction works under the Project and the scope of works under the Project are summarized in **Table 2.1**.

**Table 2.1 Site Layout and Scope of Works under the Project**

Contract(s)	Scope of Works	Site Layout Plan
Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works (Completed)	a) Land decontamination treatment within the Loop; b) Establishment of an Ecological Area (EA) within the Loop; c) Construction of a temporary access to the Loop; d) Minor improvement works to Ha Wan Tsuen East Road and other ancillary works; e) Construction of temporary noise barriers and miscellaneous road works along Lok Ma Chau Road; f) Ground treatment works to the first batch of land parcels within the Loop for development of buildings and associated facilities for Phase 1 of the Hong Kong – Shenzhen Innovation and Technology Park and development of the western electricity substation; and g) Implementation of environmental mitigation measures for the works mentioned in the items (a) to (f) above.	Figure 1a

Contract(s)	Scope of Works	Site Layout Plan
Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	a) Ground treatment and site formation works; b) Construction of carriageway, footpaths, cycle tracks and a public transport interchange within the Loop; c) Construction of Western Connection Road Phase 1 through widening of existing Ha Wan Tsuen East Road, which includes construction of footpath, cycle track, slopes, retaining walls and a vehicular bridge over the old Shenzhen River meander; d) Provision of other infrastructures, including a tertiary sewage treatment works and sewerage system, water supply system, drainage system, and other associated works; and e) Environmental mitigation measures including about 18 ha offsite wetland compensation and about 1.3 ha offsite woodland compensation.	Figure 1b
Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1	a) Construction of Western Connection Road Phase 2 through widening of a section of existing Lok Ma Chau Road; b) Construction of Direct Road Link Phase 1 comprising a viaduct of about 720m long; construction of slip roads connecting Lok Ma Chau Road and Fanling Highway / San Tin Highway including a viaduct of about 340 m long; c) Construction of a cycle track cum footbridge; d) Construction of associated works including road improvement works, footpaths, cycle tracks, slopes, retaining walls, water supply system and drainage system; and e) Provision of noise barriers.	Figure 1b
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	a) Construction of an elevated public transport interchange of an approximate area of 5,700 square metres above the existing Lok Ma Chau Spur Line Public Transport Interchange; b) Construction of an approximately 90 metres long double-deck footbridge and a lift tower of approximately 21 metres in height with three lifts and three escalators connecting the elevated public transport interchange mentioned above to the MTR Lok Ma Chau Station; c) Associated modification works within the MTR Lok Ma Chau Station; and d) Associated roadworks, landscaping, electrical and mechanical works and ancillary works.	Figure 1b

## Project Organisation

2.12 Different parties with different levels of involvement in the Project organization. The key personnel contact names and numbers are summarised in **Table 2.2**.

**Table 2.2 Key Contacts of the Project**

Organization	Project Role	Contact Person	Tel No.	Fax No.
CEDD	Project Proponent	Mr. Davy KS CHAN	2417 6370	2412 0358
WELLAB	ET	Dr Priscilla Choy – ET Leader	2898 7388	2898 7076
Lam Environmental Services Limited (LAM)	IEC	Mr. Raymond Dai	2839 5666	2882 3331
<b>Contract No. YL/2020/01</b>				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
CRCC-Kwan Lee-Paul Y. JV	Contractor	Site Agent – Mr. Jeremy Luk	9013 7913	2774 0197
		Senior Engineer – Mr. Max Mak	9263 1116	2774 0197
		Senior Engineer – Mr. Stephen Leung	9770 6390	2774 0197
		Environmental Officer – Ms. Lila Lui	5261 0378	2774 0197
<b>Contract No. YL/2020/02</b>				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
China Road and Bridge Corporation	Contractor	Site Agent – Mr. Roger Poon	9503 2488	3996 9202
		Construction Team Leader – Mr. Angus Mok	98389224	3996 9202
		Environmental Officer – Mr. Calvin So	9724 6254	3996 9202
<b>Contract No. YL/2021/01</b>				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
Paul Y.-Chun Wo-CRCC JV	Contractor	Site Agent – Mr. Desmond Tang	5188 0815	3015 7861
		Section Agent – Mr. Charles Choi	6350 0142	3015 7861
		Environmental Officer – Mr. Tino Law	6856 4150	3015 7861

## Construction Programme

2.13 Copies of contractors' construction programmes are provided in **Appendix A**.

### Summary of Construction Works Undertaken During Reporting Month

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

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

- (a) Wetland Compensation Establishment Works and Ecological Monitoring
- (b) Ground Investigation Works, Deep Cement Mixing works and Piling works for Vehicular Bridge over the Old Shenzhen River Meander
- (c) Excavation and Lateral Support (ELS) Cofferdam Construction for Box Culvert A and C
- (d) Excavation and Lateral Support (ELS) Cofferdam Construction and Underground Utilities (UU) installation for Road L1
- (e) Deep Cement Mixing works for Western Connection Road

Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1

- (a) Tree felling works
- (b) Pre-drilling works
- (c) Socketed H-pile, Approach Ramp & Abutment DRL-A01 and Compression load test for FBA-01-P4
- (d) Demolition of Existing Structures
- (e) DDA for Full-span erection of ST01
- (f) Retaining Wall BPW1 Bored Piling works, excavation for bored pile and concrete for bored pile
- (g) Bored pile works at ST01, CTFB and DRL
- (h) Construction of base slab Bay 16 to Bay 13, excavation for Bay 8 to 10 and deposition of rock fill
- (i) Trial pit to expose 132kV powerline and sheet piling
- (j) Construction of Pai Lau columns
- (k) TTA along footpath in Lok Ma Chau Road and Trial pit for CLP 132kV cable joint bay
- (l) ELS of Pile Cap, pile head treatments and drainage diversion
- (m) Concrete plant trial in Precast Yard in Panyu, China
- (n) Drainage diversion for forming site access near DRL-P02, temporary access ramp

from LMC MTR Station to Reedbed No. 3, Site setup in Reedbed No.3 and Sheet pile driving for ELS of DRL-P12

Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

- (a) Underground Utility detection
- (b) Pre-drilling
- (c) Trial pit excavation
- (d) Material / Waste Lifting and Delivery
- (e) Utilities diversion
- (f) Bored pile construction
- (g) Erect external scaffold outside LMC Station
- (h) E&M
- (i) ABWF
- (j) Temporary Lighting system
- (k) Site Demarcation

**Status of Environmental Licences, Notifications and Permits**

2.15 A summary of the relevant permits, licences, and/or notifications on environmental protection for the Project is presented in **Table 2.3**.

**Table 2.3 Status of Environmental Licences, Notifications and Permits**

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
<b>Environmental Permit (EP)</b>				
Contract No. YL/2020/01	EP-477/2013	22/11/2013	N/A	Valid
Contract No. YL/2020/02	EP-477/2013/A	12/08/2021	N/A	Valid
Contract No. YL/2021/01				
<b>Construction Noise Permit (CNP)</b>				
Contract No. YL/2020/01	GW-RN0022-23	14/01/2023	13/04/2023	Valid
Contract No. YL/2020/02	GW-RN0113-23	10/02/2023	09/06/2023	Valid
	GW-RN0142-23	09/02/2023	08/05/2023	Valid
	GW-RN0326-23	31/03/2023	30/06/2023	Valid
Contract No. YL/2021/01	GW-RN1230-22	28/12/2022	27/03/2023	Expired
	GW-RN0277-23	28/03/2023	27/06/2023	Valid
<b>Notification pursuant to Air Pollution Control (Construction Dust) Regulation</b>				
Contract No. YL/2020/01	469726	21/07/2021	Till the Contract ends	Receipt acknowledged by EPD
Contract No. YL/2020/02	471916	20/09/2021	Till the Contract ends	Receipt acknowledged by EPD
Contract No. YL/2021/01	479880	17/05/2022	Till the Contract ends	Receipt acknowledged by EPD

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
<b>Billing Account for Disposal of Construction Waste</b>				
Contract No. YL/2020/01	7041333	27/07/2021	Till the Contract ends	Valid
Contract No. YL/2020/02	7041861	15/10/2021	Till the Contract ends	Valid
Contract No. YL/2021/01	7043434	22/05/2022	Till the Contract ends	Valid
<b>Registration of Chemical Waste Producer</b>				
Contract No. YL/2020/01	WPN 5213-620-C4632-01	21/07/2021	Till the Contract ends	Valid
Contract No. YL/2020/02	WPN 5213-542-C1232-24	29/11/2021	Till the Contract ends	Valid
Contract No. YL/2021/01	WPN 5213-542-P3483-01	21/04/2022	Till the Contract ends	Valid
<b>Effluent Discharge License under Water Pollution Control Ordinance</b>				
Contract No. YL/2020/01	WT00039466-2021	04/01/2023	31/12/2026	Valid
	WT00041233-2022	18/07/2022	31/07/2027	Valid
Contract No. YL/2020/02	WT00041280-2022	27/07/2022	31/07/2027	Valid
	WT00042556-2022	23/11/2022	30/11/2027	Valid
Contract No. YL/2021/01	WT00041259-2022	21/07/2022	31/07/2027	Valid
<b>Specified Processes for Cement Works under Air Pollution Control Ordinance</b>				
Contract No. YL/2020/01	In application			

### Status of Compliance with Environmental Permits Conditions

2.16 The status of compliance with Environmental Permit (EP) No. EP-477/2013/A and required submission related to this Project under the EP is summarized in **Table 2.4**:

**Table 2.4 Summary Table for Status of Compliance / Required Submission under EP No. EP-477/2013/A**

EP Conditions	Submission(s)	Requirement	Submission Date	Approval Status
2.3	Management Organizations	no later than one month before the commencement of construction of the Project	<u>YL/2020/01</u> : 7 July 2021 <u>YL/2020/02</u> : 17 Nov 2021 <u>YL/2021/01</u> : 30 Mar 2022	*
2.4	Pedestrian Walkway Reserve in the Direct Link to MTR LMC Station	at least one month before the commencement of construction of the Direct Link, deposited with the Director	17 Nov 2021	*
2.5 & 2.6	Submission of Works Schedule and Location Plans	Works Schedule: at least one month before the commencement of the works of the Project Location Plan: at least two weeks before the	<u>YL/2020/01</u> : 7 July 2021 <u>YL/2020/02</u> : 17 Nov 2021 <u>YL/2021/01</u> : 30 Mar 2022	*

EP Conditions	Submission(s)	Requirement	Submission Date	Approval Status
		commencement of the works of the Project		
2.7	Ecological Mitigation / Habitat Creation and Management Plan	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	7 Dec 2021 (Issue 4)	*
2.8	Landscape Plan	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	To be submitted at least one month before the commencement of corresponding parts of the works of the Project (tentative submission date will be supplemented once available)	*
2.11	Emergency Contingency Plan	at least one month before the commencement of the concerned works of the Project, deposited with the Director	26 Oct 2021	*
2.15	Re-appraisal report	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	18 Jun 2021	*
2.16	Remediation Report	no later than one month after the completion of the remediation works for approval	N/A (no remediation is required according to re-appraisal report)	N/A
2.17	(a) Updated Contamination Assessment Plan (CAP) (b) Contamination Assessment Report (CAR) (c) Remedial Action Plan (RAP) (d) Remediation Report (RR)	(a) submitted to the Director for approval (b) no later than two months after the completion of the Supplementary SI (c) submitted to the Director for approval (d) no later than one month after the completion of the remediation works for approval	N/A (no remediation is required according to re-appraisal report)	N/A
3.3	Baseline Monitoring Report	at least one month before commencement of construction of the Project.	3 Dec 2018	*
3.4	Monthly EM&A Report	within 10 working days after the end of each reporting month	Regular submitted within 10 working days after the end of each reporting month	*

Remarks: \* Approval not required in EP-477/2013/A  
N/A – Not Applicable

### 3 AIR QUALITY MONITORING

#### Monitoring Requirements

- 3.1 In accordance with the EM&A Manual for Development of Lok Ma Chau Loop (EM&A Manual), impact 1-hour Total Suspended Particulates (TSP) and 24-hour TSP monitoring were conducted to monitor the air quality for the Project. **Appendix B** shows the established Action/Limit Levels for the air quality monitoring work.
- 3.2 Impact 1-hour TSP monitoring was conducted for at least three times every 6 days, while impact 24-hour TSP monitoring was conducted for at least once every 6 days at 4 air quality monitoring stations.

#### Monitoring Location

- 3.3 Impact air quality monitoring was conducted at the 4 monitoring stations under the Project, as shown in **Figure 2**. **Table 3.1** describes the location of the air quality monitoring stations.

**Table 3.1 Location of Air Quality Monitoring Stations**

Monitoring Station	Location
DMS-1a (see Note 1)	Village House along Ha Wan Tsuen East Road
DMS-2A (see Note 2)	Village House along Lok Ma Chau Road
DMS-2B (see Note 3)	Site boundary near Village House along Lok Ma Chau Road
DMS-3	Village House along Old Border Road
DMS-4A (see Note 4)	Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Notes:

1. In view of the disturbance concerned by the villagers near the original air quality monitoring location DMS-1, an alternative location (DMS-1a) was proposed which was verified by IEC and agreed by EPD.
2. Monitoring at DMS-2 (originally proposed in the approved EM&A Manual) was denied during the baseline monitoring. An alternative location (DMS-2A) was proposed which was verified by IEC and agreed by EPD.
3. Alternative location (DMS-2B) was proposed due to DMS-2A is situated within the site area for upcoming road widening works which was verified by IEC and agreed by EPD.
4. Proposed replacement monitoring location for Air Sensitive Receiver (ASR) MTL-20 – Village house in Ma Tso Lung (DMS-4A) as no work would be conducted near ASR MTL-20 due to exclusion of the original Eastern Connection Road (ECR) which was verified by IEC and agreed by EPD.

#### Monitoring Equipment

- 3.4 **Table 3.2** summarises the equipment used in the impact air monitoring programme. Copies of calibration certificates are attached in **Appendix C**.

**Table 3.2 Air Quality Monitoring Equipment**

Monitoring Station(s)	Equipment	Model and Make	Quantity
DMS-3 DMS-4A	HVS Sampler for 24-hour TSP monitoring	TISCH Model: TE-5170	2
	1-hour TSP Dust Meter	Met One Instruments: AEROCET-831	4



Monitoring Station(s)	Equipment	Model and Make	Quantity
	Calibrator	TISCH Model: TE-5025A	1
(1) DMS-2B (2) DMS-1a	Dust Meter for 1-hour and 24-hour TSP monitoring	Met One Instruments: AEROCET-831	2
DMS-4A	Wind Anemometer	DAVIS Model: Vantage PRO2 6152CUK	1

**Remarks:**

(1) Air quality monitoring has been conducted at DMS-2B (and suspended from DMS-2A) starting from 20 January 2023. Due to the complaint received from the nearby villager about the sound arising from HVS, dust meter was requested for air quality monitoring at DMS-2B starting from March 2023. IEC had no comment on the proposal of using dust meter for monitoring at DMS-2B.

(2) The power supply from the Village House at DMS-1a is not secured for operation of HVS. Therefore, dust meter for 24-hr TSP monitoring at DMS-1a was proposed to ensure the monitoring data collection. IEC had no comment on the proposal of using dust meter for 24-hr TSP monitoring at DMS-1a on 21 June 2022.

**Monitoring Parameters and Frequencies**

- 3.5 **Table 3.3** summarises the monitoring parameters and frequencies of impact dust monitoring during the course of the Project activities. The air quality monitoring schedule for the reporting month is shown in **Appendix D**.

**Table 3.3 Impact Air Quality Monitoring Parameters and Frequencies**

Parameters	Frequency
1-hr TSP	Three times in every 6 days
24-hr TSP	Once per 6 days

**Monitoring Methodology and Quality Assurance/Quality Control (QA/QC) Procedure****24-hour TSP Air Quality Monitoring*****Instrumentation***

- 3.6 HVSs completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. Each sampler was composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complies with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).

***HVS Installation***

- 3.7 The following guidelines were adopted during the installation of HVS:

- A horizontal platform with appropriate support was provided to secure the samplers against gusty wind;
- No two samplers were placed less than 2 metres apart;
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protruded above the sampler;

- A minimum of 2 metres of separation from walls, parapets and penthouses was required for rooftop samples;
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required;
- No furnaces or incineration flues were nearby;
- Airflow around the sampler was unrestricted;
- The samplers were more than 20 metres from the drip line;
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- Permission and access to the monitoring stations had been obtained to set up the samplers; and
- A secured supply of electricity was provided to operate the samplers.

### ***Filters Preparation***

- 3.8 Wellab Limited was the HOKLAS accredited laboratory (HOKLAS Registration No.083) and responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for the monitoring team.
- 3.9 All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than  $\pm 3$  °C; the relative humidity (RH) was  $< 50\%$  and not variable by more than  $\pm 5\%$ . A convenient working RH was 40%.
- 3.10 Wellab Limited has comprehensive QA and QC programmes.

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

- 3.11 Operating/analytical procedures for the air quality monitoring were highlighted as follows:
- Prior to the commencement of the dust sampling, the flow rate of the HVS was properly set (between 1.1 m<sup>3</sup>/min. and 1.4 m<sup>3</sup>/min.) in accordance with the manufacturer's instruction to within the range recommended in USEPA Standard Title 40, CFR Part 50;
  - The power supply was checked to ensure the sampler worked properly;
  - On sampling, the sampler was operated for 5 minutes to establish thermal equilibrium before placing any filter media at the designated air quality monitoring station;
  - The filter holding frame was then removed by loosening the four nuts and carefully a weighted and conditioned filter was centered with the stamped number upwards, on a supporting screen;
  - The filter was aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter. Then the filter holding frame was tightened to the filter holder with swing bolts. The applied pressure should be sufficient to avoid air leakage at the edges;
  - The shelter lid was closed and secured with the aluminum strip;
  - The timer was then programmed. Information was recorded on the record sheet, which included the starting time, the weather condition and the filter number (the initial weight of the filter paper could be found out by using the filter number);
  - After sampling, the filter was removed and kept in a clean and tightly sealed plastic bag. The filter paper was then returned to the Wellab Limited for reconditioning in

the humidity-controlled chamber followed by accurate weighting by an electronic balance with a readout down to 0.1mg. The elapsed time was also recorded; and

- Before weighing, all filters were equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than  $\pm 3^\circ\text{C}$ ; the RH should be  $< 50\%$  and not vary by more than  $\pm 5\%$ . A convenient working RH is 40%. Weighing results were returned for further analysis of TSP concentrations collected by each filter.

### ***Maintenance/Calibration***

3.12 The following maintenance/calibration was required for the HVS:

- The high-volume motors and their accessories were properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking were made to ensure that the equipment and necessary power supply are in good working condition; and
- All HVSs were calibrated (five-point calibration) using Calibration Kit prior to the commencement of the baseline monitoring and thereafter at bi-monthly intervals.

### **1-hour and 24-hour TSP Air Quality Monitoring**

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

#### **(AEROCET-831)**

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Press and hold the Power key momentarily to power on the unit and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 second to display the Sample Screen minutes.
- Press the START / STOP key to run the internal vacuum pump for 1 minute and ready to use.
- Use the select dial to select the PM range and press the START / STOP key to start a measurement.
- Finally, push the START/STOP key to stop the measuring after 1 hour sampling.
- For 24-hour TSP monitoring, the hold time was set for collection of 24-hour TSP samples. A separate automotive battery was used to support the dust meter for 24-hour TSP monitoring.
- Information such as sampling date, time, value and site condition were recorded during the monitoring period.
- All data were recorded in the data logger for further data processing.

### ***Maintenance/Calibration***

3.14 The following maintenance/calibration is required for the direct dust meters:

- Check and calibrate the meter by HVS to check the validity and accuracy of the results measured by direct reading method prior to the commencement of the baseline monitoring. Dust meter will be checked and calibrated at bi-monthly intervals throughout the air quality monitoring period, if necessary.

## **Results and Observations**

- 3.15 The monitoring results for 1-hour TSP and 24-hour TSP are summarised in **Table 3.4** and **Table 3.5** respectively. Detailed monitoring results and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.

**Table 3.4 Summary Table of 1-hour TSP Monitoring Results during the Reporting Month**

Monitoring Station	Concentration ( $\mu\text{g}/\text{m}^3$ )		Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
	Average	Range		
DMS – 1a	104.4	52.2 – 193.8	353	500
DMS – 2B	112.0	56.5 – 218.3	370	
DMS – 3	101.4	56.2 – 181.7	351	
DMS – 4A	98.2	49.5 – 187.8	350	

**Table 3.5 Summary Table of 24-hour TSP Monitoring Results during the Reporting Month**

Monitoring Station	Concentration ( $\mu\text{g}/\text{m}^3$ )		Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
	Average	Range		
DMS – 1a	77.1	58.7 – 92.0	184	260
DMS – 2B	75.1	60.3 – 90.5	166	
DMS – 3	57.6	39.9 – 75.3	166	
DMS – 4A	40.5	27.2 – 50.2	152	

- 3.16 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3.17 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.
- 3.18 According to our field observations, the major dust source identified at the designated air quality monitoring stations in the reporting month are as follows:

**Table 3.6 Observation at Air Quality Monitoring Stations**

Monitoring Station	Major Dust Source
DMS-1a	Road traffic, exposed site area, site vehicle / equipment movement
DMS-2B	Road traffic, site vehicle / equipment movement
DMS-3	Road traffic
DMS-4A	Road traffic

- 3.19 The wind speed and wind direction were recorded by the installed Wind Anemometer set at DMS-4A. The location is shown in **Figure 2**.
- 3.20 The general weather condition and the wind data for the reporting month are summarised in **Appendix I**.

**Event and Action Plan**

- 3.21 Should any project related non-compliance of the criteria occur, action in accordance with the Event Action Plan in **Appendix J** shall be carried out.

## 4 NOISE MONITORING

### Monitoring Requirements

- 4.1 In accordance with the EM&A Manual, four noise monitoring stations, namely NMS-1, NMS-2, NMS-3 and NMS-4A were selected for impact monitoring for the Project. Impact noise monitoring was conducted for at least once per week during the construction phase of the Project. **Appendix B** shows the established Action / Limit Levels for the noise monitoring works.

### Monitoring Location

- 4.2 Impact noise monitoring was conducted at the 4 monitoring stations under the Project, as shown in **Figure 3**. **Table 4.1** describes the locations of the noise monitoring stations.

**Table 4.1 Location of Noise Monitoring Stations**

Monitoring Station	Location	Measurement
NMS-1	Village house in Ha Wan Tsuen	Façade Measurement
NMS-2	Village house along existing Ha Wan Tsuen	Free Field
NMS-3	Village house along Old Border Road	Free Field
NMS-4A (see Note 1)	Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill	Free Field measurement

Note:

- Proposed replacement monitoring location for Noise Sensitive Receiver (NSR) MTL-20 – Village house in Ma Tso Lung (DMS-4A) as no work would be conducted near NSR MTL-20 due to exclusion of the original ECR.

### Monitoring Equipment

- 4.3 **Table 4.2** summarises the noise monitoring equipment. Copies of calibration certificates are provided in **Appendix C**.

**Table 4.2 Noise Monitoring Equipment**

Equipment	Model	Quantity
Integrating Sound Level Meter	BSWA 308	2
Calibrator	SVANTEK SV 30A	1

### Monitoring Parameters, Frequency and Duration

- 4.4 **Table 4.3** summarises the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**.

**Table 4.3 Noise Monitoring Parameters, Duration and Frequency**

Monitoring Stations	Parameter	Duration	Frequency
NMS-1 NMS-2 NMS-3 NMS-4A	L <sub>10</sub> (30 min.) dB(A) L <sub>90</sub> (30 min.) dB(A) Leq(30 min.) dB(A) (as six consecutive Leq, 5min readings)	0700-1900 hrs on normal weekdays	Once per week

**Remarks:**

A-weighted equivalent continuous sound pressure level ( $L_{eq}$ ). It is the constant noise level which, under a given situation and time period, contains the same acoustic energy as the actual time-varying noise level.

$L_{10}$  is the level exceeded for 10% of the time. For 10% of the time, the sound or noise has a sound pressure level above  $L_{10}$ .

$L_{90}$  is the level exceeded for 90% of the time. For 90% of the time, the noise level is above this level.

**Monitoring Methodology and QA/QC Procedures**

- The microphone head of the sound level meter was positioned at 1m from the exterior of the noise sensitive facade and lowered sufficiently so that the building's external wall acted as a reflecting surface;
- The battery condition was checked to ensure the correct functioning of the meter;
- Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:
  - frequency weighting : A
  - time weighting : Fast
  - time measurement :  $L_{eq}(30 \text{ min.}) \text{ dB(A)}$   
(as six consecutive  $L_{eq, 5\text{min}}$  readings) during non-restricted hours (i.e. 0700-1900 hrs on normal weekdays)
- Prior to and after each noise measurement, the meter was calibrated using a Calibrator for 94.0 dB at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1.0 dB, the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment;
- During the monitoring period, the  $L_{eq}$ ,  $L_{90}$  and  $L_{10}$  were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet;
- Noise measurement was paused temporarily during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible and observation record during measurement period should be provided; and
- Noise monitoring was cancelled in the presence of fog, rain, and wind with a steady speed exceeding 5 m/s, or wind with gusts exceeding 10 m/s. The wind speed should be checked with a portable wind speed meter capable of measuring the wind speed in m/s.

***Maintenance and Calibration***

4.5 The microphone head of the sound level meter and calibrator were cleaned with a soft cloth at quarterly intervals.

4.6 The sound level meter and calibrator were checked and calibrated at yearly intervals.

- 4.7 Immediately prior to and following each noise measurement, the accuracy of the sound level meter should be checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements would be accepted as valid only if the calibration levels before and after the noise measurement agreed to within 1.0 dB.

### Results and Observations

- 4.8 The noise monitoring results are summarised in **Table 4.4**. Detailed monitoring results and graphical presentations of noise monitoring are shown in **Appendix G**.

**Table 4.4 Summary Table of Noise Monitoring Results during the Reporting Month**

Monitoring Station	Noise Level, $L_{eq}$ (30min) dB(A)		Action Level	Limit Level
	Average	Range		
NMS-1	63.7	60.2 – 67.3	When one documented complaint is received.	75 dB(A)
NMS-2	72.4	71.4 – 73.0		
NMS-3	58.9	52.0 – 62.5		
NMS-4A	50.7	46.6 – 53.7		

Remark: +3dB(A) façade correction included

If works are to be carried out during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

- 4.9 All noise monitoring was conducted as scheduled in the reporting month. One Action Level exceedance was recorded due to the noise complaint received in the reporting month. No Limit Level exceedance was recorded.
- 4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

**Table 4.5 Observation at Noise Monitoring Stations**

Monitoring Station	Major Noise Source
NMS-1	Excavation works, loading and unloading works, site vehicle / equipment movement
NMS-2	Road traffic, site vehicle / equipment movement
NMS-3	Road traffic
NMS-4A	Road traffic

### Event and Action Plan

- 4.11 Should any project related non-compliance of the criteria occur, action in accordance with the Event Action Plan in **Appendix J** shall be carried out.



## 5 WATER QUALITY MONITORING

### Monitoring Requirements

- 5.1 According to the EM&A Manual, impact water quality monitoring shall be carried out three days per week during the construction period. The interval between two sets of monitoring shall not be less than 36 hours.
- 5.2 Replicate in-situ measurements and samples collected from each independent sampling event shall be collected to ensure a robust statistically interpretable database.
- 5.3 Impact water quality monitoring was conducted at three depths (i.e. 1m below surface, mid-depth and 1m above river bed, except where the water depth was less than 6m, mid-depth station might be omitted. Should the water depth be less than 3m, only the mid-depth station was monitored) dissolved oxygen (DO) concentration, DO saturation, suspended solids (SS), turbidity, pH, salinity and temperature were monitored in accordance with the requirements set out in the EM&A Manual.
- 5.4 **Appendix B** shows the established Action and Limit Levels for the water quality monitoring work.

### Monitoring Locations

- 5.5 Impact water quality monitoring was conducted at 6 monitoring stations under the Project, which is summarised in **Table 5.1**. The locations of monitoring stations are shown in **Figure 4**.
- 5.6 Based on the updated construction programme under Contract No. YL/2017/03, the water-based construction works for temporary vehicular bridge was completed on 7<sup>th</sup> April 2021 which was confirmed by Engineer Representative under Contract No. YL/2017/03 via email dated 15<sup>th</sup> June 2021. The additional monitoring station, BS1 was therefore proposed to be deleted from the water quality monitoring programme starting from 28<sup>th</sup> June 2021. Other water quality monitoring stations remain unchanged. This Proposal for Update of Water Quality Monitoring Stations was verified by IEC and agreed by EPD via email dated 22<sup>nd</sup> June 2021.

**Table 5.1 Location for Water Quality Monitoring Stations**

Monitoring Station	Location	Nature of the Location
CS1	Control Station at Old Shenzhen River	Control Station at Meander
IS1	Impact Station at Old Shenzhen River	Impact Station at Meander
IS2	Impact Station at Old Shenzhen River	Impact Station at Meander
IS4	Impact Station at Ping Hang Stream	Reference Station
CS5	Control Station at south of Lung Hau	Control Station for IS6
IS6	Impact Station near Lung Hau Road	Impact Station
<sup>(1)</sup> BS1	Impact Station at Old Shenzhen River Meander	Additional impact station for temporary vehicular bridge

Note:

1. Terminated starting from 28<sup>th</sup> June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22<sup>nd</sup> June 2021).

## **Monitoring Equipment**

### **Instrumentation**

- 5.7 A multi-parameter meters (Model YSI EXO) were used to measure DO, turbidity, salinity, pH and temperature.

### **DO and Temperature Measuring Equipment**

- 5.8 The instrument for measuring DO and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:

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

- 5.9 It had a membrane electrode with automatic temperature compensation complete with a cable.
- 5.10 Sufficient stocks of spare electrodes and cables were available for replacement where necessary.
- 5.11 Salinity compensation was built-in in the DO equipment.

### **Turbidity**

- 5.12 Turbidity was measured in-situ by the nephelometric method. The instrument was portable and weatherproof using a DC power source complete with cable, sensor and comprehensive operation manuals. The equipment was capable of measuring turbidity between 0-1000 NTU. The probe cable was not less than 25m in length. The meter was calibrated in order to establish the relationship between NTU units and the levels of SS. The turbidity measurement was carried out on split water sample collected from the same depths of SS samples.

### **Sampler**

- 5.13 A water sampler, consisting of a transparent Polyvinyl Chloride (PVC) of a capacity of not less than two litres which could be effectively sealed with cups at both ends was used. The water sampler had a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth. In addition, a self-made sampling bucket was also used for sampling at the monitoring station with shallow water.

### **Water Depth Detector**

- 5.14 A portable, battery-operated echo sounder was used for the determination of water depth at each designated monitoring station.

### **pH**

- 5.15 The instrument was consisting of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It was readable to 0.1pH in a range of 0 to 14. Standard buffer solutions of at least pH 7 and pH 10 were used for calibration of the instrument before and after use.

**Salinity**

- 5.16 A portable salinometer capable of recording salinity within the range of 0-40 ppt was used for salinity measurements.

**Sample Container and Storage**

- 5.17 Following collection, water samples for laboratory analysis were stored in high density polythene bottles (250ml/1L) with no preservatives added, packed in ice (cooled to 4 °C without being frozen) and kept in dark during both on-site temporary storage and shipment to the testing laboratory. The samples were delivered to the laboratory as soon as possible and the laboratory determination work was started within 24 hours after collection of the water samples. Sufficient volume of samples was collected to achieve the detection limit.
- 5.18 **Table 5.2** also summarises the type of sampling bottle and preservation method for laboratory testing.

**Table 5.2 Types of Sampling Bottle and Preservation Method**

Parameter	Preservation Method	Type of Sample Container
Total SS	Refrigerate	1 litre plastic bottle

**Calibration of In-Situ Instruments**

- 5.19 All in-situ monitoring instruments were checked, calibrated and certified by Wellab Limited before use, and subsequently re-calibrated at 3-month intervals throughout all stages of the water quality monitoring programme. 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 measurement at each monitoring event.
- 5.20 For the on-site calibration of field equipment (Multi-parameter Water Quality System), the BS 1427:2009, "Guide to on-site test methods for the analysis of waters" was observed.
- 5.21 Sufficient stocks of spare parts were maintained for replacement when necessary. Backup monitoring equipment was also being made available so that monitoring could proceed uninterrupted even when some equipment was under maintenance, calibration, etc.
- 5.22 The equipment used for impact water quality monitoring is shown in **Table 5.3** and copies of the calibration certificates are shown in **Appendix C**. All the monitoring equipment complied with the requirements set out in the EM&A Manual.

**Table 5.3 Water Quality Monitoring Equipment**

Equipment	Model and Make	Quantity
Sonar Water Depth Detector	Garmin Fishfinder 140 / Garmin Striker plus 4	1
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends or self-made sampling bucket	1
Multi-parameter Water Quality System	YSI EXO 1	4

## Monitoring Parameters and Frequency

5.23 **Table 5.4** summarises the monitoring parameters, monitoring depths and frequency of the water quality monitoring. The water quality monitoring schedule for the reporting month is shown in **Appendix D**.

**Table 5.4 Water Quality Monitoring Parameters, Depths and Frequency**

Monitoring Station	Parameter (unit)	Depth	Frequency
CS1, IS1, IS2, IS4, CS5, IS6	<ul style="list-style-type: none"> <li>• Temperature(°C)</li> <li>• pH (pH unit)</li> <li>• turbidity (NTU)</li> <li>• water depth (m)</li> <li>• salinity (ppt)</li> <li>• DO (mg/L and % of saturation)</li> <li>• SS (mg/L)</li> </ul>	<ul style="list-style-type: none"> <li>• 3 water depths: 1m below water surface, mid-depth and 1m above river bed.</li> <li>• If the water depth was less than 3m, mid-depth sampling only.</li> <li>• If water depth was less than 6m, mid-depth might be omitted.</li> </ul>	<ul style="list-style-type: none"> <li>• 3 days per week during the construction period of the Project</li> </ul>

5.24 Monitoring location/position, time, water depth, sampling depth, pH, salinity, DO saturation, water temperature, tidal stages, weather conditions and any special phenomena or work underway nearby were recorded.

## Monitoring Methodology

### *Instrumentation*

5.25 A multi-parameter meters (Model YSI EXO) were used to measure DO, turbidity, salinity, pH and temperature.

### *Operating/Analytical Procedures*

5.26 At each measurement, two consecutive measurements of DO concentration, DO saturation, salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the values between the first and second readings of each set was more than 25% of the value of the first readings, this set of readings was discarded and further readings were taken.

### *Laboratory Analytical Methods*

5.27 The testing of all parameters was conducted by Wellab Limited for the water samples and comprehensive QA and QC procedures were in place in order to ensure the quality and consistency of results. The testing method, reporting limit and detection limit are provided in **Table 5.5**.

**Table 5.5 Laboratory Analysis Method for Water Samples**

Determinant	Instrumentation	Analytical Method	Limit of Reporting	Detection Limit
SS	Weighing	APHA 17ed 2540 D	2.5 mg/L	0.5 mg/L

Remark: The limit of reporting, 2.5mg/L has been adopted during baseline water quality monitoring stage

### ***QA/QC Requirements***

#### Decontamination Procedures

- 5.28 Water sampling equipment used during the course of the monitoring programme was decontaminated by manual washing and rinsed clean seawater/distilled water after each sampling event. All disposal equipment was discarded after sampling.

#### Sampling Management and Supervision

- 5.29 All sampling bottles were labelled with the sample identity laboratory number and sampling date. Water samples were dispatched to the testing laboratory for analysis as soon as possible after the sampling. All samples were stored in a cool box and kept at less than 4°C but without frozen. All water samples were handled under chain of custody protocols and relinquished to the laboratory representatives at locations specified by the laboratory.
- 5.30 The laboratory determination work was started as soon as possible after collection of the water samples.

#### QC Measures for Sample Testing

- 5.31 The sample testing and following QC programme were performed by Wellab Limited for every batch of 20 samples:
- ✧ One method blank; and
  - ✧ One set of QC samples.

### ***Maintenance and Calibration***

- 5.32 All in-situ monitoring instruments were checked, calibrated and certified by Wellab Limited before use, and subsequently re-calibrated at 3-month intervals throughout all stages of the water quality monitoring programme.

### ***Results and Observations***

- 5.33 The monitoring results and graphical presentation of water quality at the monitoring stations are shown in **Appendix H**.
- 5.34 The summary of exceedance recorded in the reporting month is shown in **Appendix K** and summarised in the **Table 5.6**. No Action/Limit Level exceedance was recorded in the reporting month.

**Table 5.6 Summary of Water Quality Exceedances**

Station	Exceedance Level	DO	Turbidity	SS	Total Number of Non-project Related Exceedances	Total Number of project Related Exceedances
IS1	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
IS2	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
IS4	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
IS6	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
Total	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0

- 5.35 Water quality monitoring was conducted as scheduled in the reporting month.
- 5.36 No water quality monitoring was conducted at IS6 in the reporting month since the channel was dry. Water quality monitoring station, IS6 will be further reviewed and a proposal for any alternative monitoring location including justification will be submitted for approval from IEC and EPD.
- 5.35 No water quality monitoring was conducted at IS4 during the periods from 1<sup>st</sup> to 7<sup>th</sup> March 2023 and 13<sup>th</sup> to 22<sup>nd</sup> March 2023 as the stream were dry due to dry weather.



#### Event and Action Plan

- 5.36 Should any project related non-compliance of the criteria occur, action in accordance with the Event Action Plan in **Appendix J** shall be carried out.

## 6 ECOLOGICAL MONITORING

### LMC Loop

#### **Monitoring Requirements (Avifauna Monitoring – Flight Line Survey)**

##### Monitoring Requirements

- 6.1 As required under Section 11.4.1.1 of EM&A Manual, flight line corridor survey was required from the beginning of work until 12 months after the establishment of the Ecological Area or completion of work on the Western Connection Road, whichever was the later.
- 6.2 The purpose of the survey was to identify the number and species composition of birds using the flight line and monitor if there was any impact from construction works.

##### Monitoring Frequency

- 6.3 Flight line survey is required to be carried out on monthly basis.

##### Monitoring Location

- 6.4 The flight line corridor survey work should be carried out at the Lok Ma Chau Lookout, according to Section 11.4.1.1 of the EM&A Manual. The location at Lok Ma Chau Lookout is shown in **Figure 5a**.

##### Monitoring Methodology

- 6.5 Flight lines of birds through the area were surveyed once monthly at Lok Ma Chau Lookout, adjacent to the Loop.
- 6.6 Observations were carried out at Lok Ma Chau Lookout for two hours from 30 minutes before sunrise in the early morning.
- 6.7 During the survey, the surveyor marked on a standard map for the estimated location of the flight path used by waterbird species, birds of prey or other larger species of conservation interest passing through the area. Flights involving short hops from point to point were not recorded. The focus was on the flight line corridor over the Loop or the southwest section of old Shenzhen River meander.
- 6.8 During the survey, species generally commensal with man (e.g. Black-collared Starling), common and widespread in HK (e.g. Crested Myna) or small in size and not prone to following flight lines en masse (e.g. Barn Swallow) were ignored in order to concentrate on species of conservation interest and/or those prone to using flight lines (e.g. large waterbirds).
- 6.9 For each observation of birds in flight, the number, the species and their height above the ground were recorded. Height above the ground was estimated in relation to the level of the Loop and adjacent fish pond area, and/or the location of the observer.

- 6.10 Given the difficulty of accurately measuring height above ground from a distance, three height classes were used: 10m, 20m and 30m or above. In practice, this means birds were assigned to ranges of 5-15m (10m height class), 15-25m (20m height class) and 25m or above (30m height class). Approximate heights of observation points were 40m at Lok Ma Chau Lookout.
- 6.11 Flight line locations marked on the maps were then overlain with a 100m grid, each square having a unique number.
- 6.12 The number of birds of each species passing through each 100m grid (the number of “bird-flights”) and their height above ground were then entered into an Excel spreadsheet. These data were then mapped, and on the figures produced a greater intensity of colour indicated a higher number of birds, as shown in **Figure 6**.

#### Monitoring Day

- 6.13 The flight line survey was carried out on 24<sup>th</sup> March 2023. Sunrise time at 6:24 am and the survey started at 5:54 am and lasted for 2 hours. The weather was foggy throughout the survey.

#### Monitoring Result

- 6.14 Total number of birds observed was 134. Eight species were included in the record of the flight line survey, including Little Egret, Great Egret, Chinese Pond Heron, Black-faced Spoonbill, Black-crowned Night Heron, Grey Heron, Great Cormorant and Black Kite. **Table 6.1** shows the summary of the number of birds observed in this Survey.

**Table 6.1 Number of Birds Observed**

Species	Number of Birds	Height class 1	Height Class 2	Height Class 3
Little Egret 小白鷺	40	0	7	33
Great Egret 大白鷺	17	0	3	14
Chinese Pond Heron 池鷺	3	0	3	0
Black-faced Spoonbill 黑臉琵鷺	7	0	0	7
Black-crowned Night Heron 夜鷺	1	0	1	0
Grey Heron 蒼鷺	9	0	5	4
Great Cormorant 普通鸕鶿	44	0	0	44
Black Kite 黑鳶	13	0	0	13
<b>Total</b>	134	0	19	115

- 6.15 The total number of bird-flights (number of birds of each species passing through each 100m square) observed across all 100m grid squares was 1,487. **Table 6.2** shows the number of bird-flights for the eight species respectively.



**Table 6.2 Number of Bird-flights**

Species	Total number of Bird-Flights
Little Egret 小白鷺	410
Great Egret 大白鷺	167
Chinese Pond Heron 池鷺	19
Black-faced Spoonbill 黑臉琵鷺	66
Black-crowned Night Heron 夜鷺	4
Grey Heron 蒼鷺	79
Great Cormorant 普通鸕鶿	599
Black Kite 黑鳶	143
<b>Total</b>	<b>1,487</b>

6.16 The distribution of flight line usage in this survey is shown in **Figure 6**.

6.17 Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. It demonstrates that the large waterbirds including migratory waterbirds such as Great Cormorant and Black-faced Spoonbill prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

### **Monitoring Requirements (Mammals)**

#### Monitoring Requirements

- 6.18 As required under Section 11.4.1.2 of the EM&A Manual, monitoring of mammals are required for Eurasian Otter, other mammals and dogs during the site formation and establishment period of Ecological Area.
- 6.19 The purpose of the monitor is to observe the connectivity between the reed marsh in the LMC Loop and the Ecological Area, and if there was any sign of otter and mammals around the Ecological Area.

#### Monitoring Location

- 6.20 Three cameras should be placed where accessible, facing towards the Ecological Area and the Loop. The locations of cameras are subject to the project progress and result of the survey.

#### Monitoring Methodology

- 6.21 Monitoring of Eurasians Otter is notoriously difficult due to their secretive and nocturnal habits in Hong Kong. Therefore, remote-sensing (infra-red flash) cameras shall be used to detect any signs of Eurasian Otter and mammals.

### Monitoring Results

- 6.22 In view of current site condition of Loop, the connectivity between the reed marsh in the LMC Loop and the EA Zone has been fenced off due to other project's land occupier. In addition, 12-month establishment period of EA zone has also been completed.
- 6.23 The mammals monitoring in the Loop was therefore temporarily suspended since March 2022 and will be resumed subject to the site condition.

### Western Connection Road

#### **Monitoring Requirements (Avifauna Monitoring – Flight Line Survey)**

- 6.24 Refer to Sections 6.1 to 6.17.

#### **Monitoring Requirements (Avifauna Monitoring – Pond 12)**

##### Monitoring Requirements

- 6.25 As required under Section 11.4.2.1 of EM&A Manual, weekly counts of the number and species of bird using Pond 12 was required from the beginning of work until 12 months after the establishment of the Ecological Area or completion of work on the Western Connection Road, whichever is the later.
- 6.26 The purpose of the survey was to identify the number and species composition of birds using Pond 12 to ensure there would be no impacts greater than predicted from construction works.

##### Monitoring Frequency

- 6.27 Pond 12 avifauna survey is required to be carried out on a weekly basis.

##### Monitoring Location

- 6.28 Monitoring of avifauna was conducted at Pond 12. Location of Pond 12 is shown in **Figure 5a**.

##### Monitoring Methodology

- 6.29 The species and number of birds using Pond 12 were surveyed weekly. Each weekly survey started before the commencement of works of the day, and ended 1 hour after works had begun.
- 6.30 During the survey, the surveyor would identify and count each bird using Pond 12 with a pair of binoculars and a camera. The abundance and species of the identified birds would be recorded.

Monitoring Result

6.31 Pond 12 avifauna surveys were carried out weekly in the reporting month.

Dates of pond 12 avifauna survey: 1<sup>st</sup>, 6<sup>th</sup>, 15<sup>th</sup>, 22<sup>nd</sup> and 29<sup>th</sup> March 2023

6.32 In total, 269 individuals from 27 avifauna species were recorded at Pond 12 in the reporting month. The detailed results are shown in **Appendix R1**.

6.33 The monitoring results during construction works were compared against the results before the commencement of works of the day. The number of bird species and the abundance of birds recorded at Pond 12 during construction were higher than the results prior to the construction works. (Refer to **Table 6.3**).

**Table 6.3 Summary of Avifauna Monitoring Results at Pond 12**

Monitoring Date	Number of Species		Abundance	
	Before Construction	During Construction	Before Construction	During Construction
1 <sup>st</sup> March 2023	10	15	18	35
6 <sup>th</sup> March 2023	8	13	29	50
15 <sup>th</sup> March 2023	6	14	17	31
22 <sup>nd</sup> March 2023	10	12	21	31
29 <sup>th</sup> March 2023	6	7	15	22

6.34 The monitoring results indicated Pond 12 was utilized by waterbirds and wetland-dependent species in the reporting month. No significant impact of construction activities on bird use of the pond was observed.

**Herpetofauna**Monitoring Requirements

6.35 Under Section 11.4.2.2 of EM&A Manual, monitoring of the only herpetofauna species of conservation interest in the area around pond 12, the Chinese Bullfrog, should be conducted before and during the whole construction period.

6.36 The purpose of the survey was to ensure the abundance of the Chinese Bullfrog in the area of Pond 12, LMC Tsuen, and nearby wetlands is not affected by construction works.

Monitoring Frequency

6.37 Herpetofauna monitoring was conducted once monthly during wet season (March to October), including both day-time and night-time survey.

### Monitoring Location

- 6.38 Herpetofauna monitoring was conducted along the designated transect around Pond 12, LMC Tsuen, as well as any nearby wetlands within a 100m radius into which disturbed bull frog may move. Location of the Herpetofauna survey transect is shown in **Figure 5b** for reference.

### Monitoring Methodology

- 6.39 Survey along the transect was conducted once during daytime, and once during night time. Surveyors would actively search for presence of tadpoles, froglets or adults in potential habitats (such as ditches, ponds, marshes and wet agricultural land) through direct observation, or identification of vocalisations.

### Monitoring Result

- 6.40 Herpetofauna survey was carried out once in the reporting month.

Date of Herpetofauna survey: 3<sup>rd</sup> March 2023 (both day-time and night-time survey)

- 6.41 No potential impact due to the construction activities of Western Connection Road was identified during the survey of Chinese Bullfrog in the reporting month. It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population. The detailed results are shown in **Appendix R2**.

## **Aquatic Fauna**

### Monitoring Requirements

- 6.42 Under Section 11.4.2.3 of EM&A Manual, surveys of the population of Rose Bitterling at streams and associated ponds south of Lung Hau Road and monitoring of water quality are required to identify potential impacts.
- 6.43 The purpose of the survey was to ensure the population of Rose Bitterling at the stream and associated ponds south of Lung Hau Road as well as the water quality at the area where Rose Bitterling is present are not affected by construction works.

### Monitoring Frequency

- 6.44 Monitoring of Rose Bitterling population was conducted monthly during the construction period of WCR to identify potential impacts.
- 6.45 *In situ* monitoring of water quality was conducted weekly at the stream and associated ponds south of Lung Hau Road where Rose Bitterling is present, and whole site audit was carried out at the construction site to identify potential impacts on the stream.

- 6.46 *In situ* monitoring of water quality in LMC Meander was conducted weekly during the construction phase and the first 12 months of operation.

#### Monitoring Location

- 6.47 Monitoring of Rose Bitterling and *in situ* monitoring of water quality were conducted at the stream and associated ponds south of Lok Ma Chau Road where Rose Bitterling is present. There are 4 sampling points along the stream, and 4 sampling points at the ponds. The sampling locations are shown in **Figure 5c**.

- 6.48 *In situ* monitoring of water quality in LMC Meander was conducted at 3 monitoring stations, including CS1, IS1 and IS2, as stated in Section 6.3 of the EM&A Manual. The monitoring stations are shown in **Figure 4**.

#### Monitoring Methodology

- 6.49 Monitoring of Rose Bitterling was conducted by bankside observation with the aid of binoculars, for 5 minutes at each sampling point. After bankside observation, sweep netting was also carried out at each sampling point, if feasible.
- 6.50 The number of Rose Bitterling observed on bankside and by sweep netting at each sampling location was recorded. Other human activities or change in environment that may affect the survey result will be specified, if any.
- 6.51 Measurements for *in situ* monitoring of water quality include temperature, pH, salinity, turbidity and dissolved oxygen. Monitoring equipment for water quality monitoring is presented in Section 5.

#### Monitoring Result

- 6.52 Aquatic fauna survey was carried out once and weekly *in situ* water quality monitoring was conducted in the reporting month.

Date of Aquatic Fauna Survey: 27<sup>th</sup> March 2023

#### LMC Meander

1<sup>st</sup>, 3<sup>rd</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 10<sup>th</sup>, 13<sup>th</sup>, 15<sup>th</sup>, 17<sup>th</sup>, 20<sup>th</sup>,  
22<sup>nd</sup>, 24<sup>th</sup>, 27<sup>th</sup>, 29<sup>th</sup> and 31<sup>st</sup> March 2023

Date of Water Quality Monitoring for  
Aquatic Fauna

#### Stream and associated ponds south of Lung Hau Road

8<sup>th</sup>, 17<sup>th</sup>, 20<sup>th</sup> and 27<sup>th</sup> March 2023

- 6.53 No potential impact due to the runoff from the construction activities of the Western Connection Road was identified during the survey of Aquatic Fauna in the reporting month. In addition, no deterioration in the water quality due to the construction activities of the Western Connection Road was observed.

- 6.54 The detailed aquatic fauna (Rose Bitterling) results and *In situ* water quality monitoring

results at the stream and associated ponds south of Lung Hau Road are shown in **Appendices R3** and **R4** respectively.

6.55 *In situ* water quality monitoring results in LMC Meander at 3 monitoring stations, including CS1, IS1 and IS2 are presented in Section 5 and **Appendix H**. No Action / Limit Level exceedance was recorded.

## 7 LAND CONTAMINATION

### General

- 7.1 According to the EM&A Manual Section 8.2 and the details of the remediation and associated testing referred to in Chapter 8 of the EIA Report (AEIAR-176/2013), five (5) arsenic-contaminated zones were identified within the Loop. The estimated depth and volume of contaminated soil for each remediation zone are listed in **Table 7.1** below.

**Table 7.1 Detailed Contamination Information for Designated Remediation Areas**

Contamination Zone ID in EIA	Contamination Hot Spot	Estimated Vertical Extent of Contamination	Estimated Thickness (m)	Estimated Area of Contamination Zone (m <sup>2</sup> )	Estimated Volume of Contaminated Soil (m <sup>3</sup> )
A-S24	LD-001	2.5m to 4.0m below existing ground level	1.5	4001	6002
A-SG10	LD-002	4.0m to 5.5m below existing ground level	1.5	3520	5280
A-S20	LD-003	2.5m to 4.0m below existing ground level	1.5	4989	7484
A-S03	LD-004-A	2.5m to 4.0m below existing ground level	1.5	4580	6870
A-S03a1	LD-004-B	4.0m to 5.5m below existing ground level	1.5	4452	6678
A-S03c1	LD-004-C	1.0m to 2.5m below existing ground level	1.5	5601	8402
A-S01	LD-005	2.5m to 5.5m below existing ground level	3.0	5576	16728

- 7.2 Based on the Contract requirements, “Solidification / Stabilisation” was the recommended treatment method to remediate all contaminated soils and Portland cement was proposed to be used for the contaminated soil treatment. The target of soil remediation is listed in **Table 7.2**.

**Table 7.2 Contaminant Solidification & Stabilisation Target for Cement Solidification / Stabilisation (CS/S)**

Contaminant	Toxicity Characteristic Leaching Procedure (TCLP) Limit of Arsenic	Unconfined Compressive Strength (UCS)
Metal – Arsenic	≤5 mg/L	≥1 Mpa

- 7.3 Trial of CS/S was undertaken between April and June 2019 and the second trial was conducted in August 2019. According to trial performance results, cement / soil ratios of 10% and 7.5% could achieve the remediation target and these ratios had been adopted for the subsequent remediation work. The proposed cement/soil ratios were accepted by

relevant parties before the remediation work started. The contaminated soil excavation and remediation commenced on site in mid-July 2019.

### **Remediation Work Progress in the Reporting Month**

- 7.4 As advised by the Contractor, Decontamination for all Hotspots (LD01 - LD05) was completed and backfilling of treated soil was completed on 31 May 2021. After completion of remediation works at each hot spots, Interim Remediation Reports (IRR) would be prepared by the Land Contamination Specialist and submitted to EPD in accordance with Condition 2.16 of the EP-477/2013/A. The status of IRRs are summarised below.
- (a) IRR for hot spot LD-001 endorsed by EPD on 6<sup>th</sup> January 2020
  - (b) IRR for hot spot LD-003 endorsed by EPD on 18<sup>th</sup> March 2020
  - (c) IRR for hot spot LD-002 commented by EPD on 3<sup>rd</sup> September 2020 and resubmitted by Contractor on 16<sup>th</sup> September 2020
  - (d) IRR for hot spot LD-005 endorsed by EPD on 23<sup>rd</sup> October 2020
  - (e) Final Remediation Report including the result of hotspot LD-004 was submitted to EPD on 28<sup>th</sup> June 2021. The final Remediation Report was approved by EPD with minor comments in August 2021.
- 7.5 No work related to land contamination was conducted in the reporting month.



## 8 WASTE MANAGEMENT

### General

8.1 Waste management was carried out in accordance with the Waste Management Plan (WMP) for the Project.

### Solid and Liquid Waste Management Status

8.2 The amount of waste generated by the activities of the Project in the reporting month is shown **Table 8.1**.

**Table 8.1 Quantities of Waste Generated in the Reporting Month**

Contract(s)	Waste Type		Quantity this month	Disposal / Dumping Grounds
Contract No. YL/2020/01	Inert	Reused in this Contract (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Disposal as Public Fill (Inert) (in '000 m <sup>3</sup> )	1.129	N/A
Contract No. YL/2020/02		Reused in this Contract (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Disposal as Public Fill (Inert) (in '000 m <sup>3</sup> )	1.359	N/A
Contract No. YL/2021/01		Reused in this Contract (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m <sup>3</sup> )	0	N/A
		Disposal as Public Fill (Inert) (in '000 m <sup>3</sup> )	0.707	N/A
Contract No. YL/2020/01	Non-inert	Recycled Metal ('000kg)	0.012	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0.132	N/A
		Recycled Plastic ('000kg)	0.016	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m <sup>3</sup> )	0.032	NENT Landfill
Contract No. YL/2020/02		Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0.004	N/A
		Recycled Plastic ('000kg)	0.001	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m <sup>3</sup> )	0.171	NENT Landfill
Contract No. YL/2021/01		Recycled Metal ('000kg)	0.011	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0.005	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m <sup>3</sup> )	0.001	N/A

8.3 The amount of waste generated by the construction works of the Project in Waste Flow Table during the reporting month is shown in **Appendix O**.

## 9 ENVIRONMENTAL SITE INSPECTION

### Site Audits

- 9.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures on the Project site. The summaries of site audits are attached in **Appendix L**.
- 9.2 Site audits were conducted by ET with the representative of the Consultants, the Contractor and IEC on 1<sup>st</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 13<sup>th</sup>, 15<sup>th</sup>, 20<sup>th</sup>, 22<sup>nd</sup>, 27<sup>th</sup> and 29<sup>th</sup> March 2023 in the reporting month. Summary of site audits under the Project are presented in **Table 9.1**. The details of observations during site audit are shown in **Table 9.2**.

**Table 9.1 Summary of Site Audits**

Contract(s)	Date(s) of Site Environmental Audit
Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023
Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1	1 <sup>st</sup> , 8 <sup>th</sup> , 15 <sup>th</sup> , 22 <sup>nd</sup> and 29 <sup>th</sup> March 2023
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	6 <sup>th</sup> , 13 <sup>th</sup> , 20 <sup>th</sup> and 27 <sup>th</sup> March 2023

- 9.3 During site inspections in the reporting month, no non-conformance was identified. The observations and recommendations made during the audit sessions are summarised in **Table 9.2**.

**Table 9.2 Observations and Recommendations of Site Audit**

Parameters	Date	Observations and Recommendations	Follow-up
<b>Contract No. YL/2020/01</b>			
<i>Air Quality</i>	15/03/2023	Green nets used to cover the stockpile at Box Culvert A should be replaced by impermeable tarpaulin sheets.	Stockpile at Box Culvert A has been cleared by the Contractor as observed during follow-up audit session on 22/03/2023.
	22/03/2023	The dusty stockpiles at Box Culvert C should be covered with impervious tarpaulin sheets.	The dusty stockpile at Box culvert C was cleared the Contractor as observed during follow-up audit session on 29/03/2023.
<i>Noise</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Water Quality</i>	22/03/2023	Exposed slopes at pond 5 shall be covered with tarpaulin sheets.	Slope at pond 5 has been covered with tarpaulin sheets by the Contractor as observed during follow-up audit session on 29/03/2023.
<i>Waste / Chemical Management</i>	--	No major environmental deficiency was identified during the reporting month.	--

Parameters	Date	Observations and Recommendations	Follow-up
<i>Land Contamination</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Landscape and Visual</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Ecology</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Fisheries</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Permits/Licences</i>	--	No major environmental deficiency was identified during the reporting month.	--
<b>Contract No. YL/2020/02</b>			
<i>Air Quality</i>	01/03/2023	To ensure vehicles leave the site at Reed Bed 3A without debris of dirt.	Vehicles were cleaned at Reed Bed 3A as observed during follow-up audit session on 08/03/2023.
	15/03/2023	The idle stockpiles of dusty materials should be covered entirely with impervious tarpaulin sheet at TAR1.	The stockpile has been sprayed with water regularly as observed during follow-up audit session on 29/03/2023.
<i>Noise</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Water Quality</i>	15/03/2023	To further clear the muddy blockage at the perimeter cut-off drain at CS1.	The muddy blockages have been cleared by the Contractor as observed during follow-up audit session on 22/03/2023.
	15/03/2023	To enhance the water mitigation measure at the sloped opening at site boundary of LCS.	Sandbag has been placed at the boundary of LCS by the Contractor as observed during follow-up audit session on 22/03/2023.
	22/03/2023	To enhance water mitigation measures around existing drainage at Reed Bed 3.	Existing drainage have been blocked with sandbags, barricaded and covered by the Contractor as observed during follow-up audit session on 29/03/2023.
<i>Waste / Chemical Management</i>	01/03/2023	To provide drip trays for chemical storages at CS1 and LCS.	The chemical containers were removed from the site by the Contractor as observed during follow-up audit session on 08/03/2023.
	15/03/2023	To clear the existing oil leakage and avoid further leakage from the air compressor at CS1 and the hammer drill at LCS.	Both oil leakages have been cleared. In addition, the hammer drill has been removed from LCS by the Contractor as observed during follow-up audit session on 22/03/2023.
<i>Land Contamination</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Landscape and Visual</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Ecology</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Fisheries</i>	--	No major environmental deficiency was	--

<b>Parameters</b>	<b>Date</b>	<b>Observations and Recommendations</b>	<b>Follow-up</b>
		identified during the reporting month.	
<i>Permits/Licences</i>	--	No major environmental deficiency was identified during the reporting month.	--
<b>Contract No. YL/2021/01</b>			
<i>Air Quality</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Noise</i>	06/03/2023	To provide further mitigation measures at EEAA.	More temporary noise barriers have been in place by the Contractor to minimise construction noise as observed during follow-up audit session on 13/03/2023.
<i>Water Quality</i>	13/03/2023	To enhance water mitigation measure for the stockpile of soil next to the site boundary of EEAA.	The stockpile of soil next to the site boundary of EEAA has been properly covered by the Contractor as observed during follow-up audit session on 20/03/2023.
	27/03/2023	The silt retention pond should be properly connected to the wetsep for treatment at EEAA.	The silt retention pond had been properly connected to the sedimentation tank and WetSep for treatment at EEAA via a pump by the Contractor as observed during follow-up audit session on 03/04/2023
<i>Waste / Chemical Management</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Land Contamination</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Landscape and Visual</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Ecology</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Fisheries</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Permits/Licences</i>	--	No major environmental deficiency was identified during the reporting month.	--

## 10 IMPEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

- 10.1 According to the EIA Report, EP and the EM&A Manual, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Environmental Mitigation Implementation Schedule is provided in **Appendix M**.
- 10.2 The Compliance status of environmental mitigation measures related to the Project according to EP-477/2013/A are summarised in **Table 10.1**.

**Table 10.1 Compliance Status of Related Environmental Mitigation Measures**

EP Requirements	Compliance Status	Remarks
<b>Submission and Measures to Mitigate Ecological Impact</b>		
EP Condition 2.7 To reduce the ecological impact during construction and operation stages of the Project, a series of ecological mitigation measures shall be implemented as conforming to the relevant information and recommendations, including those described in Section 12.7 (Ecological Mitigation Measures), contained in the EIA Report. The key ecological mitigation measures shall include:		
(a) conducting pre-construction search for any otter holts/dens and herpetofaunal species of conservation concern in construction sites, with remedial measures such as setting of no works area around otter holts/den and translocation of important species identified, if any;	Yes	<p><b><u>Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works</u></b></p> <p>The pre-construction search has been carried out in November 2018 before the Advance Works commencement. No otter holts/dens and herpetofauna species of conservation concern were identified.</p> <p><b><u>Development of Lok Ma Chau Loop Main Works Package 1 Contract 1 - Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1</u></b></p> <p>The pre-construction search has been carried out at Area, 2, 7 &amp; 9 as well as LMC Loop and WCR site areas in May / June 2021 and June / July 2021 respectively before the Works commencement. No otter holts/dens and herpetofauna species of conservation concern were identified.</p>
(b) creating and establishing an Ecological Area, approximately 12.78 ha. in size, containing reed marsh and marsh habitat prior to total clearance of reed marsh in the Loop, including a lowrise building buffer zone of 50m width from the Ecological Area, with appropriate screenplanting;	Yes	<p>Ecological Area has been established under the Contract.</p> <p>Low-rise building buffer zone and screenplanting which will be provided under Main Works Package 1.</p>
(c) stabilising the bank of the old Shenzhen River meander of the Loop, approximately 3.5 km long, including re-vegetation upon completion of the works	Yes	The EA design has implemented these measures.

EP Requirements	Compliance Status	Remarks
and various ecological designs, such as practicability of installation of otter holts and provision of potential feeding area and spraint locations for otters in the stabilised bank;		
(d) creating a 23 m minimum width vegetated setback at the edges of the Loop along the southwestern and north-eastern sections of the meander;	N/A	Vegetated setback will be provided under Main Works Package 1
(e) installing 3m-high olive green fence around construction areas to allow or deter different animal passages where appropriate;	Yes	The Contractor was reminded to maintain and re-arrange the green fence around construction areas and ensure no disturbance to the exiting trees and reed marsh habitat.
(f) providing (i) permanent compensatory off-site wetland areas; and (ii) construction stage temporary compensatory off-site wetland areas during various construction stages of the Project, in advance of any corresponding wetland loss;	Yes	Creation of off-site wetland areas have been substantially completed.
(g) providing at least 0.4 ha woodland compensation area by planting trees and shrubs near Horn Hill, to compensate for the loss of woodland affected by the Western Connection Road (WCR) and other works of the Project;	N/A	To be implemented under Main Works Package 1
(h) carrying out outside dry-season (from November to February next year), the construction works associated with the site formation in the Ecological Area, stabilization of the bank of the old Shenzhen River meander, Western Connection Road along Ha Wan Tsuen Road, to minimise disturbances to migratory birds/water birds;	Yes	-
(i) using powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any;	Yes	-
(j) prohibiting use of direct lighting on the old Shenzhen River meander and controlling nighttime lighting to reduce potential ecological impact;	Yes	-
(k) implementing measures to minimise magnitude of construction runoff and to avoid/minimise the potential impact of spillage events, if any; and	Yes	-
(l) using opaque noise barriers along the proposed roads and using appropriate glass and façade treatment for buildings in the Loop to minimise the mortality of fast-moving wildlife (e.g. birds).	Yes	The works for noise barriers along Lok Ma Chau Road were completed under the Contract in October 2021. Façade treatment for buildings in the Loop will be provided under the responsible works packages.
Four hard copies and two electronic copies of an Ecological Mitigation / Habitat Creation and Management Plan shall be, at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director. The Plan(s) shall show the design details, locations, implementation	Yes	<b><u>Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works</u></b>  The HCMP has been submitted and approved under the EP condition 2.7.

EP Requirements	Compliance Status	Remarks
programme, maintenance and management schedules, and drawings in the scale of 1:1,000 or other appropriate scale of the ecological mitigation measures of the Project. Before submission to the Director, the Plan(s) shall be certified by the ET Leader and verified by the IEC as conforming to the relevant information and recommendations contained in the EIA Report. All measures recommended in the finalised submission(s) under this Condition shall be fully and properly implemented.		<p><b><u>Development of Lok Ma Chau Loop Main Works Package 1 – Design and Construction</u></b></p> <p>The HCMP has been submitted under the EP condition 2.7 and approved in December 2021.</p>
<b>Submissions or Measures to be implemented for Construction of the Project</b>		
EP Condition 2.9 To mitigate construction stage noise impact, the following noise mitigation measures shall be implemented during the construction stage of the Project:		
(a) temporary noise barriers shall be installed along the construction access roads to screen the construction traffic noise and noisy construction activities and equipment during different construction stages of the Project as described in Table 1 and Figures 2a, 2b, 3a and 3b of this Permit;	Yes	<p>The temporary noise barriers (TNBs) along LMC Road were completed under the Contract in October 2021 (Figures 2a and 2b of EP-477/2013/A). (<b>Appendix N</b>)</p> <p>The TNBs installation under Contract 2 were completed in August 2022 (Figures 3a and 3b of EP-477/2013/A). (<b>Appendix N</b>)</p> <p>Due to the updated site condition, TNB5 deems to serve the function of TNB16 before the commencement of road widening works of the Western Connection Road.</p>
(b) use of movable noise barriers, noise enclosures and quiet powered mechanical equipment for the noisy construction activities and equipment as described in Table 1 and with reference to the typical designs as shown in Figure 4 of this Permit;	Yes	-
(c) concrete lorry mixer(s) shall be operated at least 25 m away from the noise sensitive receivers (NSRs) No. HWTR-6 and HWTR-11 at the Western Connection Road as shown in Figures 2b and 3b as described in Table 1 of this Permit to avoid exceedance due to cumulative construction noise; and	Yes	-
(d) no percussive piling nor blasting by explosive shall be implemented in the Project.	Yes	-
EP Condition 2.10 To Mitigate Construction Stage Fisheries Impact		
For some fish ponds which will be partly affected by construction works, to mitigate construction stage fisheries impacts, a layer of sheet pile/barrier wall shall be erected to separate the works area from the remaining areas of the affected fish ponds before the commencement of other construction works, e.g. excavation or filling within the works area. The sheet pile/barrier wall shall be constructed by non-percussive piling method (e.g. Press-in method) to reduce the fisheries impact. In addition, the sheet pile/barrier wall shall have impermeable lining to minimise water loss	Not applicable	<p>Based on the ground truthing during the weekly site inspections / site visits prior to the commencement of the works at all Ponds, no fisheries impacts were anticipated due to the following observation:</p> <ul style="list-style-type: none"> <li>No aquaculture activities include drying of ponds, reprofiling, harvesting and feeding;</li> </ul>

EP Requirements	Compliance Status	Remarks
from the fish pond to the works area.		<ul style="list-style-type: none"> <li>• No evidence of recently used pond culture equipment;</li> <li>• No presence of fish-rearing paraphernalia and</li> <li>• No evidence of trimming of vegetation growing on pond bund.</li> </ul> <p>As such, the erection of sheet pile/barrier wall to mitigate construction stage fisheries impacts as stated in Condition 2.10 of the EP would not be applicable.</p>
<b>EP Condition 2.12 To Mitigate Construction Stage Water Quality Impact</b>		
To reduce sediment transport arising from the stabilisation works at the bank of the old Shenzhen River meander of the LMC Loop, cofferdam/diaphragm wall and/or silt curtain system shall be deployed to surround the works area, from water surface down to the bottom of the meander, in order to minimise the sediment loss to the water body outside the works areas.	Yes	Silt curtain system was deployed to surround the works area under YL/2020/01.
<b>EP Condition 2.14 To Minimise the Disturbance to the Reedbed System of MTR LMC Spurline</b>		
For the construction of the Direct Link, the existing reeds in the reedbed system of the MTR LMC Spurline shall not be removed by the construction works of the Project, except for the 2 areas with a total area of approximately 320 m <sup>2</sup> in size within the Reedbed No. 3 as shown in Figure 5 of this Permit. Upon the completion of works at the reedbed system, the affected reedbed system shall be reinstated.	Yes	These measures have been implemented under YL/2020/02.

Remark: N/A – Not fulfilled yet

### **Ecological Mitigation Measures – Offsite Wetland Compensation Areas (OWCAs)**

- 10.3 According to the EIA Report, habitat loss and disturbance impacts are predicted for both construction and operation phase of the development of Lok Ma Chau Loop. All these impacts are expected to be compensated both temporarily (during construction phase) and permanently (during operation phase). Among other measures identified from EIA report to avoid, minimize and compensate for identified impacts, three areas of existing fishpond habitat (Areas 2, 7 and 9) were proposed in the EIA Report to provide OWCAs.
- 10.4 These Areas are located within a Priority Site for Enhanced Conservation, namely "Deep Bay wetlands outside the Ramsar site". Many of these fishponds are currently participating in the Nature Conservation Management Agreement Scheme in the Northwest New Territories, which has the objective of restoring and enhancing the conservation value of commercial fishponds in the area. In general, the activities involved in the establishment of OWCAs are in nature the same as those associated with commercial fishpond management currently taking place in the area. Therefore, there are no direct implications for the ecological impacts at OWCAs according to Section 12.7.9 of EIA report.



- 10.5 Under Environmental Permit (EP) number EP-477/2013/A, an Ecological Mitigation/Habitat Creation and Management Plan (HCMP) is required for all habitat compensation measures required by the Project EIA. The OWCAs are established according to the HCMP which provides a framework and specifications for development and management of the OWCAs.
- 10.6 The OWCAs (Areas 2, 7 and 9) has been substantial completed and the starting date of establishment period is confirmed by AFCD on 14<sup>th</sup> October 2022.
- 10.7 According to Section 6.1.2 of approved HCMP, the monitoring of the OWCAs have been commenced for the establishment period starting from 14<sup>th</sup> October 2022. The Environmental Team would undertake the monitoring role through relevant EIAO Documents, audit mechanisms, participation at meetings, as well as certification of results and reports according to EM&A Manual, Section 11.5.

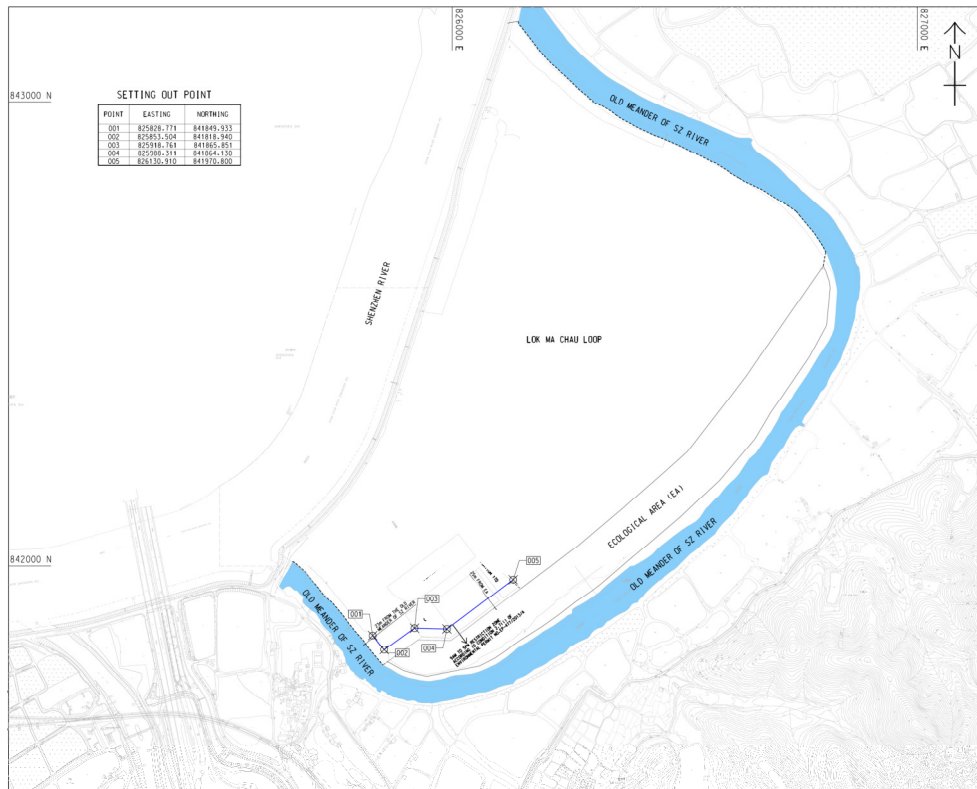
### Ecological Mitigation Measures – Installation of 3m-high Olive Green Fence

- 10.8 The green fence around the future Ribbon Park Reedbed has been removed and replaced by the hoarding due to the other project's land occupier since March 2022. (See Figure & photo below)





10.9 Installation of the green fence alongside the Ecological Area and the Meander was proposed and completed on 20<sup>th</sup> May 2022. The layout plan of the green fence installation is shown below: -



10.10 The Contractor was reminded to maintain the green fence around construction areas and ensure no disturbance to the existing trees and reed marsh habitat subject to the latest situation of LMC Loop.

**11 ENVIRONMENTAL NON-CONFORMANCE (EXCEEDANCES)****Summary of Exceedances**

- 11.1 Summary of exceedances is provided in **Appendix K**.
- 11.2 No Action/Limit Level exceedance was recorded for air quality and water quality monitoring.
- 11.3 One Action Level exceedance was recorded due to the noise complaint received in the reporting month. No Limit Level exceedance was recorded.

**Summary of Environmental Complaint**

- 11.4 One environmental complaint was received in the reporting month. The statistical summary table of the environmental complaints is presented in **Table 11.1** and the details and status of the investigation are presented in Complaint Log as attached in **Appendix P**.

**Table 11.1 Statistical Summary of Environmental Complaints**

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – Feb 2023	18	19	1
Mar 2023	1		0

**Summary of Notification of Summons and Successful Prosecutions**

- 11.5 There was no prosecution or notification of summons received since the commencement of the Project. The statistical summary table of the summons and prosecution are presented in **Tables 11.2** and **11.3** respectively. Summary of successful prosecution as attached in **Appendix Q**.

**Table 11.2 Statistical Summary of Environmental Summons**

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Project related summon
Jan 2019 – Feb 2023	0	0	0
Mar 2023	0		0

**Table 11.3 Statistical Summary of Environmental Prosecution**

<b>Reporting Period</b>	<b>Environmental Prosecution Statistics</b>		
	<b>Frequency</b>	<b>Cumulative</b>	<b>Project related Prosecution</b>
<b>Jan 2019 – Feb 2023</b>	0	0	0
<b>Mar 2023</b>	0		0

## 12 FUTURE KEY ISSUES

### Key Issues in the Coming Months

12.1 Major site activities for the coming reporting months will include:

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1

- (a) Wetland Compensation Establishment Works and Ecological Monitoring
- (b) Additional Ground Investigation and Site Formation
- (c) Deep Cement Mixing Work for Vehicular Bridge over the Old Shenzhen River Meander and Western Connection Road
- (d) Piling Construction for Vehicular Bridge over the old Shenzhen River Meander
- (e) Structure Construction for Box Culverts
- (f) Drainage Works and Roadworks
- (g) Woodland Compensation Works

Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1

#### Section 1

- (a) Tree Felling and Site Clearance along RW8 area and immediate vicinity. Forming of temporary carriageway to divert traffic
- (b) UU detection / trial pit to locate 132kv line and protection measures for subway modification works
- (c) Demolition of Subway Cycle Track top portion and ramp walls Bay 12, 13 & 14.
- (d) Reconstruction of the Subway
- (e) Excavation and lateral support for RW9
- (f) Construction of retaining wall RW9 base slab and wall stem
- (g) Commence construction of retaining wall RW8

#### Section 2A

- (h) Demolition of Existing Structures along Lok Ma Chau Road is pending VR/AECOM coordination
- (i) Continue Bored Piling for Retaining Wall BPW1
- (j) Site Clearance at LMC Road Zone 3, Zone 4, Zone 5 and Zone 6
- (k) Trial Pit to expose and shift existing Utilities in Zone 4
- (l) Trial Pit to expose and shift existing Utilities in Zone 5

- (m) Liaison with utility companies for utility diversion
- (n) UU works along Lok Ma Chau Road
- (o) Construction of Noise Barrier NB16
- (p) Drainage construction along Lok Ma Chau Road
- (q) Waterworks along Lok Ma Chau Road

#### Section 2B

- (r) Modification to Box Culvert (design change to foundation DK01 and FBP04 proposed to Integrated Structure EIBC)
- (s) Continue Predrilling / G.I. to foundation of proposed EIBC (under section 2C)

#### Section 2C

- (t) Pre-drilling and Trial Pits for Bridge ST01 and CTFB, including integrated structure of Box Culvert
- (u) Bored pile and socketed H-Pile for Bridge ST01
- (v) Drainage diversion for Pier ST01-P04 foundation construction (PMI-018)
- (w) Pile Loading test to trial pile of FBA-01
- (x) Pile head treatment for ST01-P02 & P03
- (y) Construction of Pile Cap and Pier at ST01-P02 & P03

#### Section 3

- (z) Ground investigation / Pre-drilling and Trial Pits for Bridge DRL
- (aa) Bored pile and socketed H-Pile for Bridge DRL
- (bb) ELS to Cofferdam, Pile Trimming/Treatment for DRL-P12 & P13
- (cc) Commence construction of Pile Cap and Pier at DRL-P12 & P13
- (dd) Forming site access for piling of DRL-P02 & P03
- (ee) Interim watermain along TAR1

#### Section 5

- (ff) Construction of Pai Lau Columns, Structure and Finishes

#### Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

- (a) LMC Station L1 Structural Opening for E&M Diversion
- (b) UU Diversion for Eatermain (MTR) and Diversion at EPTI
- (c) Traffic Diversion for Stage 2 Works at DDFB

12.2 The Contractor is recommended to arrange and maintain the water quality mitigation measures according to the construction site drainage plan during wet season (i.e., March

to October). The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. Efficient silt removal facilities shall deploy to ensure all treated effluent from wastewater treatment plant shall meet the requirements as stated in WPCO licences. The site drainage plan shall also be updated based on the site condition and construction programme.

- 12.3 Dust can be generated during construction works and exposed site area. To prevent high dust concentrations, the Contractor should pay attention on the air quality mitigation measures as far as practicable to minimise the dust impact to the villages which are located adjacent to the Project works. The Contractor was also reminded to follow the Project Implementation Schedule in the approved EIA report / EM&A Manual to implement appropriate dust control measures including “watering in all works areas once per hour during working hours to control fugitive dust impact, particularly during dry weather and covering any excavated or stockpile of dusty material by impervious sheets and spraying all dusty material with water immediately prior to any loading transfer operations to keep the dusty materials wet during material handling at the stockpile areas” as well as the relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation such that no adverse dust impact would arise from the Project works.
- 12.4 Ecology is also one of the key environmental issues during construction of the Project. Noise pollution has a negative impact on wildlife species by reducing habitat quality. Therefore, noise mitigation measures such as using quiet plants and noise barriers should be in place, where applicable. The Contractor should properly maintain the temporary noise barriers by frequently checking and maintaining the acoustic materials wrapped on noisy part of PME and ensure no gaps between noise barriers; proactively identify any potential construction noise impact to NSRs and provide sufficient mitigation measures if necessary. Moreover, the fencing used for the site boundary and as a visual barrier during the construction phase shall also be maintained at 3m high and of a dull or olive green colour, in order to minimise visual impact as this fencing is to shroud the most visible human activity (movement of persons and vehicles) from adjacent wetland areas. All ecological mitigation measures recommended in the Project Implementation Schedule in EP / approved EIA report / EM&A Manual should be properly implemented and maintained as far as practicable.

### **Monitoring Schedule for the Next Month**

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

### **Construction Programme for the Next Month**

- 12.6 Tentative construction programmes are provided in **Appendix A**.

### 13 CONCLUSIONS AND RECOMMENDATIONS

#### Conclusions

- 13.1 The EM&A Report presents the EM&A works undertaken in March 2023 in accordance with EM&A Manual.

#### Air Quality

##### *1-hour TSP Monitoring*

- 13.2 All 1-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

##### *24-hour TSP Monitoring*

- 13.3 All 24-hour TSP monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

#### Construction Noise

- 13.4 All construction noise monitoring was conducted as scheduled in the reporting month. One Action Level exceedance was recorded due to the noise complaint received in the reporting month. No Limit Level exceedance was recorded.

#### Water Quality

- 13.5 Water quality monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

#### Ecological Monitoring

##### *LMC Loop*

##### *Avifauna (Flight Line Survey)*

- 13.6 Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including EA Zone and along Shenzhen River. It demonstrates that the large waterbirds including migratory waterbirds such as Great Cormorant and Black-faced Spoonbill prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

##### *Mammals*

- 13.7 According to Clause 11.4.1.2 of the EM&A Manual, the connectivity between the reed marsh in the LMC Loop and the EA Zone has been fenced off due to other project's land occupier.
- 13.8 In addition, the 12-month establishment period of EA zone has been completed. The mammals monitoring in the Loop was therefore temporarily suspended in the reporting month and will be resumed subject to the site condition.



Western Connection Road*Avifauna (Flight Line Survey)*

- 13.9 Avifauna monitoring was conducted as scheduled in the reporting month. Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. It demonstrates that the large waterbirds including migratory waterbirds such as Great Cormorant and Black-faced Spoonbill prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

*Avifauna (Pond 12)*

- 13.10 Avifauna survey at Pond 12 was conducted as scheduled in the reporting month. Weekly count of birds using the Pond was recorded. No significant impact of construction activities on bird use of the pond was observed.

*Herpetofauna*

- 13.11 Herpetofauna survey was conducted as scheduled in the reporting month. It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population. However, no significant impact of construction activities on this species was observed.

*Aquatic fauna*

- 13.12 Aquatic fauna survey was conducted as scheduled in the reporting month. No significant impact of construction activities on the stream was observed.

Land Contamination

- 13.13 Decontamination for five arsenic-contaminated zones (LD01 - LD05) identified in LMC Loop was completed and the final Remediation Report was submitted and approved by EPD in accordance with Condition 2.16 of the EP-477/2013/A under Contract No. YL/2017/03.
- 13.14 No work related to land contamination was conducted in the reporting month.

Environmental Site Inspection

- 13.15 Environmental site inspections were conducted on 1<sup>st</sup>, 6<sup>th</sup>, 8<sup>th</sup>, 13<sup>th</sup>, 15<sup>th</sup>, 20<sup>th</sup>, 22<sup>nd</sup>, 27<sup>th</sup> and 29<sup>th</sup> March 2023 by ET in the reporting month.

Environmental Complaints, Summons and Prosecutions

- 13.16 One environmental complaint was received in the reporting month.
- 13.17 No notification of summons or successful prosecution was received in the reporting month.

- 13.18 The ET would keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

### **Recommendations**

- 13.19 According to the environmental audit performed in the reporting month, the following recommendations were made:

#### *Air Quality Impact*

- To provide the dust suppression measures such as water spraying on all haul roads, exposed work site areas and dust generation works;
- To provide and maintain impervious materials to cover the stockpiles of dusty materials;
- To design, establish and properly use the wheel washing facilities at the site exits;
- To keep maintain machinery to prevent emission of black smoke; and
- To inspect NRMM labels which should be displayed for all regulated machines.

#### *Noise Impact*

- To inspect the noise sources inside the site;
- To space out noisy equipment and position the equipment as far away as possible from sensitive receivers; and
- To provide and maintain properly temporary noise barriers or other appropriate sound reduction measures for operations of noisy equipment near the noise sensitive receivers, if necessary.

#### *Water Impact*

- To check the silt curtain regularly and prevent any surface runoff discharge into the old Shenzhen River meander or stream;
- To review and implement temporary drainage system;
- To identify any wastewater discharges from site;
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge;
- To provide and enhance the protection and bunding around the storage area for excavated materials;
- To review the capacity of de-silting facilities for discharge;
- To ensure the drainage facilities are probably maintained and not be clogged with sediment to avoid overflow;
- To maintain the cover for the exposed slope surfaces by tarpaulin or other means;
- To designate the area for wheel washing and set up the associated drainage for water from a wheel wash;
- To pave the exit points and ensure vehicles leaving the site are free from debris of dirt; and
- To implement the effective water quality mitigation measures according to the site drainage plan, and review the site drainage plan measures as appropriate.

#### *Ecology Impact*

- To maintain properly the 3m high olive-green fence around the construction site and along the works of meander bridge;

- To provide and maintain visual barrier along Ha Wan Tsuen Road;
- To ensure the powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any; and
- To prevent any surface runoff discharge into the stream.

#### *Waste/Chemical Management*

- To check for any accumulation of waste materials or rubbish on site;
- To carry out inspection of dump trucks at site exit to ensure inert and non-inert C&D materials are properly segregated before delivering off site;
- To avoid any discharge or accidental spillage of chemical waste or oil directly from the equipment and the site;
- To maintain the drip tray well and/or provide tarpaulin sheet properly for equipment to prevent oil and chemical leakage;
- To avoid improper handling, storage and dispose of oil drums or chemical containers on site.

#### *Landscape and Visual*

- To erect and maintain the protection fencing and tree protection zone around the preserved trees; and
- To avoid placing construction materials within the tree protection zone.

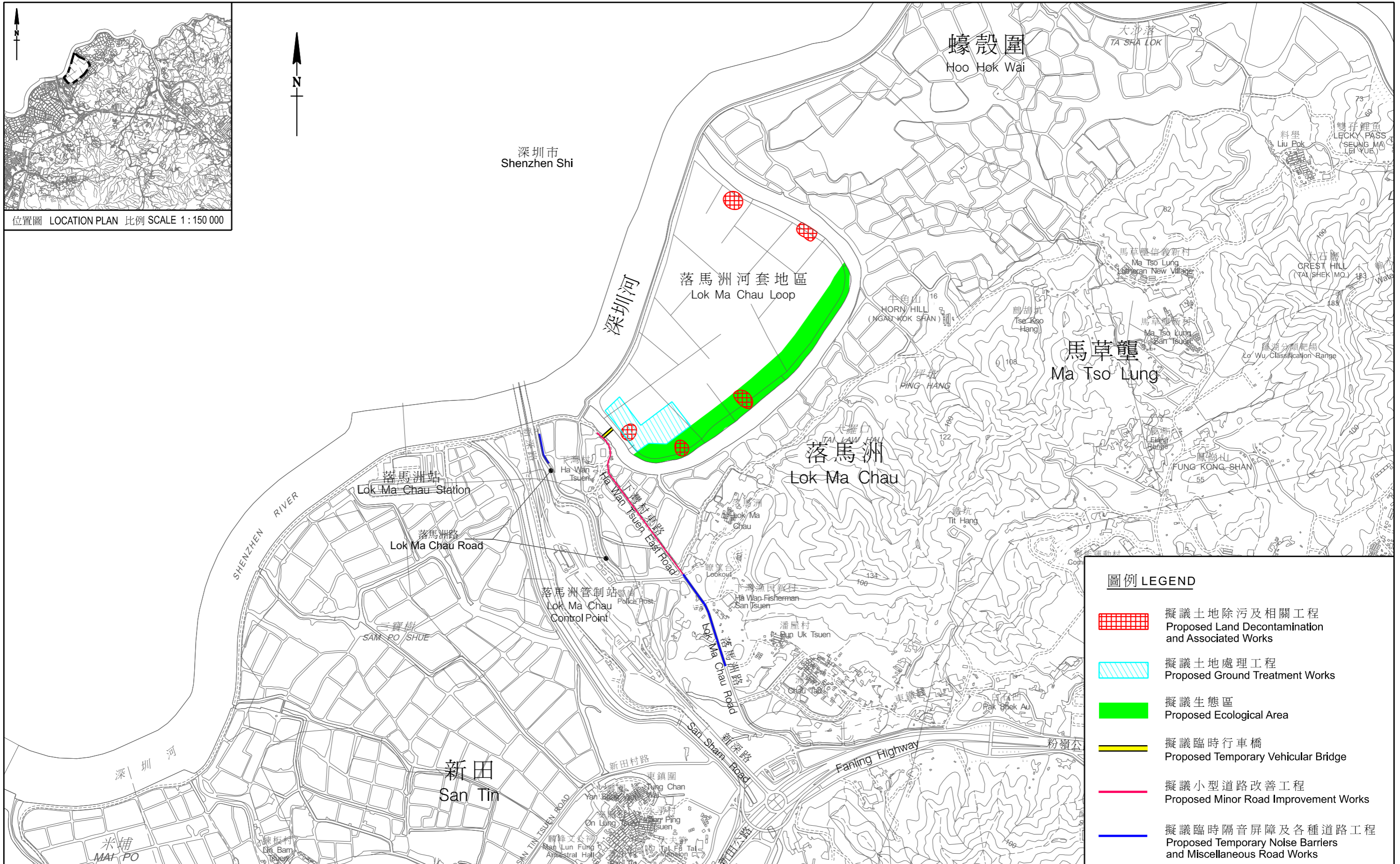
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**FIGURE(S)**

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工務計劃項目第748CL號—落馬洲河套地區發展：土地除污及前期工程  
 PWP ITEM No. 748CL-DEVELOPMENT OF LOK MA CHAU LOOP :  
 LAND DECONTAMINATION AND ADVANCE ENGINEERING WORKS

FIGURE 1 a  
 LAYOUT PLAN

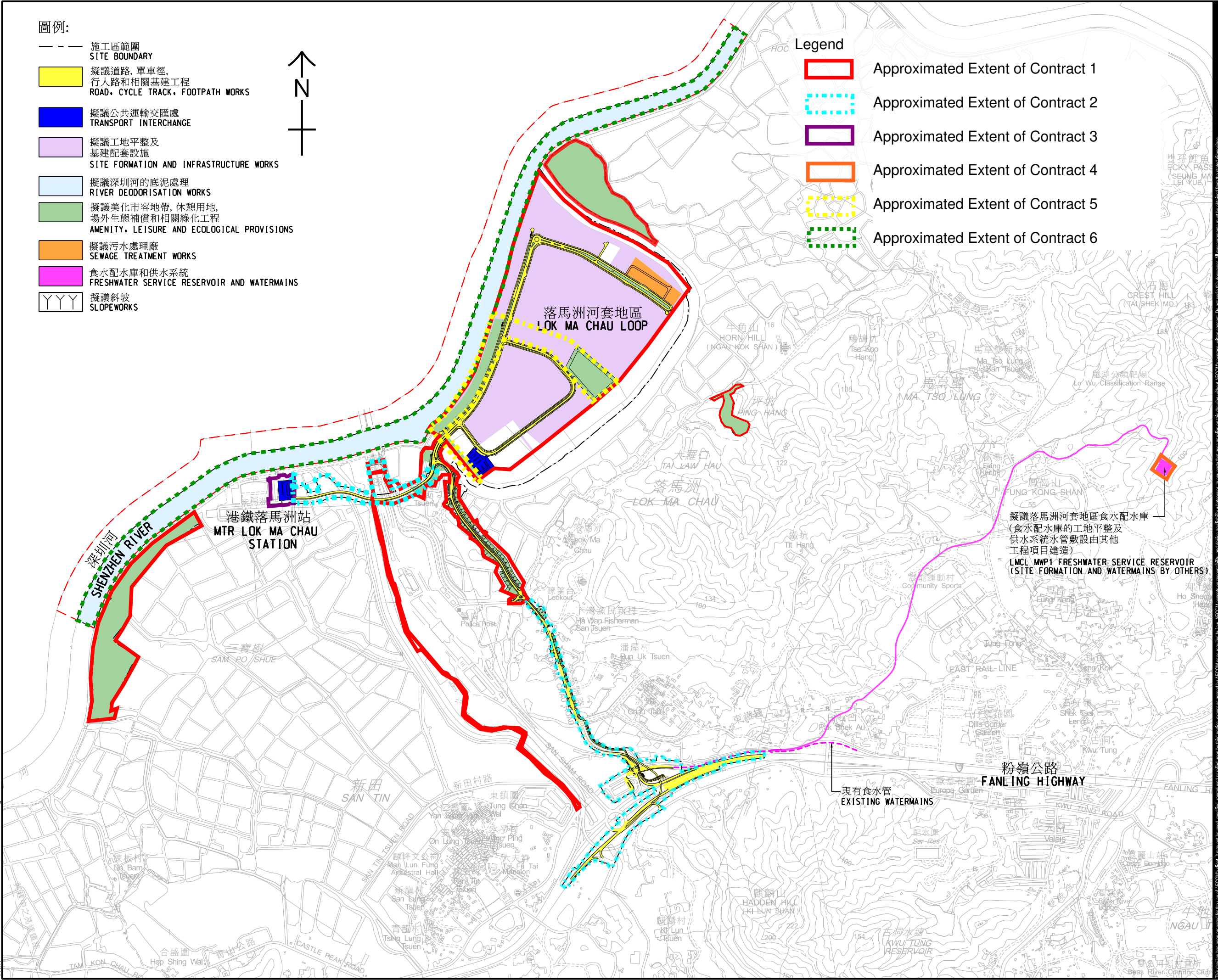
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 Checked:  
 Designer:  
 Project Management Initials:  
 5/12/2020  
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- 圖例:**
- 施工區範圍  
SITE BOUNDARY
  - 擬議道路, 單車徑, 行人路和相關基建工程  
ROAD, CYCLE TRACK, FOOTPATH WORKS
  - 擬議公共運輸交匯處  
TRANSPORT INTERCHANGE
  - 擬議工地平整及基建配套設施  
SITE FORMATION AND INFRASTRUCTURE WORKS
  - 擬議深圳河的底泥處理  
RIVER DEODORISATION WORKS
  - 擬議美化市容地帶, 休憩用地, 場外生態補償和相關綠化工程  
AMENITY, LEISURE AND ECOLOGICAL PROVISIONS
  - 擬議污水處理廠  
SEWAGE TREATMENT WORKS
  - 食水配水庫和供水系統  
FRESHWATER SERVICE RESERVOIR AND WATERMAINS
  - 擬議斜坡  
SLOPEWORKS



**Legend**

- Approximated Extent of Contract 1
- Approximated Extent of Contract 2
- Approximated Extent of Contract 3
- Approximated Extent of Contract 4
- Approximated Extent of Contract 5
- Approximated Extent of Contract 6



**AECOM**

PROJECT  
 DEVELOPMENT OF  
 LOK MA CHAU LOOP  
 MAIN WORKS PACKAGE 1  
 DESIGN AND  
 CONSTRUCTION

CLIENT  
 土木工程拓展署  
**CEDD** Civil Engineering and  
 Development Department

CONSULTANT  
 AECOM Asia Company Ltd.  
 www.aecom.com

SUB-CONSULTANTS  
 分列工程師有限公司

**ISSUE/REVISION**

IR	DATE	DESCRIPTION	CHK.

**STATUS**

**SCALE** 1:8000      **DIMENSION UNIT** METRES

**KEY PLAN**

**PROJECT NO.** 60588085      **CONTRACT NO.** CE 5/2018(CE)

**SHEET TITLE**  
 落馬洲河套地區發展 -  
 第一期主體工程 -  
 工程平面圖 (圖一)  
 PROJECT LAYOUT (Figure 1b)

**SHEET NUMBER**  
 60588085/SK0099

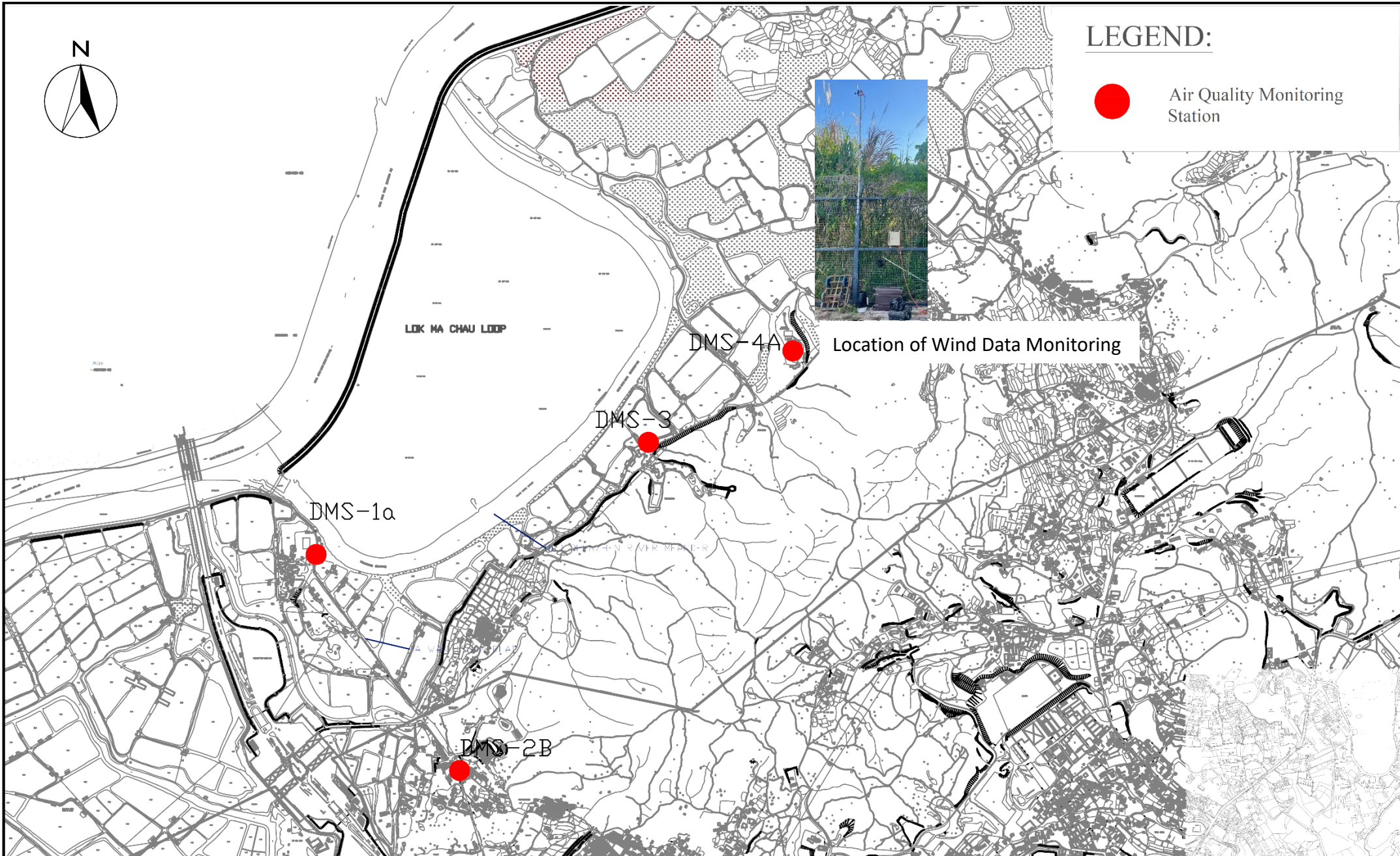


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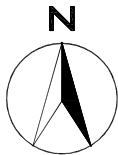
 Air Quality Monitoring Station



Location of Wind Data Monitoring

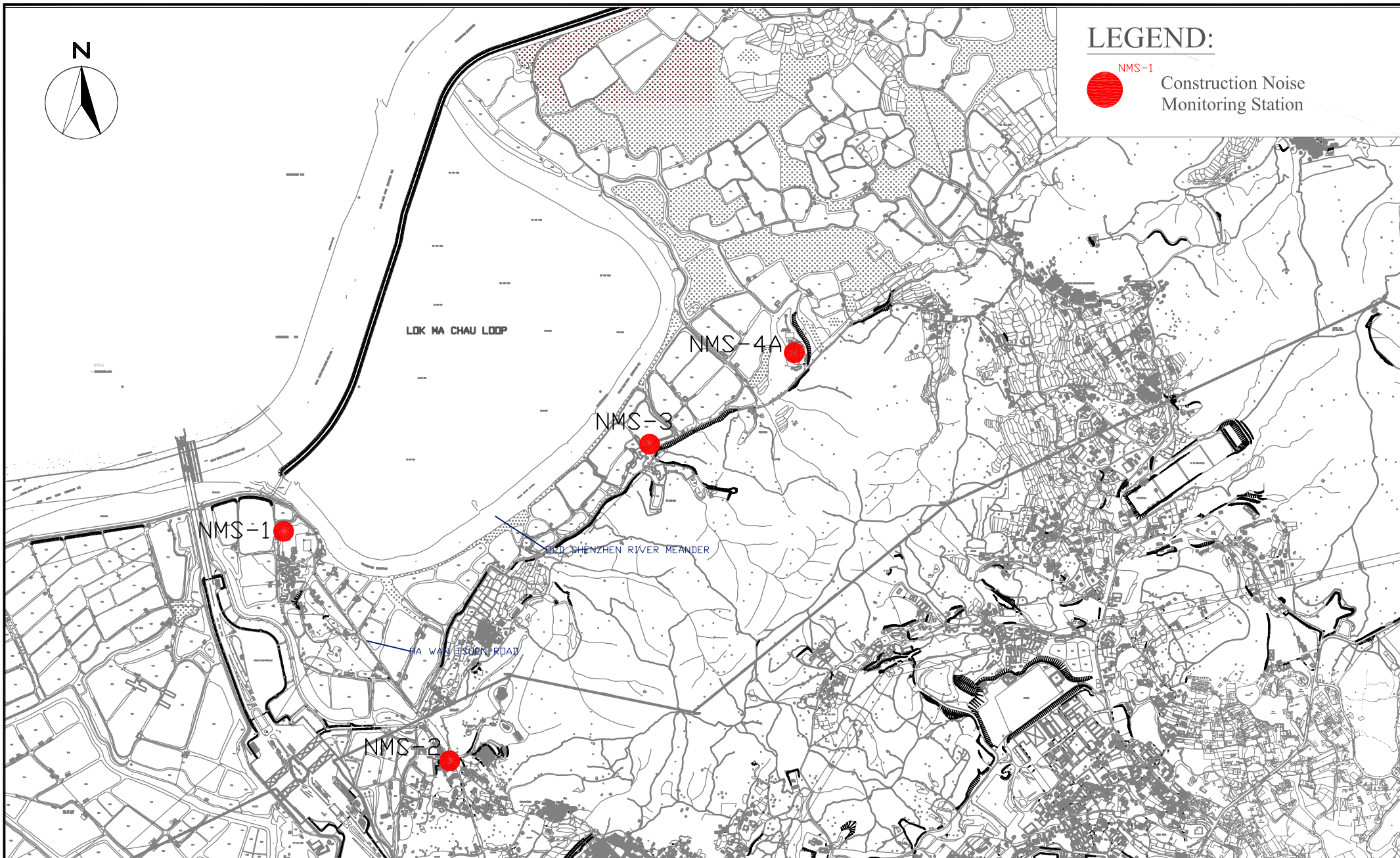


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JOB No.	WMA21009	FIGURE NO.	Fig 2
		REV	-



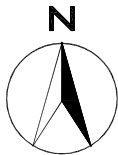
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NMS-1  
 Construction Noise Monitoring Station



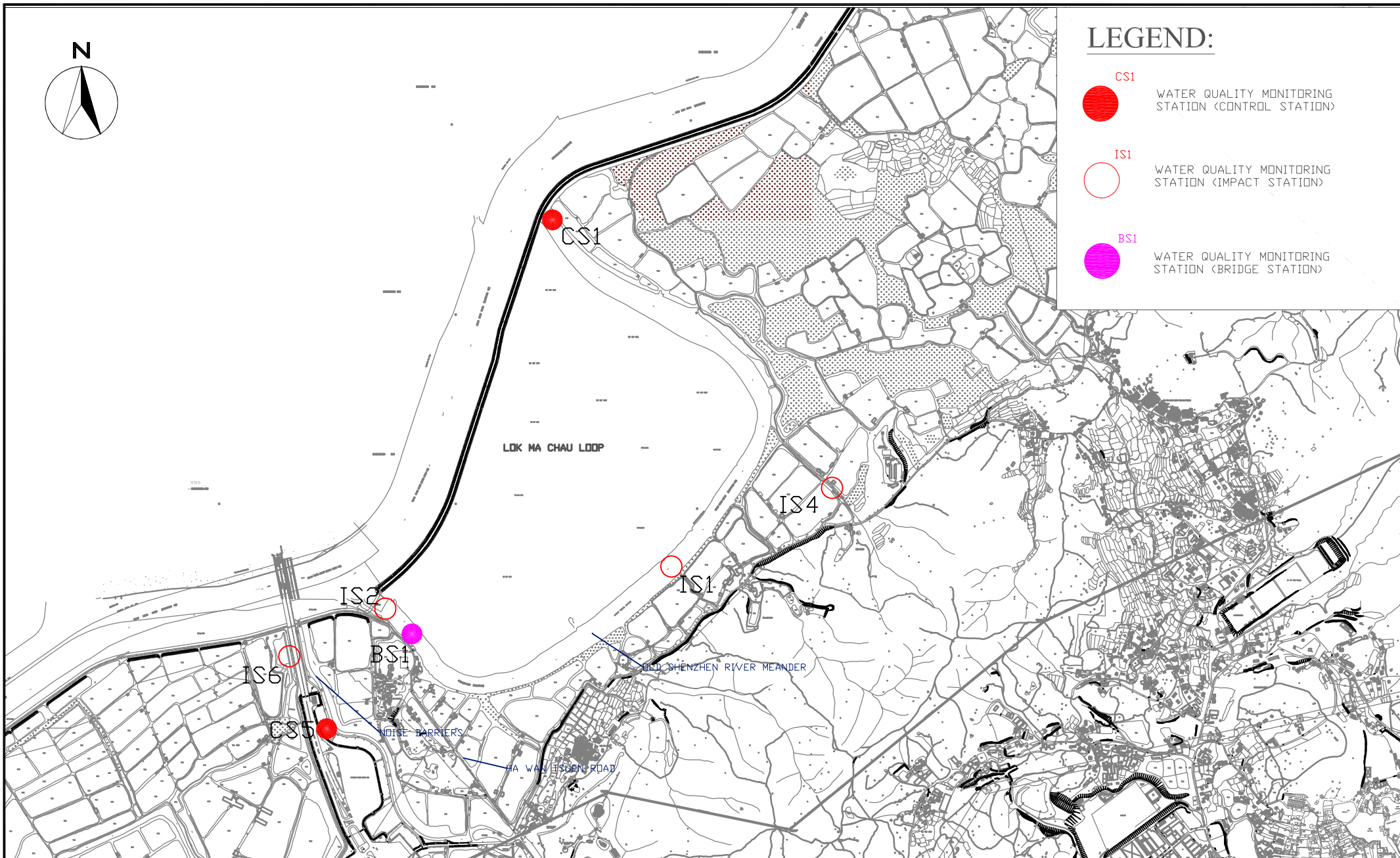
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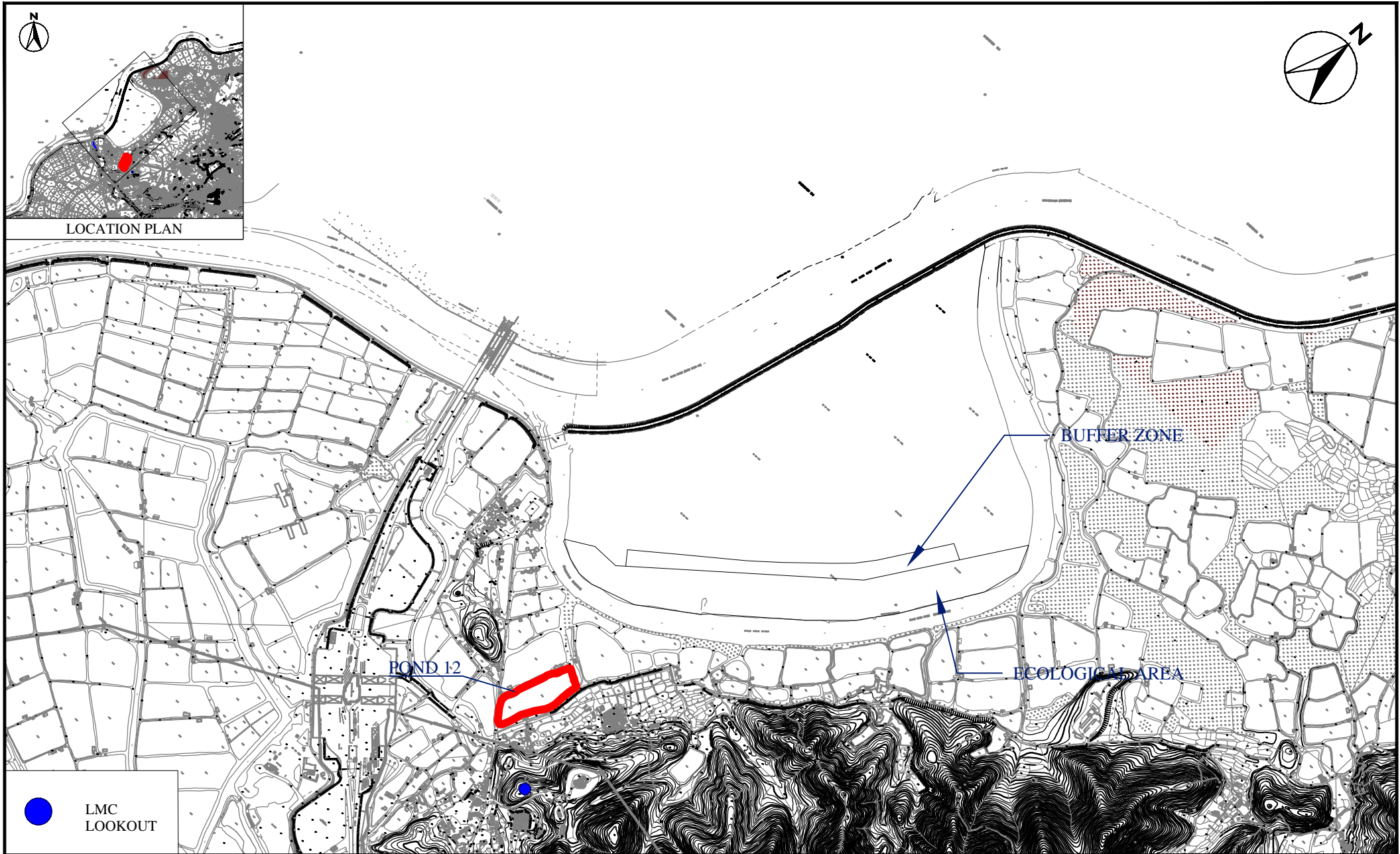


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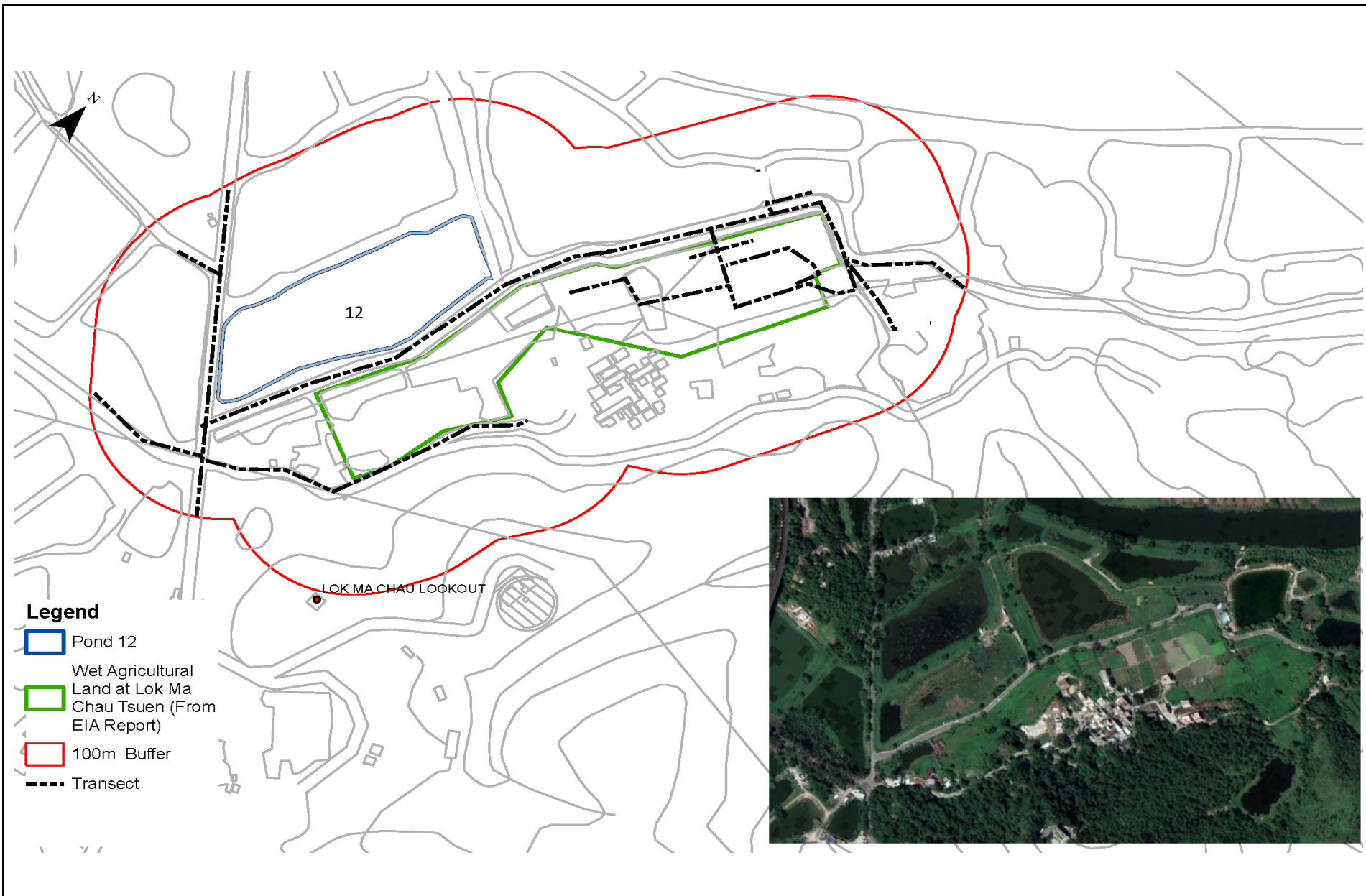
- CS1 WATER QUALITY MONITORING STATION (CONTROL STATION)
- IS1 WATER QUALITY MONITORING STATION (IMPACT STATION)
- BS1 WATER QUALITY MONITORING STATION (BRIDGE STATION)



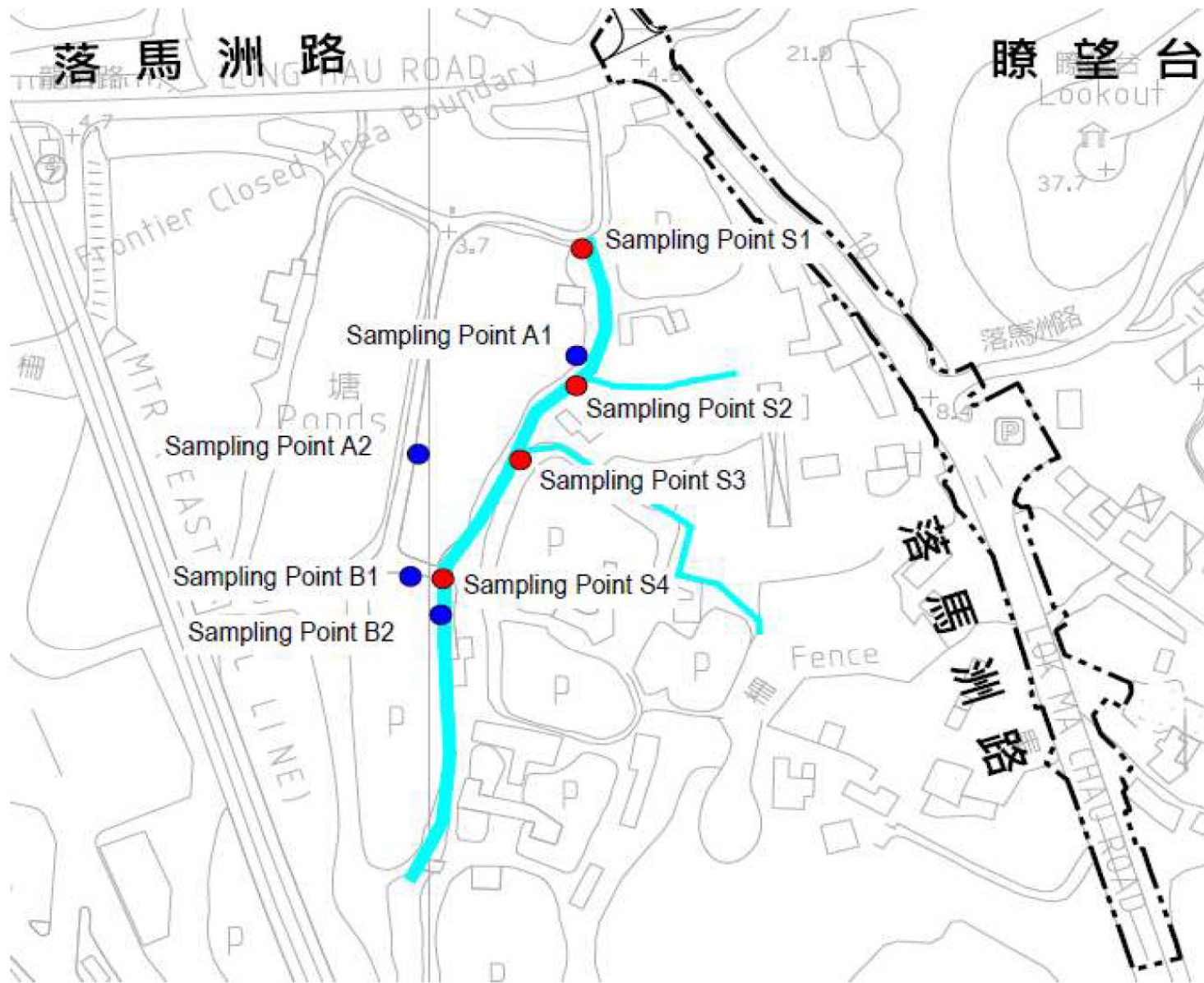
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		REV	-



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JOB No.	WMA 21009	FIGURE NO.	Fig 5a
		REV	-




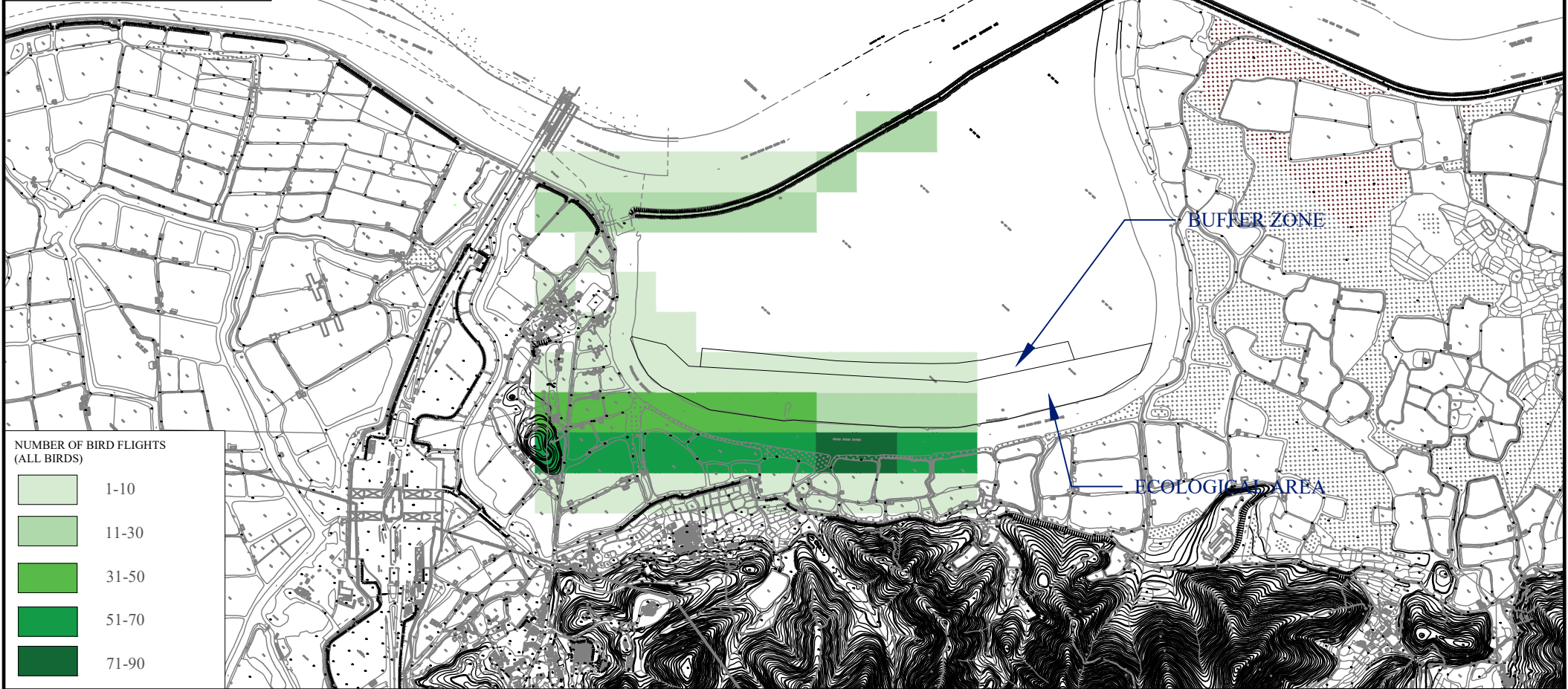
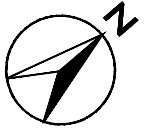
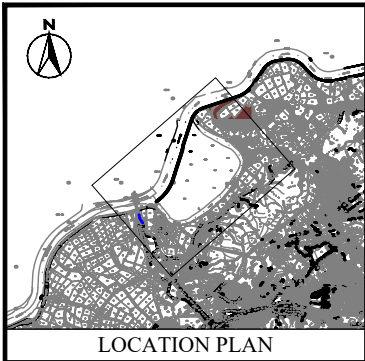
Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team Locations of Transect for Monitoring of Chinese Bull Frog		Scale	Project No.	<b>WELLAB 匯力</b> consulting . testing . research
		N.T.S	WMA21009	
		Date	Figure	
		Mar-22	5b	



Service Contract No. WD/04/2020  
 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team

Locations of Rose Bitterling Sampling Points

Scale	N.T.S	Project No.	WMA21009	 consulting . testing . research
Date	Mar-22	Figure	5c	



NUMBER OF BIRD FLIGHTS  
(ALL BIRDS)

- 1-10
- 11-30
- 31-50
- 51-70
- 71-90

SCALE	1:14000 @A4	DATE	March 2023
CHECK	IT	DRAWN	ML
JOB No.	WMA 21009	FIGURE NO.	Fig 6
		REV	-

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**APPENDIX A  
CONSTRUCTION PROGRAMME**

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**Contract No. YL/2020/01 - Development of Lok Ma Chau  
Loop: Main Works Package 1 – Contract 1 Site Formation  
and Infrastructure Works inside Lok Ma Chau Loop and  
Western Connection Road Phase 1**













Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	February					March					April				May				June					
								28					29					30				31				32					
								9	05	12	19	26	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25		
<b>KD8 - Design</b>																															
KD8-1015	STW - Design IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	14-Sep-23	11-Feb-22	05-Oct-22	-230																								
KD8-1020	STW - Design Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	05-Jun-23	11-Feb-22	16-Mar-22	-358																								
KD8-1025	STW - Design Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	05-Jun-23	19-Feb-22	24-Mar-22	-351																								
KD8-1030	STW - Design Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-May-23	18-Jul-23	14-Mar-22	26-May-22	-338																								
KD8-1035	STW - Design Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	09-May-23	14-Sep-23	01-Apr-22	13-Aug-22	-322																								
KD8-1040	STW - Design DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	09-May-23	14-Sep-23	27-May-22	05-Oct-22	-280																								
<b>KD8 - Shop Drawings</b>																															
KD8-3330	STW - Shop Drawings for IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	06-Jun-23	14-Aug-23	16-Jul-22	22-Sep-22	-262																								
KD8-3335	STW - Shop Drawings for Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	06-Jun-23	14-Aug-23	17-Mar-22	30-May-22	-358																								
KD8-3340	STW - Shop Drawings for Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	06-Jun-23	14-Aug-23	26-Mar-22	09-Jun-22	-350																								
<b>KD8 - Method Statement</b>																															
KD8-1330	STW - MS IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-May-23	18-Jul-23	16-Jul-22	22-Sep-22	-239																								
KD8-1335	STW - MS Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-May-23	18-Jul-23	14-Mar-22	26-May-22	-338																								
KD8-1340	STW - MS Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	06-Jun-23	14-Aug-23	25-Mar-22	08-Jun-22	-351																								
<b>KD8 - Construction</b>																															
<b>KD8 - Inlet Works and Primary Treatment Building (IWPTB) (Area Occupied)</b>																															
KD8-2014	STW - IWPTB Foundation Pre-drilling (approx. 109 mrs)	55	06-Dec-21 A	20-May-23	25-Jun-22	15-Jul-22	-250																								
KD8-2015	STW - IWPTB Foundation Sockets H-piles for IW PTB (109 mrs @ 3dpile/rig, 4 rigs)	82	06-Jun-23	11-Sep-23	16-Jul-22	22-Oct-22	-262																								
<b>KD8 - Membrane Facility Building (MFB) (Area Occupied)</b>																															
KD8-2004	STW - MFB Foundation Pre-drilling (approx. 81 mrs)	42	03-Jan-22 A	20-May-23	03-Oct-22	22-Oct-22	-168																								
<b>KD8 - Bio-Reactor (BRB) (Area Occupied)</b>																															
KD8-1195	STW - BR Foundation Pre-drilling (approx. 60 mrs)	50	22-Dec-21 A	06-May-23	03-Oct-22	08-Oct-22	-168																								
<b>KD8 - Sludge Treatment Building (STB) (Area Occupied)</b>																															
KD8-2362	STW - STB Foundation Pre-drilling (approx. 85 mrs)	60	11-Jan-22 A	05-Jun-23	20-Jun-23	25-Jul-23	41																								
KD8-2375	STW - Deodorization Unit No.3 Foundation Pre-drilling (approx. 4 mrs)	27	10-Feb-22 A	20-May-23	28-Oct-23	16-Nov-23	148																								
<b>Section 1A - Wetland Compensation Establishment Works at Portion 1</b>																															
S1A-2000	Portion 1 - Establishment Works and Ecological Monitoring (Area 7)	365	26-Jul-22 A	25-Jul-23	04-Jun-22	28-Oct-22	-270																								
<b>Section 2A - Wetland Compensation Establishment Works at Portion 2A/2B</b>																															
S2A-2000	Portion 2A/2B - Establishment Works and Ecological Monitoring (Area 2, Area 9)	365	26-Jul-22 A	25-Jul-23	04-Jun-22	28-Oct-22	-270																								
<b>Section 3A - Wetland Compensation Establishment Works at Portion 3</b>																															
S3A-2000	Portion 3 - Establishment Works and Ecological Monitoring (Area 9)	365	26-Jul-22 A	25-Jul-23	04-Jun-22	28-Oct-22	-270																								
<b>Section 4 - Woodland Compensation Works at Portion 4</b>																															
<b>Section 4 - Preparation Works</b>																															
S4-1050	Portion 4 - Existing Vegetation Survey	30	15-Feb-23 A	21-Mar-23	18-Sep-23	10-Oct-23	164																								
S4-1060	Portion 4 - Submission of Existing Survey Report	0		29-Apr-23		29-Dec-23	200																								
S4-1070	Portion 4 - Preparation of Woodland Compensation Plan (with Method Statement & Material Submission)	66	22-Mar-23	13-Jun-23	11-Oct-23	29-Dec-23	164																								
S4-1071	Portion 4 - Submission of Woodland Compensation Plan (with Method Statement & Material Submission)	0		13-Jun-23		29-Dec-23	164																								
S4-1075	Portion 4 - Review and Acceptance of Woodland Compensation Plan (with Method Statement & Material Submission)	120	14-Jun-23	06-Nov-23	30-Dec-23	30-May-24	164																								
S4-1082	Portion 4 - Preparation of Woodland Compensation Material Submissions	98	22-Mar-23	22-Jul-23	20-Oct-23	20-Feb-24	172																								
<b>Section 6 - Western Connection Road (WCR)</b>																															
<b>S6 WCR Submission</b>																															
S6-1024	Issued PMI No. 104 - PM Review and Reply	21	17-Sep-22 A	06-Mar-23	18-Nov-21	23-Nov-21	-468																								
S6-9200B	Issued PMI No. 135 - Quotation Preparation and Submission	21	07-Jan-23 A	03-Mar-23	21-Sep-21	23-Sep-21	-526																								
S6-9200C	Issued PMI No. 135 - PM Review and Reply	14	04-Mar-23	17-Mar-23	24-Sep-21	07-Oct-21	-526																								
S6-9300	Issued PMI No. 143 - Design, Supply and Installation of Road Lighting (Quotation)	0		01-Mar-23*		30-Dec-22	-60																								
S6-9310	Issued PMI No. 143 - Quotation Preparation and Submission	14	01-Mar-23	16-Mar-23	31-Dec-22	17-Jan-23	-46																								
S6-9717	Issued PMI No. 143 - PM Review and Reply	21	17-Mar-23	06-Apr-23	18-Jan-23	07-Feb-23	-58																								
S6-9727	Issued PMI No. 143 - Issue PMN	1	11-Apr-23	11-Apr-23	08-Feb-23	08-Feb-23	-49																								
<b>S6 WCR Subletting and Procurement</b>																															
S6-9200	Portion 6 - Watermain Subletting	24	07-Mar-23	03-Apr-23	24-Nov-21	21-Dec-21	-375																								
S6-9202	Portion 6 - Watermain Material Procurement and Delivery	73	04-Apr-23	06-Jul-23	22-Dec-21	25-Mar-22	-375																								
S6-9210	Portion 6 - Road Lighting Subletting	24	12-Apr-23	10-May-23	09-Feb-23	08-Mar-23	-49																								
S6-9707	Portion 6 - Road Lighting Material Procurement and Delivery	73	11-May-23	07-Aug-23	09-Mar-23	08-Jun-23	-49																								
<b>S6 WCR Works</b>																															
<b>S6 WCR: Preliminary and Demolition Works</b>																															
S6-1032	Portion 6 - Procurement for DN700 Fresh Watermains	90	15-Mar-23	06-Jul-23	02-Dec-21	25-Mar-22	-375																								
<b>S6 WCR: Pond Filling</b>																															
<b>Pond Filling Work Front 2</b>																															
S6-5106	S1A: Area 2 - Pond 10 Filling (12,859m3) - Suspended from 28 Sep due to owner objection, Resumed 17 Oct 2022	49	18-Aug-22 A	18-Mar-23	17-Aug-21	03-Sep-21	-261																								
<b>S6 WCR: UU Diversion</b>																															
S6-9037	UU Diversion - CLP 11kV (with Poles)	72	01-Mar-23	30-May-23	01-Aug-22	26-Oct-22	-76																								
S6-9047	UU Diversion - HKT	72	01-Mar-23	30-May-23	01-Aug-22	26-Oct-22	-76																								
S6-9057	UU Diversion - VTL	72	01-Mar-23	30-May-23	01-Aug-22	26-Oct-22	-76																								
S6-9067	UU Diversion - Watermains	72	01-Mar-23	30-May-23	01-Aug-22	26-Oct-22	-76																								
S6-9537	UU Diversion - Road Lighting	72	01-Mar-23	30-May-23	01-Aug-22	26-Oct-22	-76																								
<b>S6 WCR: DCM Works</b>																															
<b>Rig 4 (at Area 1)</b>																															
<b>Area 1 - DCM 4 and DCM7 (at MB)</b>																															
S6-5181	Area 1 - Area 1 Post-CPT for DCM	4	29-Mar-23	01-Apr-23	20-Oct-21	23-Oct-21	-424																								
<b>Area 1 - DCM 7 (at TAR1, MB Abutment)</b>																															
S6-5199	Area 1 - DCM7 Cluster Installation (20hrs, 4hrs/drig, 1 rig, R1)	18	04-Mar-23	24-Mar-23	20-Dec-21	12-Jan-22	-351																								
S6-5201	Area 1 - Backfill the Temporary Working Platform for DCM Rig at C2 Site Area	5	17-Mar-23	22-Mar-23	05-Jan-22	10-Jan-22	-351																								
S6-9518	Area 1 - DCM7 Cluster Installation (37hrs, 4hrs/drig, 1 rig, R1)	10	23-Mar-23	03-Apr-23	11-Jan-22	21-Jan-22	-351																								
S6-9521	Area 1 - Construction of Temporary Slip Road for Temporary Traffic Diversion	25	13-Apr-23*	12-May-23	18-Jul-22	15-Aug-22	-217																								
S6-9531	Area 1 - Divert traffic to temporary slip road	1	13-May-23	13-May-23	16-Aug-22	16-Aug-22	-217																								



- Actual Level of Effort
- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1  
Three Month Rolling Programme

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Three Month Rolling Programme			
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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	February					March					April				May				June					
								9	05	12	19	26	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25		
S12A-1010	Portion 18A - MS Box Culvert A1 Preparation & Submit (6d), PM Review (14d), Resubmit (4d), Approval (14d)	18	16-May-23	06-Jun-23	06-Mar-22	28-Mar-22	-349	[Gantt bar]																							
<b>Section 12A - Construction</b>																															
<b>Section 12A - Box Culvert A1 (Portion 18A, CH 191-247) 56m (Area Occupied)</b>																															
S12A-1040	Portion 18A - Box Culvert A1 (P15.1 at L1, 56m) - Pre-drilling	12	23-May-23	06-Jun-23	15-Mar-22	28-Mar-22	-349	[Gantt bar]																							
S12A-1050	Portion 18A - Box Culvert A1 (P15.1 at L1, 56m) - Pre-bored H-pile (56 nrs @ ave 3d/r/rig, 4 rigs)	42	07-Jun-23	27-Jul-23	29-Mar-22	23-May-22	-349	[Gantt bar]																							
<b>Section 12B - Box Culvert A3 at Portion 18B (Over Underpass of HSITP)</b>																															
<b>Section 12B - Construction</b>																															
<b>Section 12B - Box Culvert A3 (Portion 18B, CH 158-191) 33m (Area Occupied)</b>																															
S12B-1060	Portion 18B - MS Box Culvert A3 Preparation & Submit (14d), PM Review (28d), Resubmit (14d), Approval (28d)	28	21-Jun-23	25-Jul-23	11-Apr-22	18-May-22	-351	[Gantt bar]																							
<b>Section 12C - Road L1 and Box Culvert A1 at Portion 18C</b>																															
<b>Section 12C - Construction</b>																															
<b>Section 12C - Road L1 - Portion 18C (CH 1170 to 1430) 260m</b>																															
<b>S12C Road L1 - Submissions</b>																															
<b>Road L1 - PMIs</b>																															
S12C-1013	Issued PMI No. 052 - PM Review and Reply	24	20-Jul-22 A	14-Mar-23	21-Feb-23	06-Mar-23	-8	[Gantt bar]																							
S12C-1014	Issue PMN for PMIO52	0		15-Mar-23		11-Nov-26	1337	[Gantt bar]																							
S12C-1020	Issued PMI No. 066 - Quotation Preparation and Submission	21	17-Sep-22 A	14-Mar-23	22-May-23	23-May-23	70	[Gantt bar]																							
S12C-1022	Issued PMI No. 066 - PM Review and Reply	14	15-Mar-23	28-Mar-23	24-May-23	06-Jun-23	70	[Gantt bar]																							
S12C-1023	Issue PMN for PMIO66	0		09-May-23		11-Nov-26	1040	[Gantt bar]																							
S12C-1100A	Issued PMI No. 150 - Revised Drainage Design w/in Road L1 (Ch 1170-1430)	0		20-Mar-23*		18-Mar-23	0	[Gantt bar]																							
S12C-1100B	Issued PMI No. 150 - Quotation Preparation and Submission	21	20-Mar-23	09-Apr-23	24-Mar-23	13-Apr-23	4	[Gantt bar]																							
S12C-1100C	Issued PMI No. 150 - PM Review and Reply	14	10-Apr-23	23-Apr-23	14-Apr-23	27-Apr-23	4	[Gantt bar]																							
S12C-6440	Issue PMI for Road L1 roadworks - Flexible Pavement (Bitumant) Layer	0		02-Mar-23*		01-Mar-23	0	[Gantt bar]																							
S12C-6450	Road L1 Flexible Pavement - Subletting	24	02-Mar-23	29-Mar-23	02-Mar-23	29-Mar-23	0	[Gantt bar]																							
S12C-6460	Road L1 Flexible Pavement - Material Procurement and Delivery	72	30-Mar-23	29-Jun-23	30-Mar-23	29-Jun-23	0	[Gantt bar]																							
<b>Road L1 - Design and Method Statement</b>																															
S12C-5690	Method Statement PM Review and Acceptance (Precast Concrete Pipe and Fittings)	21	21-Sep-22 A	03-Mar-23	03-Mar-23	31-Mar-23	28	[Gantt bar]																							
S12C-5710	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 2m, 3m depth)	21	03-Oct-22 A	05-Mar-23	01-Mar-23	05-Mar-23	0	[Gantt bar]																							
S12C-5720	Temporary Works Design Submission (Road L1 Trench Excavation 4m, 5m depth)	15	19-Sep-22 A	02-Mar-23	01-Mar-23	02-Mar-23	0	[Gantt bar]																							
S12C-5730	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 4m, 5m depth)	21	04-Oct-22 A	05-Mar-23	01-Mar-23	05-Mar-23	0	[Gantt bar]																							
<b>S12C Road L1 - Stage 1 (Building 11)</b>																															
<b>S12C Road L1 - Stage 1A (Building 11) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-5641	Stage 1A 18C Road L1 (EA Zone) - One-way gyratory system	1	04-Feb-23 A	04-Feb-23 A	01-Apr-23	01-Apr-23	28	[Gantt bar]																							
S12C-5676	Stage 1A 18C Road L1 (Road L1) - Diversion of Existing DN80 (watermain)	39	01-Feb-23 A	18-Mar-23	09-Mar-23	27-Mar-23	7	[Gantt bar]																							
S12C-6660	Stage 1A 18C Road L1 (Road L1) - Sewage	31	01-Mar-23	06-Apr-23	09-Mar-23	18-Apr-23	7	[Gantt bar]																							
<b>S12C Road L1 - Stage 1B (Building 11) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-6650	Stage 1B 18C Road L1 (Building 11) - Drainage and Sewage	33	09-Feb-23 A	31-Mar-23	01-Mar-23	31-Mar-23	0	[Gantt bar]																							
S12C-6660	Stage 1B 18C Road L1 (Building 11) - Irrigation works	15	07-Jun-23	24-Jun-23	14-Jul-23	31-Jul-23	30	[Gantt bar]																							
<b>S12C Road L1 - Stage 1 (Building 11) - UU Installation and Enabling Works (by Others)</b>																															
S12C-5642	Stage 1A 18C Road L1 (Building 11) - UU enabling works (132kV cross road ducts)	11	01-Apr-23	18-Apr-23	01-Apr-23	18-Apr-23	14	[Gantt bar]																							
S12C-5650	Stage 1A 18C Road L1 (Building 11) - UU enabling works (132kV)	6	19-Apr-23	25-Apr-23	19-Apr-23	25-Apr-23	0	[Gantt bar]																							
S12C-5660	Stage 1A 18C Road L1 (Building 11) - UU enabling works (11kV)	6	26-Apr-23	03-May-23	26-Apr-23	03-May-23	0	[Gantt bar]																							
S12C-5670	Stage 1A 18C Road L1 (Building 11) - UU enabling works (telecom)	14	04-May-23	19-May-23	20-May-23	06-Jun-23	14	[Gantt bar]																							
<b>S12C Road L1 - Stage 1 (Building 11) - Roadworks and Lighting</b>																															
S12C-5756	Stage 1 18C Road L1 (Building 11) - Road works (Carriageway)	28	04-May-23	06-Jun-23	04-May-23	06-Jun-23	0	[Gantt bar]																							
S12C-5757	Stage 1 18C Road L1 (Building 11) - Road works (entrances)	14	07-Jun-23	23-Jun-23	07-Jun-23	23-Jun-23	0	[Gantt bar]																							
S12C-5759	Stage 1 18C Road L1 (Building 11) - Road works (Lighting)	15	24-Jun-23	12-Jul-23	14-Jul-23	31-Jul-23	16	[Gantt bar]																							
S12C-5762	Stage 1 18C Road L1 (Building 11) - Road works (Footpath)	15	24-Jun-23	12-Jul-23	14-Jul-23	31-Jul-23	16	[Gantt bar]																							
<b>S12C Road L1 - Stage 2 (Building 12)</b>																															
<b>S12C Road L1 - Stage 2 (Building 12) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-5748	Stage 2 18C Road L1 (Building 12) - Install ELS Cofferdam	14	02-Feb-23 A	15-Apr-23	01-Mar-23	15-Apr-23	0	[Gantt bar]																							
S12C-5750	Stage 2 18C Road L1 (Building 12) - Drainage	22	04-Apr-23	04-May-23	31-Mar-23	29-Apr-23	-3	[Gantt bar]																							
<b>S12C Road L1 - Stage 2 (Building 12) - UU Installation and Enabling Works (by Others)</b>																															
S12C-6665	Stage 2 18C Road L1 (Building 12) - UU enabling works (132kV cross road ducts)	11	01-Apr-23	18-Apr-23	12-May-23	24-May-23	30	[Gantt bar]																							
S12C-6670	Stage 2 18C Road L1 (Building 12) - UU enabling works (132kV)	6	19-Apr-23	25-Apr-23	25-May-23	01-Jun-23	30	[Gantt bar]																							
S12C-6680	Stage 2 18C Road L1 (Building 12) - UU enabling works (11kV)	6	26-Apr-23	03-May-23	02-Jun-23	08-Jun-23	30	[Gantt bar]																							
S12C-6690	Stage 2 18C Road L1 (Building 12) - UU enabling works (telecom)	14	04-May-23	19-May-23	09-Jun-23	26-Jun-23	30	[Gantt bar]																							
<b>S12C Road L1 - Stage 2 (Building 12) - Roadworks and Lighting</b>																															
S12C-5758A	Stage 2 18C Road L1 (Building 12) - Road works (Carriageway)	14	20-Jun-23	07-Jul-23	27-Jun-23	13-Jul-23	5	[Gantt bar]																							
<b>S12C Road L1 - Stage 3 (Building 8)</b>																															
<b>S12C Road L1 - Stage 3A (Building 8) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-5790	Stage 3A 18C Road L1 (Bldg 8) - Drainage and Sewage	27	29-Mar-23	04-May-23	23-Mar-23	27-Apr-23	-5	[Gantt bar]																							
S12C-5795	Stage 3A 18C Road L1 (Bldg 8) - Watermain and Flushing	21	05-May-23	30-May-23	28-Apr-23	23-May-23	-5	[Gantt bar]																							
<b>S12C Road L1 - Stage 3B (Building 8) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-6600	Stage 3B 18C Road L1 (Bldg 8) - Drainage and Sewage	12	04-May-23	17-May-23	23-May-23	06-Jun-23	16	[Gantt bar]																							
S12C-6610	Stage 3B 18C Road L1 (Bldg 8) - Watermain and Flushing	14	01-Apr-23	21-Apr-23	20-May-23	06-Jun-23	37	[Gantt bar]																							
<b>S12C Road L1 - Stage 3 (Building 8) - UU Installation and Enabling Works (by Others)</b>																															
S12C-5760	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (towers)	37	14-Feb-23 A	15-Mar-23	23-Mar-23	11-Apr-23	19	[Gantt bar]																							
S12C-5800	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (132kV cross road ducts)	6	05-May-23	11-May-23	28-Apr-23	05-May-23	-5	[Gantt bar]																							
S12C-5810	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (132kV)	12	12-May-23	25-May-23	06-May-23	19-May-23	-5	[Gantt bar]																							
S12C-5816	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (11kV)	12	27-May-23	09-Jun-23	20-May-23	03-Jun-23	-5	[Gantt bar]																							
S12C-5880	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (telecom)	14	27-May-23	12-Jun-23	20-May-23	06-Jun-23	-5	[Gantt bar]																							
<b>S12C Road L1 - Stage 3 (Building 8) - Roadworks and Lighting</b>																															
S12C-5852	Stage 3 18C Road L1 (Bldg 8) - Road works (entrances)	14	13-Jun-23	29-Jun-23	07-Jun-23	23-Jun-23	-5	[Gantt bar]																							
S12C-5853	Stage 3 18C Road L1 (Bldg 8) - Road works (Carriageway)	30	13-Jun-23	19-Jul-23	07-Jun-23	13-Jul-23	-5	[Gantt bar]																							
<b>S12C Road L1 - Stage 4 (Building 9)</b>																															
<b>S12C Road L1 - Stage 4 (Building 9) - Drainage &amp; Sewage, Watermain &amp; Flushing</b>																															
S12C-5792	Stage 4 18C Road L1 (Bldg 9) - Watermain and Flushing	27	01-Mar-23	31-Mar-23	01-Mar-23	31-Mar-23	0	[Gantt bar]																							
S12C-5842	Stage 4 18C Road L1 (Bldg 9) - Drainage	21	21-Apr-23	16-May-23	21-Apr-23	16-May-23	0	[Gantt bar]																							



- Actual Level of Effort
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**Contract YL/2020/01 - Lok Ma Chau Loop Main Works Package 1  
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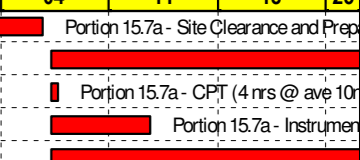
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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	February					March					April				May				June						
								28					29					30				31				32						
								9	05	12	19	26	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18	25			
S15.7a-1000	Portion 15.7a - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	31-May-23	06-Jun-23	15-Feb-23	21-Feb-23	-84																									
S15.7a-1040	Portion 15.7a - Level Ground (64,890m3)	40	07-Jun-23	25-Jul-23	20-Mar-23	10-May-23	-62																									
S15.7a-1050	Portion 15.7a - CPT (4 nrs @ ave 10nrs/dr/ig, 1 rig)	1	07-Jun-23	07-Jun-23	20-Mar-23	20-Mar-23	-62																									
S15.7a-1060	Portion 15.7a - Instrumentation Installation Type C1 (MPX 16 nrs @ ave 3dr/ri/ig, 8 rigs)	6	07-Jun-23	13-Jun-23	22-Feb-23	28-Feb-23	-84																									
S15.7a-1070	Portion 15.7a - Instrumentation Installation Type C1 (VMP 32 nrs @ ave 6dr/ri/ig, 8 rigs)	24	07-Jun-23	06-Jul-23	22-Feb-23	21-Mar-23	-84																									
<b>Section 15.7b - Ground Treatment Works and Site Formation at Portion 15.7b (</b>																																
S15.7b-0900	Area Occupied	431	24-Feb-22 A	30-Apr-23	23-Nov-22	22-Jan-23	-98																									
S15.7b-1000	Portion 15.7b - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	30-Jun-23	07-Jul-23	24-Mar-23	30-Mar-23	-77																									
<b>Section 15.8 - Reed Bed Area (Area Occupied)</b>																																
PRE-335	Portion 15.8 - Prepare, Submit & Coordination for Reed Transplant	90	30-Jun-23	16-Oct-23	09-Jun-22	23-Sep-22	-313																									
S15.8-1000	Area Occupied	431	24-Feb-22 A	30-Apr-23	08-Feb-22	09-Apr-22	-386																									
<b>Section 16 - Works Not Covered by Other Sections of the Works (Area Occupied)</b>																																
<b>S16 Portion 9 of the Site - North Meander</b>																																
S16-1035	Area Occupied	433	22-Feb-22 A	30-Apr-23	23-Oct-23	22-Dec-23	236																									
S16-1050	Portion 9 - Instrumentation Installation Type C2 (INC 9 nrs @ 3dr/ri/ig, 1 rig)	99	09-Nov-21 A	20-Jul-23	21-Feb-24	11-Mar-24	191																									
<b>S16 Portion 15.6b of the Site</b>																																
S16-1011	Area Occupied	431	24-Feb-22 A	30-Apr-23	06-Jan-25	08-Mar-25	677																									
S16-1015	Interface - Portion 10 FSAD Excavation and ELS (Depth 2m from Existing Level)	148	30-Jun-23*	27-Apr-24	07-May-25	31-Oct-25	352																									
<b>Section 20 - Ground Treatment Works and Site Formation at Portion 15.6b (Area Occupied)</b>																																
<b>Section 20 - Ground Treatment Works at Portion 15.6b</b>																																
S20-0900	Area Occupied	431	24-Feb-22 A	30-Apr-23	23-Mar-23	22-May-23	22																									
S20-1000	Portion 15.6b - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	02-May-23	09-May-23	23-May-23	30-May-23	18																									
S20-1010	Portion 15.6b - Level Ground (7,780m3)	36	09-May-23	20-Jun-23	31-May-23	13-Jul-23	18																									
S20-1020	Portion 15.6b - CPT (5 nrs @ ave 10nrs/dr/ig, 1 rig)	1	09-May-23	09-May-23	31-May-23	31-May-23	18																									
S20-1030	Portion 15.6b - Instrumentation Installation Type C1 (MPX 14 nrs @ ave 3dr/ri/ig, 8 rigs)	7	09-May-23	16-May-23	31-May-23	07-Jun-23	18																									
S20-1040	Portion 15.6b - Instrumentation Installation Type C1 (VMP 28 nrs @ ave 6dr/ri/ig, 8 rigs)	23	17-May-23	13-Jun-23	08-Jun-23	06-Jul-23	18																									
S20-1050	Portion 15.6b - Instrumentation Installation Type C1 (SP 14 nrs @ ave 3dr/ri/ig, 8 rigs)	7	06-Jun-23	13-Jun-23	28-Jun-23	06-Jul-23	18																									
S20-1060	Portion 15.6b - Instrumentation Installation Type C1 (SSM 14 nrs)	7	06-Jun-23	13-Jun-23	28-Jun-23	06-Jul-23	18																									
S20-1070	Portion 15.6b - Granular Fill (19,010m3 @ 1,500m3/d)	13	14-Jun-23	29-Jun-23	07-Jul-23	21-Jul-23	18																									



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**Three Month Rolling Programme**

Project ID : d.YL17-2303  
Layout : YL-02 3MRP  
Date : 01-Apr-23/ Page 11 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
28-Feb-23	MPR No. 20		

**Contract No. YL/2020/02 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 2 Western**

**Connection Road Phase 2, Connection Roads to Fanling /**

**San Tin Highway and Direct Road Link Phase 1**

## Contract No. YL/2020/02 Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1

Activity ID	Activity Name	Actual Duration	Remaining Duration	Start	Finish	Total Float	2023																												
							March					April					May					June													
							19	26	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11												
<b>Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1 (BL)</b>							190	119	30-Aug-22 A	04-Jul-23	1571																								
<b>Section 1 of the Works- Completion of the Works within Portion 1,2A,2B,3,5,7,8,9&amp;10 of the Site</b>							84	64	23-Nov-22 A	27-May-23	1306																								
<b>Existing Cycle Track Subway Modification</b>							43	64	12-Jan-23 A	27-May-23	1306																								
<b>Demolition Works</b>							43	64	12-Jan-23 A	27-May-23	1306																								
S014675.20	Trial Pit to locate 132KV Alignment	43	1	12-Jan-23 A	08-Mar-23	1369	Trial Pit to locate 132KV Alignment																												
S014675.30	Protection Measures to 132kv line	4	0	02-Mar-23 A	07-Mar-23 A		Protection Measures to 132kv line																												
S014675.40	Install Sheet Piling to Temporary Cofferdam	0	12	08-Mar-23	21-Mar-23	-283	Install Sheet Piling to Temporary Cofferdam																												
S014680.10	Demolition of top portion of cycle track ramp walls (Bay ST12)	0	10	21-Mar-23	31-Mar-23	-283	Demolition of top portion of cycle track ramp walls (Bay ST12)																												
S014680.20	Demolition of top portion of cycle track ramp walls (Bay ST13)	0	10	31-Mar-23	15-Apr-23	-283	Demolition of top portion of cycle track ramp walls (Bay ST13)																												
S014680.30	Demolition of top portion of cycle track ramp walls (Bay ST14)	0	10	15-Apr-23	26-Apr-23	-283	Demolition of top portion of cycle track ramp walls (Bay ST14)																												
S014680-10	Demolition of lower portion of cycle track ramp walls (Bay ST12 to Bay ST14)	0	24	28-Apr-23	27-May-23	-284	Demolition of lower portion of cycle track ramp walls (Bay ST12 to Bay ST14)																												
<b>Retaining Walls</b>							84	63	23-Nov-22 A	25-May-23	-88																								
<b>Retaining Wall RW9</b>							84	63	23-Nov-22 A	25-May-23	-88																								
<b>Preparation Works Stage 1 - Bay 9-16</b>							84	40	23-Nov-22 A	27-Apr-23	-105																								
S014730.10	Excavate Bay 16-9	84	10	23-Nov-22 A	18-Mar-23	-105	Excavate Bay 16-9																												
S014730.20	Excavate Bay 8-1	0	30	20-Mar-23	27-Apr-23	-105	Excavate Bay 8-1																												
<b>RW9 Bay 9-16</b>							0	63	08-Mar-23	25-May-23	-88																								
<b>Base Slab</b>							0	24	20-Mar-23	20-Apr-23	-105																								
S014735.70	Formworks, Rebar fixing and Cast Base Slab - Bay 12	0	6	20-Mar-23	25-Mar-23	-105	Formworks, Rebar fixing and Cast Base Slab - Bay 12																												
S014735.80	Formworks, Rebar fixing and Cast Base Slab - Bay 11	0	6	27-Mar-23	01-Apr-23	-105	Formworks, Rebar fixing and Cast Base Slab - Bay 11																												
S014735.100	Formworks, Rebar fixing and Cast Base Slab - Bay 10	0	6	03-Apr-23	13-Apr-23	-105	Formworks, Rebar fixing and Cast Base Slab - Bay 10																												
S014735.90	Formworks, Rebar fixing and Cast Base Slab - Bay 9	0	6	14-Apr-23	20-Apr-23	-105	Formworks, Rebar fixing and Cast Base Slab - Bay 9																												
<b>Wall Stem</b>							0	48	08-Mar-23	08-May-23	-113																								
S014735.130	Formworks, Rebar fixing and Cast Wall Stem Bay 16	0	6	08-Mar-23	14-Mar-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 16																												
S014735.140	Formworks, Rebar fixing and Cast Wall Stem Bay 15	0	6	15-Mar-23	21-Mar-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 15																												
S014735.150	Formworks, Rebar fixing and Cast Wall Stem Bay 14	0	6	22-Mar-23	28-Mar-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 14																												
S014735.160	Formworks, Rebar fixing and Cast Wall Stem Bay 13	0	6	29-Mar-23	04-Apr-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 13																												
S014735.170	Formworks, Rebar fixing and Cast Wall Stem Bay 12	0	6	06-Apr-23	15-Apr-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 12																												
S014735.180	Formworks, Rebar fixing and Cast Wall Stem Bay 11	0	6	17-Apr-23	22-Apr-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 11																												
S014735.190	Formworks, Rebar fixing and Cast Wall Stem Bay 10	0	6	24-Apr-23	29-Apr-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 10																												
S014735.200	Formworks, Rebar fixing and Cast Wall Stem Bay 9	0	6	02-May-23	08-May-23	-113	Formworks, Rebar fixing and Cast Wall Stem Bay 9																												
<b>Backfilling</b>							0	35	14-Apr-23	25-May-23	-88																								
S014745.10	Backfilling and removal of sheetpile Bay 16-9	0	35	14-Apr-23	25-May-23	-88	Backfilling and removal of sheetpile Bay 16-9																												
<b>RW9 Bay 1-8</b>							0	12	09-May-23	22-May-23	-113																								
<b>Bay 1-8 Base Slab</b>							0	12	09-May-23	22-May-23	-113																								
S014740.10	Formworks, Rebar fixing and Cast Base Slab Bay 8	0	6	09-May-23	15-May-23	-113	Formworks, Rebar fixing and Cast Base Slab Bay 8																												
S014740.20	Formworks, Rebar fixing and Cast Base Slab Bay 7	0	6	16-May-23	22-May-23	-113	Formworks, Rebar fixing and Cast Base Slab Bay 7																												
<b>Section 2A of the Works-Completion of the Works at Lok Ma Chau Road within Portion 1,5 and 8</b>							156	105	03-Oct-22 A	20-Jun-23	-68																								
<b>Zone 1: North-Eastside of LMC along CS1 &amp; CS2 Slope (SB Side Ch.0 to Ch.170 from North Border)</b>							18	35	15-Feb-23 A	21-Apr-23	-7																								
<b>Retaining Wall BP1</b>							18	35	15-Feb-23 A	21-Apr-23	-7																								
<b>Installation of Bored Piles (BPW1)</b>							18	35	15-Feb-23 A	21-Apr-23	-7																								
<b>Bored Piles Ch.23 to Ch.48 (17 Nos)</b>							18	13	15-Feb-23 A	22-Mar-23	-19																								
S2A.Z1.1060.26	Excavate, Rebar Cage & fixing Bored Pile 26	6	0	15-Feb-23 A	21-Feb-23 A		Excavate, Rebar Cage & fixing Bored Pile 26																												
S2A.Z1.1060.27	Excavate, Rebar Cage & fixing Bored Pile 27	6	0	16-Feb-23 A	22-Feb-23 A		Excavate, Rebar Cage & fixing Bored Pile 27																												
S2A.Z1.1060.28	Excavate, Rebar Cage & fixing Bored Pile 28	6	0	17-Feb-23 A	23-Feb-23 A		Excavate, Rebar Cage & fixing Bored Pile 28																												
S2A.Z1.1060.55	Concreting of Bored Pile 20-25 (5 nos)	0	0	23-Feb-23 A	23-Feb-23 A		Concreting of Bored Pile 20-25 (5 nos)																												
S2A.Z1.1060.29	Excavate, Rebar Cage & fixing Bored Pile 29	6	4	01-Mar-23 A	11-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 29																												
S2A.Z1.1060.30	Excavate, Rebar Cage & fixing Bored Pile 30	0	6	09-Mar-23	15-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 30																												
S2A.Z1.1060.31	Excavate, Rebar Cage & fixing Bored Pile 31	0	6	13-Mar-23	18-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 31																												
S2A.Z1.1060.32	Excavate, Rebar Cage & fixing Bored Pile 32	0	6	15-Mar-23	21-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 32																												
S2A.Z1.1060.60	Concreting of Bored Pile 25-30 (5 nos)	0	1	22-Mar-23	22-Mar-23	-19	Concreting of Bored Pile 25-30 (5 nos)																												
<b>(Bored Piles Ch.48 to Ch.65 (12 Nos))</b>							0	22	23-Mar-23	21-Apr-23	-7																								
S2A.Z1.1060.33	Excavate, Rebar Cage & fixing Bored Pile 33	0	6	23-Mar-23	29-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 33																												
S2A.Z1.1060.34	Excavate, Rebar Cage & fixing Bored Pile 34	0	6	24-Mar-23	30-Mar-23	-19	Excavate, Rebar Cage & fixing Bored Pile 34																												
S2A.Z1.1060.35	Excavate, Rebar Cage & Concreting Bored Pile 35	0	6	25-Mar-23	31-Mar-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 35																												
S2A.Z1.1060.36	Excavate, Rebar Cage & Concreting Bored Pile 36	0	6	27-Mar-23	01-Apr-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 36																												
S2A.Z1.1060.37	Excavate, Rebar Cage & Concreting Bored Pile 37	0	6	28-Mar-23	03-Apr-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 37																												
S2A.Z1.1060.38	Excavate, Rebar Cage & Concreting Bored Pile 38	0	6	29-Mar-23	04-Apr-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 38																												
S2A.Z1.1060.39	Excavate, Rebar Cage & Concreting Bored Pile 39	0	6	30-Mar-23	06-Apr-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 39																												
S2A.Z1.1060.40	Excavate, Rebar Cage & Concreting Bored Pile 40	0	6	31-Mar-23	11-Apr-23	-19	Excavate, Rebar Cage & Concreting Bored Pile 40																												
S2A.Z1.1060.41	Excavate, Rebar Cage & Concreting Bored Pile 41	0	6	12-Apr-23	18-Apr-23	-7	Excavate, Rebar Cage & Concreting Bored Pile 41																												
S2A.Z1.1060.42	Excavate, Rebar Cage & Concreting Bored Pile 42	0	6	13-Apr-23	19-Apr-23	-7	Excavate, Rebar Cage & Concreting Bored Pile 42																												
S2A.Z1.1060.43	Excavate, Rebar Cage & Concreting Bored Pile 43	0	6	14-Apr-23	20-Apr-23	-7	Excavate, Rebar Cage & Concreting Bored Pile 43																												
S2A.Z1.1060.44	Excavate, Rebar Cage & Concreting Bored Pile 44	0	6	15-Apr-23	21-Apr-23	-7	Excavate, Rebar Cage & Concreting Bored Pile 44																												
<b>Zone 5: Cycle Track South-Eastside of LMC (approx. 580m) (Ch.+340 to Ch.+920)</b>							127	84	03-Oct-22 A	20-Jun-23	-223																								
<b>Preparation Works</b>							127	17	03-Oct-22 A	27-Mar-23	-223																								
S2A.Z5.5150	Site Clearance in Zone 5	127	17	03-Oct-22 A	27-Mar-23	-223	Site Clearance in Zone 5																												
<b>Shifting of U/G Utilities</b>							0	60	06-Apr-23	20-Jun-23	-223																								
S2A.Z5.5120.10	Implement TTA on Footpath	0	1	06-Apr-23	06-Apr-23	-223	Implement TTA on Footpath																												

**Three Month Rolling Programme (Data Date : 08-Mar-23)**  
**Period: 09 Mar 23 to 08 Jun 23**  
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- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

3 Months Rolling Programme			
Date	Revision	Checked	Approved
08-Mar-23	Rev.2.1k	DML	RP/RS



**Contract No. YL/2020/02 Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1**

Activity ID	Activity Name	Actual Duration	Remaining Duration	Start	Finish	Total Float	2023																												
							March							April							May							June							
S031560	Excavate, Rebar Cage & Concreting DRL-P11-P4	0	20	23-May-23	15-Jun-23	-173																													
S031245	Interface core and sonic test	0	6	16-Jun-23	23-Jun-23	-173																													
<b>Installation of Bored Piles for Pier DRL-P10</b>																																			
S031250	Implementation of TTA	0	1	02-May-23	02-May-23	-168																													
S031280	Installation of bored piles for Pier DRL-P10 (2 nos)	0	20	03-May-23	25-May-23	-168																													
<b>Installation of Bored Piles for Pier DRL-P09</b>																																			
S031300	Implementation of TTA	0	1	24-May-23	24-May-23	-147																													
S031310	Installation of bored piles for Pier DRL-P9 (2 nos)	0	20	27-May-23	19-Jun-23	-168																													
<b>Installation of Bored Piles for Pier DRL-P04</b>																																			
S031360	Interface core and sonic test	0	3	08-Mar-23	10-Mar-23	6																													
<b>Installation of Bored Piles for Approach Ramp at U-Through(12 nos) (Change to Socket H-Piles 17 nos)</b>																																			
S03100.30	Installation of Socket H-Pile AP00- E-P1	6	0	21-Feb-23 A	28-Feb-23 A																														
S03100.40	Installation of Socket H-Pile AP00- E-P2	6	0	21-Feb-23 A	28-Feb-23 A																														
S03100.50	Installation of Socket H-Pile AP00- E-P3	6	0	25-Feb-23 A	03-Mar-23 A																														
S03100.60	Installation of Socket H-Pile AP00- E-P4	6	0	25-Feb-23 A	03-Mar-23 A																														
S03100.70	Installation of Socket H-Pile AP00- E-P5	6	0	27-Feb-23 A	04-Mar-23 A																														
S03100.80	Installation of Socket H-Pile AP00- E-P6	6	0	27-Feb-23 A	04-Mar-23 A																														
<b>Pilehead Treatment and Construction of Pile Cap</b>																																			
<b>At Pier DRL P-13</b>																																			
S031600	Installation of ELS	0	10	05-May-23	16-May-23	-180																													
S031610	Excavation and pilehead treatment	0	14	17-May-23	02-Jun-23	-180																													
S031620	Construction of pile cap	0	21	03-Jun-23	28-Jun-23	-136																													
<b>At Pier DRL P-12</b>																																			
S031630	Installation of ELS	0	10	03-Jun-23	14-Jun-23	-180																													
S031640	Excavation and pilehead treatment	0	14	15-Jun-23	03-Jul-23	-180																													
<b>Section 5 of the Works- Completion of the works within Portion 6 of the Site</b>																																			
S050100-75	Implement TTA Stage 1	0	0	14-Feb-23 A	14-Feb-23 A	1																													
S050100-30	Construction of Pai Lau - Columns Construction	12	0	15-Feb-23 A	28-Feb-23 A																														
S050100-80	Backfill and Reinstae Concrete Paving -South	6	4	01-Mar-23 A	11-Mar-23	1364																													
S050100-40	Implement TTA Stage 3	1	0	01-Mar-23 A	02-Mar-23 A																														
S050100-45	Construction of Pai Lau - Columns construction under TTA Stage 3	3	12	04-Mar-23 A	21-Mar-23	-104																													
S050100-90	Asphalt Paving to Carriageway (Middle)	0	2	13-Mar-23	14-Mar-23	1364																													
S050100-50	Backfill and road reinstate Concrete Paving - North	0	6	22-Mar-23	28-Mar-23	-104																													
S050100-100	Asphalt to Carriageway	0	2	29-Mar-23	30-Mar-23	-104																													
S050100-55	Implement TTA Stage 4	0	1	31-Mar-23	31-Mar-23	-104																													
S050100-85	Erect Portal Falsework Support	0	7	01-Apr-23	13-Apr-23	-104																													
S050100-60	Construction of Pai Lau - cantilever structure above columns under TTA Stage 4	0	30	14-Apr-23	19-May-23	-104																													
S050100-65	Construction of Pai Lau - Remove formworks and reprop	0	7	20-May-23	29-May-23	-104																													

**Contract No. YL/2021/01 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 3 Direct Road**

**Link Phase 2**





Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Gantt Chart											
								Jan 2	19	26	05	12	19	26	02	09	16	23	30
PRE-0866	Approval from MTR and others on Design Drawing Submissions for E&M Modification of AHU-025 at L2	15	04-Mar-23	21-Mar-23*	10-Jan-23	31-Jan-23	-42	Approval from MTR and others on Design Drawing Submissions for E&M Modification of AHU-025 at L2											
<b>Method Statement Submission</b>								Approval from MTR and others on Design Drawing Submissions for E&M Modification of AHU-025 at L2											
PRE-0874	Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2	14	05-Jan-23 A	01-Mar-23	26-Aug-26	26-Aug-26	1031	Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
<b>E&amp;M Diversion for Existing Block Wall at L2</b>								Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
<b>Design Submission</b>								Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
PRE-0879	ICE Certification for Design Drawings of E&M Modification of AHU-025 at L2	9	21-Feb-23 A	02-Mar-23	20-Jan-23	26-Jan-23	-30	ICE Certification for Design Drawings of E&M Modification of AHU-025 at L2											
PRE-0880	Comment from MTR & others on Design Drawings for E&M Modification of AHU-025 at L2	13	03-Mar-23	17-Mar-23	27-Jan-23	10-Feb-23	-30	Comment from MTR & others on Design Drawings for E&M Modification of AHU-025 at L2											
PRE-0881	Resubmission of Design Drawings for E&M Modification of AHU-025 at L2	19	18-Mar-23	13-Apr-23*	11-Feb-23	04-Mar-23	-30	Resubmission of Design Drawings for E&M Modification of AHU-025 at L2											
<b>Method Statement Submission</b>								Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
PRE-0889	Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2	19	06-Jan-23 A	22-Mar-23	08-Oct-22	29-Oct-22	-116	Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
<b>Strengthening Works</b>								Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
<b>Materials and Shop Drawings Submission</b>								Approval from MTR and others on Method Submissions for E&M Modification of AHU-025 at L2											
PRE-1015	comment from MTR and others on materials and shop drawings submission for Strengthening works	18	26-Oct-22 A	01-Mar-23	15-Nov-22	15-Nov-22	-84	comment from MTR and others on materials and shop drawings submission for Strengthening works											
PRE-1025	Resubmission of materials and shop drawings submission for strengthening works	7	07-Mar-23 A	17-Mar-23	16-Nov-22	01-Dec-22	-84	Resubmission of materials and shop drawings submission for strengthening works											
PRE-1035	Approval from MTR and Others on materials and shop drawings submission for Strengthening works	18	18-Mar-23	12-Apr-23	02-Dec-22	22-Dec-22	-84	Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Method Statement Submission</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
PRE-1055	Comment from MTR and others on materials and shop drawings submission for Strengthening works	18	01-Mar-23	21-Mar-23	28-Oct-22	17-Nov-22	-99	Comment from MTR and others on materials and shop drawings submission for Strengthening works											
PRE-1065	Resubmission of materials and shop drawings submission for strengthening works	12	22-Mar-23	04-Apr-23	18-Nov-22	01-Dec-22	-99	Resubmission of materials and shop drawings submission for strengthening works											
PRE-1075	Approval from MTR and Others on materials and shop drawings submission for Strengthening works	18	06-Apr-23	29-Apr-23	02-Dec-22	22-Dec-22	-99	Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Mezzanine Floor</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Materials and Shop Drawings Submission</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
PRE-1095	comment from MTR and others on materials and shop drawings submission for Strengthening works	18	26-Oct-22 A	01-Mar-23	11-Apr-23	11-Apr-23	31	comment from MTR and others on materials and shop drawings submission for Strengthening works											
PRE-1105	Resubmission of materials and shop drawings submission for strengthening works	12	07-Mar-23 A	17-Mar-23	12-Apr-23	27-Apr-23	31	Resubmission of materials and shop drawings submission for strengthening works											
PRE-1115	Approval from MTR and Others on materials and shop drawings submission for Strengthening works	18	18-Mar-23	12-Apr-23	28-Apr-23	19-May-23	31	Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Method Statement Submission</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
PRE-1125	Preparation & submission of method statement for Strengthening works	24	01-Mar-23	28-Mar-23	22-Mar-23	22-Apr-23	18	Preparation & submission of method statement for Strengthening works											
PRE-1135	Comment from MTR and others on materials and shop drawings submission for Strengthening works	18	29-Mar-23	22-Apr-23	24-Apr-23	15-May-23	18	Comment from MTR and others on materials and shop drawings submission for Strengthening works											
PRE-1145	Resubmission of materials and shop drawings submission for strengthening works	12	24-Apr-23	08-May-23	16-May-23	30-May-23	18	Resubmission of materials and shop drawings submission for strengthening works											
PRE-1155	Approval from MTR and Others on materials and shop drawings submission for Strengthening works	14	09-May-23	24-May-23	31-May-23	15-Jun-23	18	Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Hoarding Erection (Stage 2)</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
<b>Design Submission</b>								Approval from MTR and Others on materials and shop drawings submission for Strengthening works											
PRE-1315	Resubmission of Design Drawings for Hoarding Erection (Stage 2)	25	04-Feb-23 A	04-Mar-23 A	22-Nov-22	22-Nov-22	-78	Resubmission of Design Drawings for Hoarding Erection (Stage 2)											
PRE-1405	ICE Certification for resubmission Design Drawings for Hoarding Erection (Stage 2)	12	06-Mar-23 A	10-Mar-23	22-Nov-22	01-Dec-22	-78	ICE Certification for resubmission Design Drawings for Hoarding Erection (Stage 2)											
PRE-1415	Approval from MTR and Others on Design Drawings for Hoarding Erection (Stage 2)	18	11-Mar-23	31-Mar-23	02-Dec-22	22-Dec-22	-78	Approval from MTR and Others on Design Drawings for Hoarding Erection (Stage 2)											
<b>Method Statement Submission</b>								Approval from MTR and Others on Design Drawings for Hoarding Erection (Stage 2)											
PRE-1345	Resubmission of method statement for Hoarding Erection (Stage 2)	26	04-Feb-23 A	06-Mar-23 A	02-Dec-22	02-Dec-22	-78	Resubmission of method statement for Hoarding Erection (Stage 2)											
PRE-1355	Approval from MTR and Other on method statement for Hoarding Erection (Stage 2)	18	07-Mar-23 A	31-Mar-23	02-Dec-22	22-Dec-22	-78	Approval from MTR and Other on method statement for Hoarding Erection (Stage 2)											
<b>Elevated PTI</b>								Approval from MTR and Other on method statement for Hoarding Erection (Stage 2)											
PRE-700	Prepare, Submit, & Approval for Modification Works at Existing Spur Line PTI	60	01-Apr-22 A	01-Mar-23	22-Oct-22	22-Oct-22	-104	Prepare, Submit, & Approval for Modification Works at Existing Spur Line PTI											
<b>Double Deck Footbridge</b>								Prepare, Submit, & Approval for Modification Works at Existing Spur Line PTI											
PRE-515	Method Statement Prepare, Submit, & Approval for Double Deck Footbridge Bored Piling Work	50	11-Jul-22 A	03-May-23	07-Nov-22	06-Jan-23	-91	Method Statement Prepare, Submit, & Approval for Double Deck Footbridge Bored Piling Work											
<b>Construction</b>								Method Statement Prepare, Submit, & Approval for Double Deck Footbridge Bored Piling Work											
<b>Modification Works at MTR Lok Ma Chau Station</b>								Method Statement Prepare, Submit, & Approval for Double Deck Footbridge Bored Piling Work											
<b>Preparation</b>								Method Statement Prepare, Submit, & Approval for Double Deck Footbridge Bored Piling Work											
LMC-120	Submission of FSI 314	69	02-Mar-23	27-May-23*	01-Dec-22	27-Feb-23	-71	Submission of FSI 314											
LMC-125	Safety Induction Training (RSI) and CP (NT) Training by the Employer	96	22-Jun-22 A	28-Jun-23*	22-Jun-22	15-Oct-22	-205	Safety Induction Training (RSI) and CP (NT) Training by the Employer											
LMC-135	Training for Fire Marshal by Employer	53	24-Aug-22 A	28-Jun-23*	09-Oct-22	30-Nov-22	-210	Training for Fire Marshal by Employer											
<b>PMI and CE</b>								Training for Fire Marshal by Employer											
CE 041 (PMI 045 and PMI 052) - Temporary Diversion of Lighting Cables behind Ground Mezzanine Level		1	15-Feb-23 A	15-Feb-23 A	11-Nov-23	11-Nov-23		CE 041 (PMI 045 and PMI 052) - Temporary Diversion of Lighting Cables behind Ground Mezzanine Level											
CE041-210	CE 041 PM Review and Approval	1	15-Feb-23 A	15-Feb-23 A	11-Nov-23	11-Nov-23		CE 041 PM Review and Approval											
<b>PMI 055 - FAD Insulation Replacement for L1 AHU-01018 inside ECS Plantroom M6</b>								CE 041 PM Review and Approval											
PMI055-200	PMI 055 Issued and Subletting Procedure	21	06-Feb-23 A	26-Feb-23 A	27-Aug-26	27-Aug-26		PMI 055 Issued and Subletting Procedure											
PMI055-210	PMI 055 PM Review and Approval	1	26-Feb-23 A	26-Feb-23 A	27-Aug-26	27-Aug-26		PMI 055 PM Review and Approval											
<b>PMI 056 - Trial Package of Load Cell System for Scaffold Platform</b>								PMI 055 PM Review and Approval											
PMI056-200	PMI 056 Issued and Subletting Procedure	38	27-Jan-23 A	05-Mar-23	29-Sep-22	03-Oct-22	-153	PMI 056 Issued and Subletting Procedure											
PMI056-210	PMI 056 PM Review and Approval	1	05-Mar-23	05-Mar-23	03-Oct-22	03-Oct-22	-153	PMI 056 PM Review and Approval											
<b>PMI 057 - Diversion of VAC Trunking &amp; Cables</b>								PMI 056 PM Review and Approval											
PMI057-200	PMI 057 Issued and Subletting Procedure	34	02-Feb-23 A	24-Feb-23 A	14-Apr-23	14-Apr-23		PMI 057 Issued and Subletting Procedure											
PMI057-210	PMI 057 PM Review and Approval	42	25-Feb-23 A	07-Apr-23	14-Apr-23	21-May-23	44	PMI 057 PM Review and Approval											
<b>Site Works</b>								PMI 057 PM Review and Approval											
LMC-250	LMC L1 - Erect Hoarding	254	10-Aug-22 A	21-Jun-23	05-Sep-22	23-Dec-22	-143	LMC L1 - Erect Hoarding											
LMC-260	LMC L2 - Erect Hoarding	405	10-Aug-22 A	22-Jul-23	06-Sep-22	28-Jan-23	-142	LMC L2 - Erect Hoarding											
<b>G/F</b>								LMC L2 - Erect Hoarding											
<b>Strengthening Works</b>								LMC L2 - Erect Hoarding											
LMC-148	CE 041 (PMI 052) Temporary Diversion of lighting cable behind ground mezzanine level facade	6	16-Feb-23 A	23-Feb-23 A	11-Nov-23	11-Nov-23		CE 041 (PMI 052) Temporary Diversion of lighting cable behind ground mezzanine level facade											
LMC-149	PMI 056 Trial package of load cell system for scaffold platform	24	06-Mar-23	29-Mar-23	04-Oct-22	27-Oct-22	-153	PMI 056 Trial package of load cell system for scaffold platform											
LMC-150	LMC G/F - Erect working Platform	6	30-Mar-23	06-Apr-23	28-Oct-22	03-Nov-22	-126	LMC G/F - Erect working Platform											
LMC-154	LMC G/F - 1st Batch Structural Steel Materials Delivery	1	11-Apr-23	04-Nov-22	04-Nov-22	04-Nov-22	-126	LMC G/F - 1st Batch Structural Steel Materials Delivery											
LMC-155	LMC G/F - Strengthening with Facade A&A Works for Opening	17	12-Apr-23	02-May-23	05-Nov-22	24-Nov-22	-126	LMC G/F - Strengthening with Facade A&A Works for Opening											
LMC-159	CE 027 (PMI 007, 039) G/F Revised Drawings for Lok Ma Chau Station Structural Modification	3	22-May-23*	24-May-23	25-Nov-22	27-Nov-22	-178	CE 027 (PMI 007, 039) G/F Revised Drawings for Lok Ma Chau Station Structural Modification											
LMC-160	LMC G/F - Erect Propping	3	25-May-23	29-May-23	28-Nov-22	01-Dec-22	-142	LMC G/F - Erect Propping											
<b>Level 1 + 1M (Mezzanine)</b>								LMC G/F - Erect Propping											
<b>Strengthening Works</b>								LMC G/F - Erect Propping											
LMC-275	LMC L1 - Diversion of leaky cables (by MTR contractor)	83	29-Dec-22 A	12-Apr-23	25-Oct-22	01-Dec-22	-104	LMC L1 - Diversion of leaky cables (by MTR contractor)											
LMC-276	LMC L1 - Structural Opening for E&M Diversion (2 nos.)	6	13-Mar-23*	18-Mar-23	24-Nov-22	01-Dec-22	-87	LMC L1 - Structural Opening for E&M Diversion (2 nos.)											
LMC-277	LMC L1 - E&M Diversion near wall opening (CHWP - hole openings required)	17	20-Mar-23	12-Apr-23	03-Dec-22	23-Dec-22	-85	LMC L1 - E&M Diversion near wall opening (CHWP - hole openings required)											
LMC-278	LMC L1 - E&M Diversion near wall opening (SWP, Lighting and Power Socket - hole opening)	108	28-Nov-22 A	13-Jun-23	14-Sep-22	23-Dec-22	-136	LMC L1 - E&M Diversion near wall opening (SWP, Lighting and Power Socket - hole opening)											
LMC-279	LMC L1 - Erection of external scaffold and platform for materials delivery into station	7	30-May-23	06-Jun-23	01-Dec-22	09-Dec-22	-142	LMC L1 - Erection of external scaffold and platform for materials delivery into station											
LMC-280	LMC L1 - Removal works for Louvres	12	07-Jun-23	20-Jun-23	09-Dec-22	23-Dec-22	-142	LMC L1 - Removal works for Louvres											
LMC-285	LMC L1 - 1st Batch Structural Steel Materials Delivery	1	11-Apr-23	11-Apr-23	22-Dec-22	23-Dec-22	-84	LMC L1 - 1st Batch Structural Steel Materials Delivery											



Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	Gantt Chart																		
								January			February			March			April			May			June			
								2	19	26	05	12	19	26	02	09	16	23	30	07	14	21	28	04	11	18
DDF-1065	Stage 2 - Piling Works for BP8-11 (4 nrs @ approx 45m, 15d/pile/rig, 1 rig)	60	09-Jun-23	19-Aug-23	07-Jan-23	22-Mar-23	-121	Gantt bar for DDF-1065 (purple)																		
<b>Portion 3</b>								Gantt bars for Portion 3 (purple)																		
<b>Portion 3 Works</b>								Gantt bars for Portion 3 Works (purple)																		
P3-105	Design, Submission and Approval	90	06-Apr-23	27-Jul-23	07-Dec-24	29-Mar-25	496	Gantt bar for P3-105 (green)																		
<b>Portion 4</b>								Gantt bars for Portion 4 (purple)																		
<b>Portion 4 Works</b>								Gantt bars for Portion 4 Works (purple)																		
P4-105	Preparation Works	30	01-Mar-23	04-Apr-23	01-Mar-22	04-Apr-22	-295	Gantt bar for P4-105 (red), Milestone at 28-Feb-23																		
P4-110	Upkeeping and Maintenance of Completed Works at Portion 4	780	06-Apr-23	24-Nov-25	06-Apr-22	23-Nov-24	-295	Gantt bar for P4-110 (red)																		

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**APPENDIX B**  
**ACTION AND LIMIT LEVELS**

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## Appendix B - Action and Limit Levels

**Table B-1 Action and Limit Levels for 1-Hour TSP**

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS – 1a	353	500
DMS – 2A	370	
DMS – 3	351	
DMS – 4A	350	

**Table B-2 Action and Limit Levels for 24-Hour TSP**

Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
DMS – 1	184	260
DMS – 2A	166	
DMS – 3	166	
DMS – 4A	152	

**Table B-3 Action and Limit Levels for Construction Noise**

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

Noted: If works are to be carried during restricted hours, the conditions stipulated in the construction noise permit issued by the Noise Control Authority have to be followed.

(\*) reduce to 70 dB(A) for schools and 65 dB(A) during school examination periods.

**Table B-4 Action and Limit Levels for Water Quality**

<b>Parameter (unit)</b>	<b>Water Depth</b>	<b>Action Level</b>	<b>Limit Level</b>
DO (mg/L)	Depth average	IS1: <u>7.0 / NA</u> <sup>(4)</sup> IS2: <u>5.3 / NA</u> <sup>(4)</sup> IS4: <u>4.1 / NA</u> <sup>(4)</sup> IS6: <u>5.9</u> BS1: <u>3.9 / NA</u> <sup>(4)</sup>	IS1: <u>6.8 or 4</u> <sup>(4)</sup> IS2: <u>5.2 or 4</u> <sup>(4)</sup> IS4: <u>3.8 or 4</u> <sup>(4)</sup> IS6: <u>5.8</u> BS1: <u>3.7 or 4</u> <sup>(4)</sup>
Turbidity (NTU)	Depth average	IS1: <u>27.7</u> IS2: <u>35.5</u> IS4: <u>70.9</u> BS1: <u>29.9</u>	IS1: <u>29.9</u> IS2: <u>38.1</u> IS4: <u>74.6</u> BS1: <u>32.6</u>
		IS6: 120% of upstream control station (CS5)	IS6: 130% of upstream control station (CS5)
SS (mg/L)	Depth average	IS1: <u>28.0</u> IS2: <u>39.8</u> IS4: <u>155</u> BS1: <u>36.5</u>	IS1: <u>28.8</u> IS2: <u>41.2</u> IS4: <u>175</u> BS1: <u>36.9</u>
		IS6: 120% of upstream control station (CS5)	IS6: 130% of upstream control station (CS5)

Note:

- (1) Depth-averaged was calculated by taking the arithmetic means of reading of all three depths
- (2) For DO, non-compliance of the water quality limit would occur when monitoring result at impact stations was lower than the limit.
- (3) For SS & turbidity, non-compliance of the water quality limits would occur when monitoring result at impact stations was higher than the limits.
- (4) The proposal of adopting 4 mg/L as the Limit Level of DO for the period from April to September due to seasonal change of DO was accepted by EPD via email on 10 Dec 2019.

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**APPENDIX C  
COPIES OF CALIBRATION  
CERTIFICATES**

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## High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

Station DMS-3 - Village House along Old Border Road  
 Date: 1-Mar-23  
 Equipment No.: WA-12-24

File No. WMA21009/24/0012  
 Operator: HL  
 Next Due Date: 30-Apr-23  
 Serial No. 10576

Ambient Condition			
Temperature, Ta (K)	297	Pressure, Pa (mmHg)	769

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0574	Intercept, bc	-0.04292
Last Calibration Date:	16-Jan-23	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	16-Jan-24	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	11.8	3.46	61.00	7.4	2.74
2	10.2	3.22	56.77	6.8	2.63
3	8.8	2.99	52.78	5.7	2.41
4	6.9	2.65	46.82	4.6	2.16
5	4.2	2.06	36.70	3.0	1.75

**By Linear Regression of Y on X**  
 Slope, mw = 0.0420 Intercept, bw : 0.2039  
 Correlation coefficient\* = 0.9980  
 \*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM  
 From the Regression Equation, the "Y" value according to  

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$
 Therefore, Set Point;  $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.97

Remarks: \_\_\_\_\_

Conducted by: LEE MAN HEU Signature: *Lee Man Heu* Date: 1/3/2023  
 Checked by: HO KA WAI Signature: *Ho Ka Wai* Date: 1/3/2023



### High-Volume TSP Sampler 5-POINT CALIBRATION DATA SHEET

Station DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill File No. WMA21009/07/0012  
 Date: 1-Mar-23 Operator: HL  
 Equipment No.: WA-12-07 Next Due Date: 30-Apr-23  
 Serial No. 1801

Ambient Condition			
Temperature, Ta (K)	294.7	Pressure, Pa (mmHg)	770.4

Orifice Transfer Standard Information					
Serial No.	0993	Slope, mc	0.0574	Intercept, bc	-0.04292
Last Calibration Date:	16-Jan-23	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	16-Jan-24	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	$\Delta H$ (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X - axis	$\Delta W$ (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.6	3.59	63.31	7.9	2.85
2	10.3	3.25	57.31	6.4	2.56
3	8.0	2.86	50.60	5.3	2.33
4	6.6	2.60	46.03	4.6	2.17
5	3.8	1.97	35.11	2.8	1.69

**By Linear Regression of Y on X**

Slope, mw = 0.0399 Intercept, bw : 0.3043

Correlation coefficient\* = 0.9985

\*If Correlation Coefficient < 0.990, check and recalibrate.

**Set Point Calculation**

From the TSP Field Calibration Curve, take Qstd = 43 CFM

From the Regression Equation, the "Y" value according to

$$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$$

Therefore, Set Point; W =  $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$  3.99

Remarks: \_\_\_\_\_

Conducted by: LEE MAN WAI Signature: Lee Man Wai Date: 1/3/2023  
 Checked by: HO Ka Chun Signature: Ho Ka Chun Date: 1/3/2023

# Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 16, 2023	Rootsmeter S/N: 438320	Ta: 293	°K
Operator: Jim Tisch		Pa: 749.0	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 0993		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3860	3.2	2.00
2	3	4	1	0.9880	6.4	4.00
3	5	6	1	0.8810	8.0	5.00
4	7	8	1	0.8410	8.8	5.50
5	9	10	1	0.6950	12.8	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left( \frac{Pa}{Pstd} \right) \left( \frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H \left( \frac{Ta}{Pa} \right)}$ (y-axis)
0.9981	0.7201	1.4159	0.9957	0.7184	0.8845
0.9938	1.0059	2.0024	0.9915	1.0035	1.2509
0.9917	1.1257	2.2388	0.9893	1.1230	1.3985
0.9906	1.1779	2.3480	0.9883	1.1751	1.4668
0.9853	1.4177	2.8318	0.9829	1.4143	1.7690
<b>QSTD</b>	m=	<b>2.02881</b>	<b>QA</b>	m=	<b>1.27041</b>
	b=	<b>-0.04292</b>		b=	<b>-0.02681</b>
	r=	<b>0.99998</b>		r=	<b>0.99998</b>

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

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

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

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37894A
Date of Issue:	2023-03-06
Date Received:	2023-03-03
Date Tested:	2023-03-03
Date Completed:	2023-03-06
Next Due Date:	2023-05-05

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**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23808
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-02

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.140
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*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-02	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23808	2203
Calibration Date:	3-Mar-23	3-Mar-23
Location:	Wellab Office (Calibration Room)	

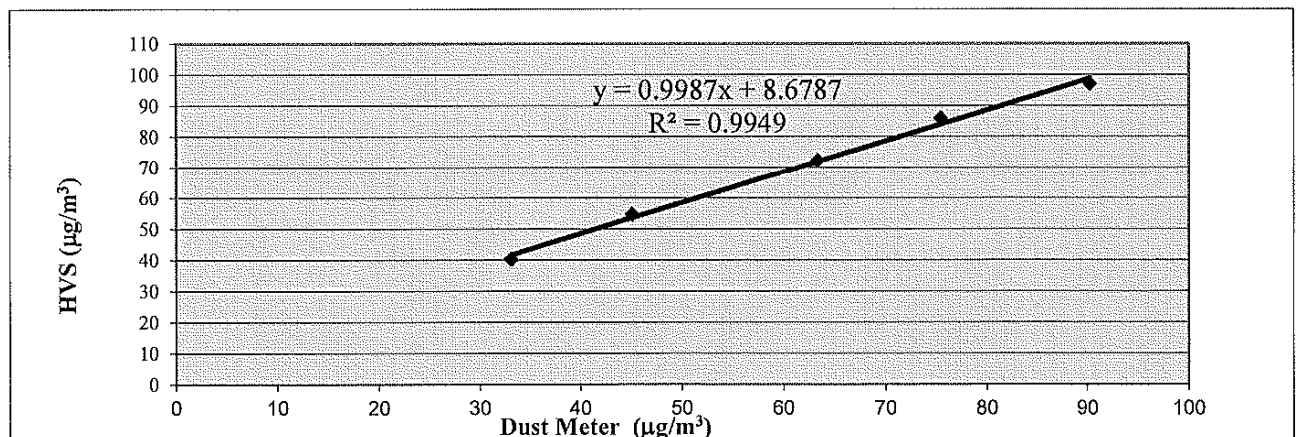
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	33	40
2	45	55
3	63	72
4	76	86
5	90	97
<b>Average</b>	<b>61.5</b>	<b>70.1</b>

By Linear Regression of Y on X  
 Slope, mw = 0.9987 Intercept, bw = 8.6787  
 Correlation coefficient\* = 0.9975

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	70.1
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	61.5
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.140



QC Reviewer: Lee Mays MEZ Signature: kei Date: 4/3/23

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37675B
Date of Issue:	2023-01-09
Date Received:	2023-01-06
Date Tested:	2023-01-06
Date Completed:	2023-01-09
Next Due Date:	2023-03-08

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.101
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*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-03	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23809	2203
Calibration Date:	6-Jan-23	6-Jan-23
Location:	Wellab Office (Calibration Room)	

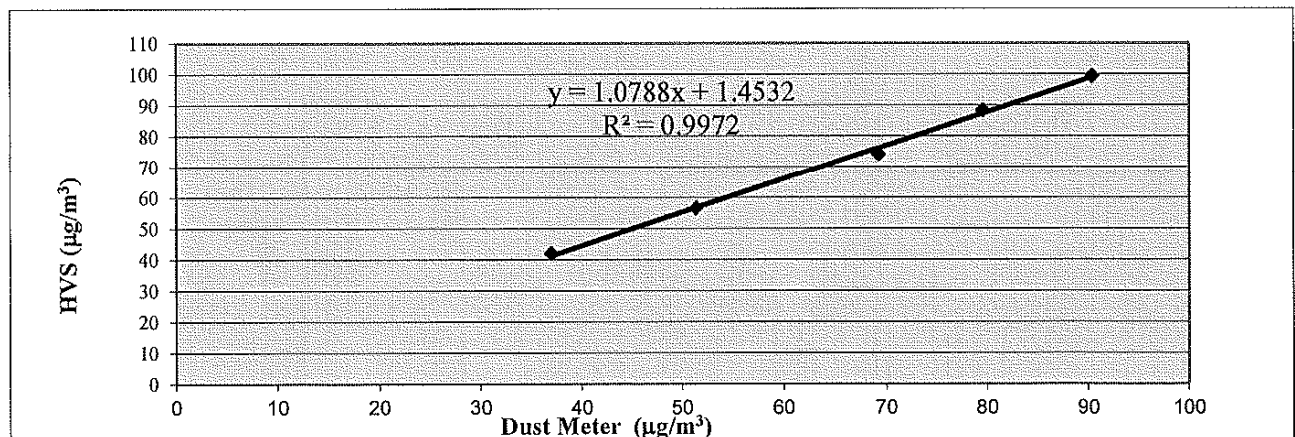
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	37	42
2	51	57
3	69	74
4	80	88
5	90	99
Average	65.5	72.2

By Linear Regression of Y on X  
 Slope,  $m_w =$  1.0788      Intercept,  $b_w =$  1.4532  
 Correlation coefficient\* = 0.9986

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	72.2
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	65.5
Measuring time, (min)	60

Set Correlation Factor, SCF  
 $\text{SCF} = [K = \text{High Volume Sampler} / \text{Dust Meter, } (\mu\text{g}/\text{m}^3)]$       1.101



QC Reviewer: LEE MAN HEI Signature: hei Date: 6/1/2023

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37894B
Date of Issue:	2023-03-06
Date Received:	2023-03-03
Date Tested:	2023-03-03
Date Completed:	2023-03-06
Next Due Date:	2023-05-05

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23809
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-03

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.102
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*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-03	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23809	2203
Calibration Date:	3-Mar-23	3-Mar-23
Location:	Wellab Office (Calibration Room)	

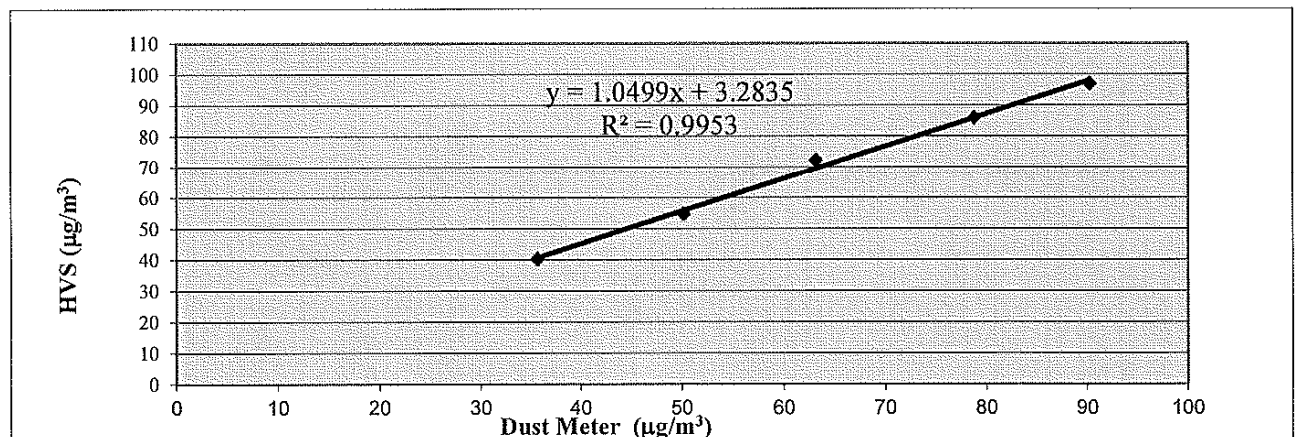
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	36	40
2	50	55
3	63	72
4	79	86
5	90	97
<b>Average</b>	<b>63.6</b>	<b>70.1</b>

By Linear Regression of Y on X  
 Slope, mw = 1.0499 Intercept, bw = 3.2835  
 Correlation coefficient\* = 0.9976

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	70.1
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	63.6
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.102



QC Reviewer: LEE MIN UER Signature: kei Date: 4/3/2023



**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37675C
Date of Issue:	2023-01-09
Date Received:	2023-01-06
Date Tested:	2023-01-06
Date Completed:	2023-01-09
Next Due Date:	2023-03-08

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X23810
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-04

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.139
-------------------------	-------

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*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-04	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23810	2203
Calibration Date:	6-Jan-23	6-Jan-23
Location:	Wellab Office (Calibration Room)	

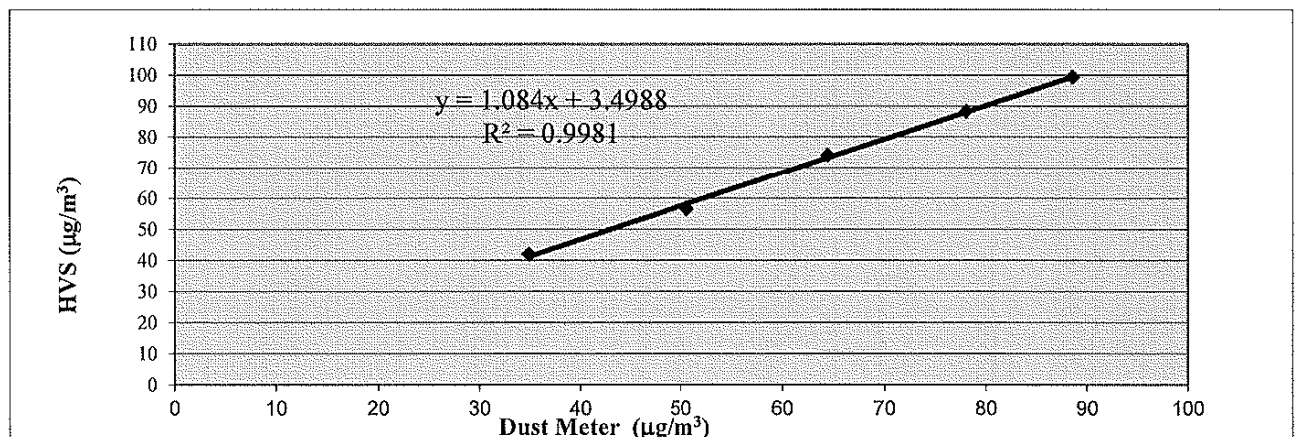
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	35	42
2	51	57
3	65	74
4	78	88
5	89	99
Average	63.3	72.2

By Linear Regression of Y on X  
 Slope, mw = 1.0840 Intercept, bw = 3.4988  
 Correlation coefficient\* = 0.9991

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	72.2
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	63.3
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.139



QC Reviewer: LEE MAN YEE Signature: hi Date: 6/1/2023

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37894C
Date of Issue:	2023-03-06
Date Received:	2023-03-03
Date Tested:	2023-03-03
Date Completed:	2023-03-06
Next Due Date:	2023-05-05

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description : Dust Monitor  
 Manufacturer : Met One Instruments  
 Model No. : AEROCET-831  
 Serial No. : X23810  
 Flow rate : 0.1 cfm  
 Zero Count Test : 0 count per 1 minute  
 Equipment No. : WA-01-04

**Test Conditions:**

Room Temperature : 17-22 degree Celsius  
 Relative Humidity : 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.154
-------------------------	-------

\*\*\*\*\*

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-04	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23810	2203
Calibration Date:	3-Mar-23	3-Mar-23
Location:	Wellab Office (Calibration Room)	

Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	31	40
2	43	55
3	62	72
4	79	86
5	89	97
<b>Average</b>	<b>60.7</b>	<b>70.1</b>

By Linear Regression of Y on X

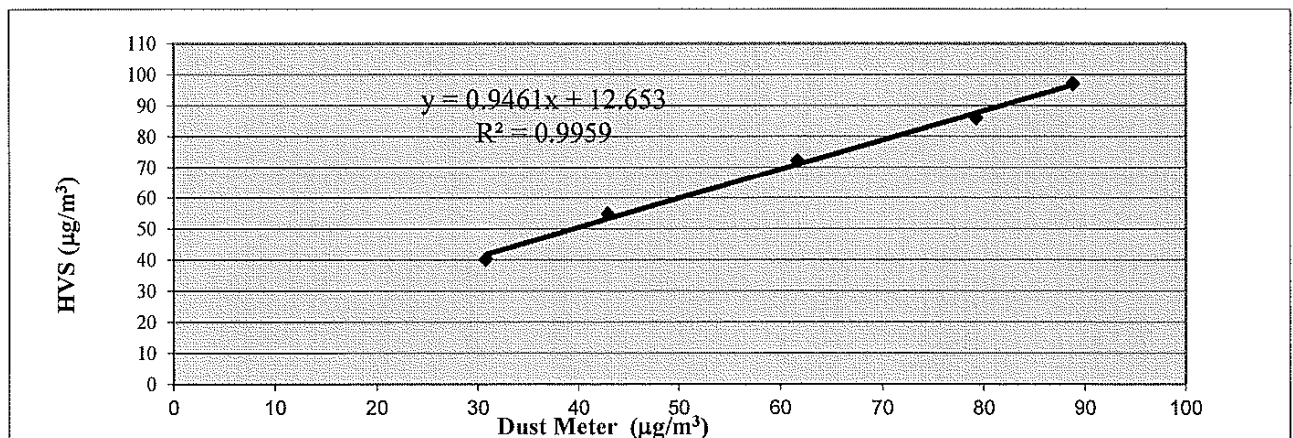
Slope,  $m_w =$  0.9461      Intercept,  $b_w =$  12.6532  
Correlation coefficient\* = 0.9980

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	70.1
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	60.7
Measuring time, (min)	60

Set Correlation Factor, SCF

SCF = [  $K = \text{High Volume Sampler} / \text{Dust Meter}, (\mu\text{g}/\text{m}^3)$  ] 1.154



QC Reviewer: LEE MAM MEZ Signature: he Date: 4/3/2023

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37858
Date of Issue:	2023-02-27
Date Received:	2023-02-25
Date Tested:	2023-02-25
Date Completed:	2023-02-27
Next Due Date:	2023-04-26

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

**Certificate of Calibration**

**Item for Calibration:**

Description : Dust Monitor  
 Manufacturer : Met One Instruments  
 Model No. : AEROCET-831  
 Serial No. : X24476  
 Flow rate : 0.1 cfm  
 Zero Count Test : 0 count per 1 minute  
 Equipment No. : WA-01-05

**Test Conditions:**

Room Temperature : 17-22 degree Celsius  
 Relative Humidity : 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.109
-------------------------	-------

\*\*\*\*\*

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
 \_\_\_\_\_  
**PATRICK TSE**  
 General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-05	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X24476	2203
Calibration Date:	25-Feb-23	25-Feb-23
Location:	Wellab Office (Calibration Room)	

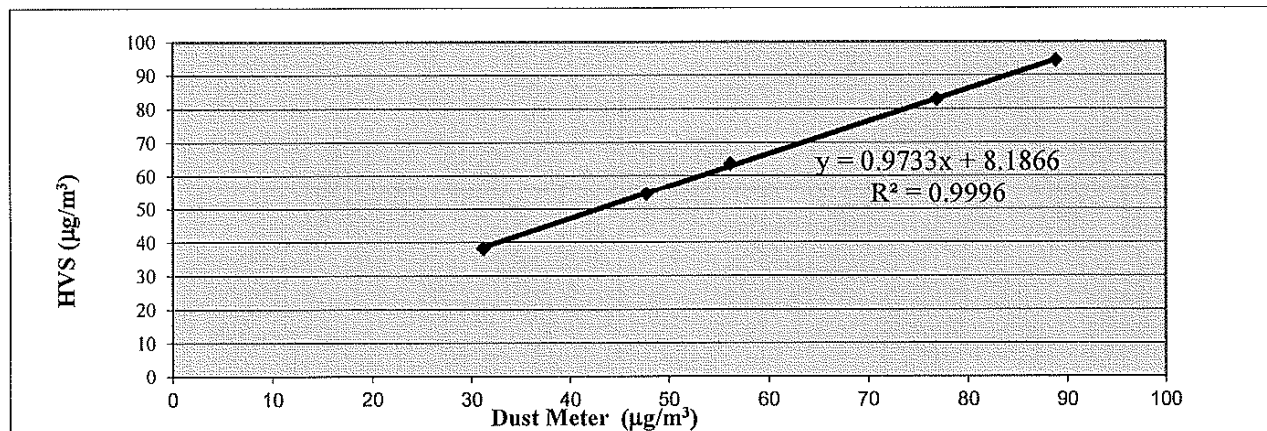
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	31	38
2	48	55
3	56	64
4	77	83
5	89	95
<b>Average</b>	<b>60.2</b>	<b>66.8</b>

By Linear Regression of Y on X  
 Slope, mw = 0.9733 Intercept, bw = 8.1866  
 Correlation coefficient\* = 0.9998

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	66.8
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	60.2
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.109



QC Reviewer: LEE MIN HEE Signature: Lee Date: 26/2/2023

**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37858A
Date of Issue:	2023-02-27
Date Received:	2023-02-25
Date Tested:	2023-02-25
Date Completed:	2023-02-27
Next Due Date:	2023-04-26

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

<b>Certificate of Calibration</b>
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**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24477
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-06

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.136
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*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-06	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X24477	2203
Calibration Date:	25-Feb-23	25-Feb-23
Location:	Wellab Office (Calibration Room)	

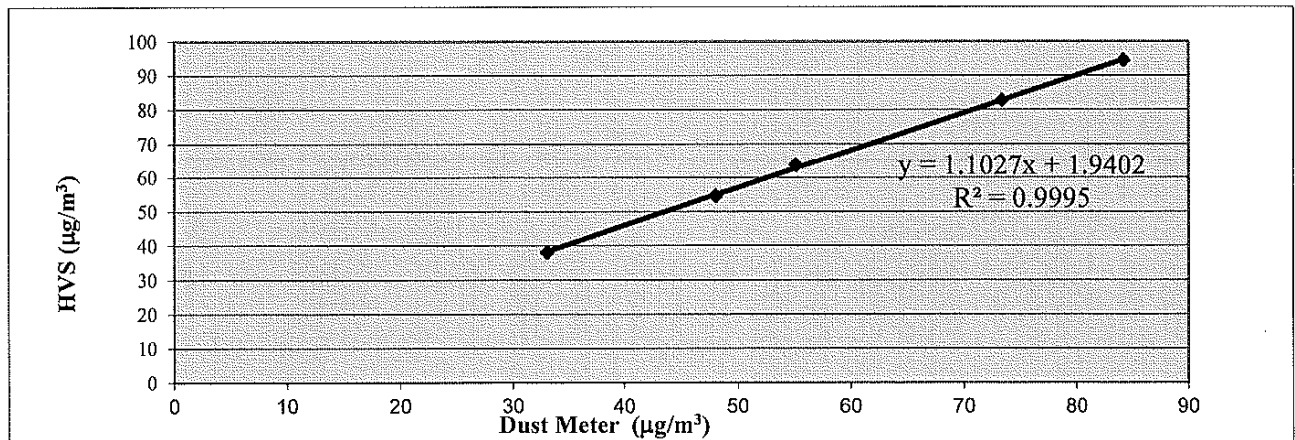
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	33	38
2	48	55
3	55	64
4	73	83
5	84	95
<b>Average</b>	<b>58.8</b>	<b>66.8</b>

By Linear Regression of Y on X  
 Slope, mw = 1.1027 Intercept, bw = 1.9402  
 Correlation coefficient\* = 0.9997

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	66.8
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	58.8
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.136



QC Reviewer: LEE MIN HEE Signature: hei Date: 26/2/2023



**TEST REPORT**

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37858D
Date of Issue:	2023-02-27
Date Received:	2023-02-25
Date Tested:	2023-02-25
Date Completed:	2023-02-27
Next Due Date:	2023-04-26

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

<b>Certificate of Calibration</b>
-----------------------------------

**Item for Calibration:**

Description	: Dust Monitor
Manufacturer	: Met One Instruments
Model No.	: AEROCET-831
Serial No.	: X24478
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-10

**Test Conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications & Methodology:**

1. Instruction and Operation Manual High Volume Sampler, Tisch Environmental Inc.
2. In-house method in according to the instruction manual: The Dust Monitor was compared with a calibrated High Volume Sampler and the result was used to generate the Correlation Factor (CF) between the Dust Monitor and High Volume Sampler.

**Results:**

Correlation Factor (CF)	1.099
-------------------------	-------

\*\*\*\*\*

*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TSP - Total Suspended Particulates (1 hr Dust Meter) Calibration Report

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-10	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X24478	2203
Calibration Date:	25-Feb-23	25-Feb-23
Location:	Wellab Office (Calibration Room)	

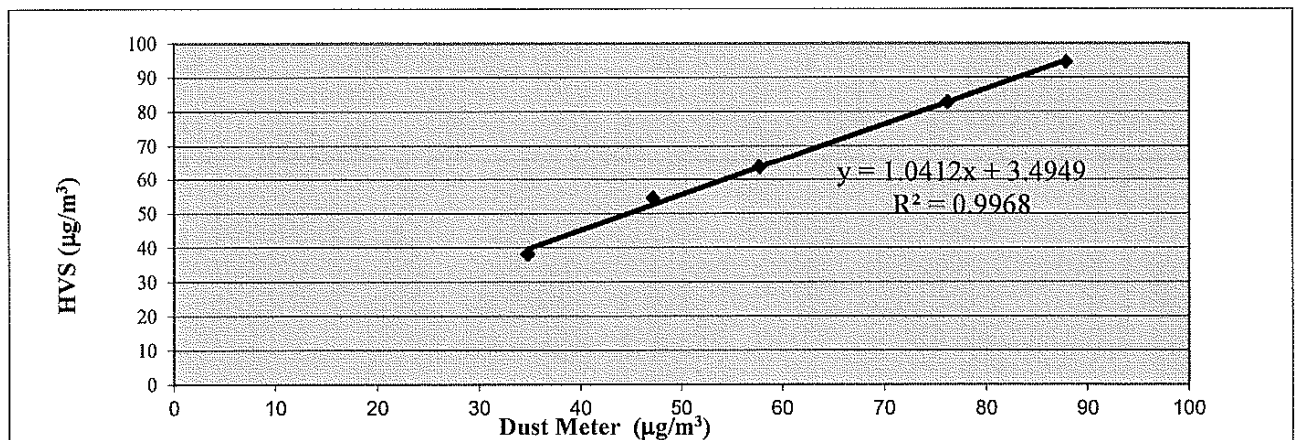
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ( $\mu\text{g}/\text{m}^3$ ) X-axis	Mass concentration ( $\mu\text{g}/\text{m}^3$ ) Y-axis
1	35	38
2	47	55
3	58	64
4	76	83
5	88	95
<b>Average</b>	<b>60.8</b>	<b>66.8</b>

By Linear Regression of Y on X  
 Slope, mw = 1.0412 Intercept, bw = 3.4949  
 Correlation coefficient\* = 0.9984

\*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ( $\mu\text{g}/\text{m}^3$ )	66.8
Particulate Concentration by Dust Meter ( $\mu\text{g}/\text{m}^3$ )	60.8
Measuring time, (min)	60

Set Correlation Factor, SCF  
 SCF = [ K=High Volume Sampler / Dust Meter, ( $\mu\text{g}/\text{m}^3$ ) ] 1.099



QC Reviewer: [Signature] Signature: [Signature] Date: 26/2/2023

## TEST REPORT

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	36481A
Date of Issue:	2022-03-14
Date Received:	2022-03-11
Date Tested:	2022-03-11
Date Completed:	2022-03-14
Next Due Date:	2023-03-13

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

### Certificate of Calibration

**Item for calibration:**

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580013
Equipment No.	: WN-01-09

**Test conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TEST REPORT

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37894A
Date of Issue:	2023-03-13
Date Received:	2023-03-10
Date Tested:	2023-03-10
Date Completed:	2023-03-13
Next Due Date:	2024-03-12

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

### Certificate of Calibration

**Item for calibration:**

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580013
Equipment No.	: WN-01-09

**Test conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
\_\_\_\_\_  
**PATRICK TSE**  
General Manager

## TEST REPORT

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37894B
Date of Issue:	2023-03-13
Date Received:	2023-03-10
Date Tested:	2023-03-10
Date Completed:	2023-03-13
Next Due Date:	2024-03-12

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

### Certificate of Calibration

**Item for calibration:**

Description	: Sound Level Meter
Manufacturer	: BSWA
Model No.	: BSWA 308
Serial No.	: 580017
Equipment No.	: WN-01-10

**Test conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Test Specifications:**

Performance checking at 94 and 114 dB

**Methodology:**

In-house method, according to manufacturer instruction manual

**Results:**

Reference Set Point, dB	Instrument Readings, dB
94	94.0
114	114.0

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TEST REPORT

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1801, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37163A
Date of Issue:	2022-10-02
Date Received:	2022-09-30
Date Tested:	2022-10-02
Date Completed:	2022-10-02
Next Due Date:	2023-10-01

Page: 1 of 1

**ATTN:** Ms. Meiling Tang

### Certificate of Calibration

**Item for calibration:**

Description	: Acoustical Calibrator
Manufacturer	: SVANTEK
Model No.	: SV30A
Serial No.	: 24780
Equipment No.	: N-09-05

**Test conditions:**

Room Temperature	: 17-22 degree Celsius
Relative Humidity	: 40-70%

**Methodology:**

The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

**Results:**

Sound Pressure Level (1kHz)	Measured SPL	Tolerance
At 94 dB SPL	94.0	94.0 ± 0.1 dB
At 114 dB SPL	114.0	114.0 ± 0.1 dB

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**



**PATRICK TSE**  
General Manager

## TEST REPORT

**APPLICANT:** Wellab Limited  
(EM&A Department)  
Room 1808, Technology Park,  
18 On Lai Street,  
Shatin, NT, Hong Kong

Test Report No.:	37674E
Date of Issue:	2022-12-28
Date Received:	2022-12-23
Date Tested:	2022-12-23
Date Completed:	2022-12-28
Next Due Date:	2023-06-27

**ATTN:** Ms. Meiling Tang

Page: 1 of 2

### Certificate of Calibration

**Item for calibration:**

Description : Weather Stations, Vantage Pro2  
Manufacturer : Davis Instruments  
Model No. : 6152CUK  
Serial No. : AK130520007

**Test conditions:**

Room Temperature : 17-22 degree Celsius  
Relative Humidity : 40-70 %

**Test Specifications:**

1. Performance check of anemometer
2. Performance check of wind direction sensor

**Methodology:**

In-house method with reference anemometer

*PREPARED AND CHECKED BY:*

For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TEST REPORT

Test Report No.:	37674E
Date of Issue:	2022-12-28
Date Received:	2022-12-23
Date Tested:	2022-12-23
Date Completed:	2022-12-28
Next Due Date:	2023-06-27

Page: 2 of 2

**Results:**

1. Performance check of anemometer

Air Velocity, m/s		Difference D (m/s)
Instrument Reading (V1)	Reference Value (V1)	D = V1 - V2
2.00	2.00	0.00

2. Performance check of wind direction sensor

Wind Direction (°)		Difference D (°)
Instrument Reading (W1)	Reference Value (W2)	D = W1 - W2
0	0	0
45	45	0
90.1	90	0.1
135	135	0
180	180	0
225.3	225	0.3
270.1	270	0.1
315	315	0
360	360	0

\*\*\*\*\*END OF REPORT\*\*\*\*\*



## TEST REPORT

**APPLICANT:** Wellab Limited (EM&A)  
RM 1808, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Test Report No.:	37645B
Date of Issue:	2022-12-25
Date Received:	2022-12-24
Date Tested:	2022-12-24 to 2022-12-25
Date Completed:	2022-12-25

**ATTN:** Miss Mei Ling Tang

Page: 1 of 2

### Certificate of Calibration

**Item for calibration:**

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-108	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17B100681
- EXO Optical DO Sensor, Ti	599100-01	16J100992
- EXO conductivity/Temperature Sensor, Ti	599870	17H103451
- EXO Turbidity Sensor, Ti	599101-01	20J103612
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B103616

**Test conditions:**

Room Temperature : 17-22 degree Celsius  
Relative Humidity : 40-70%

**Test Specifications:**

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

**Methodology:**

According to manufacturer instruction manual, APHA 20e 4500-O C

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PREPARED AND CHECKED BY:

For and On Behalf of **WELLAB Ltd.**

  
\_\_\_\_\_  
**PATRICK TSE**  
General Manager

## TEST REPORT

Test Report No.:	37645B
Date of Issue:	2022-12-25
Date Received:	2022-12-24
Date Tested:	2022-12-24 to 2022-12-25
Date Completed:	2022-12-25
Page:	2 of 2

### Certificate of Calibration

**Results:**

**Conductivity performance checking**

	Instrument Readings ( $\mu\text{S}/\text{cm}$ )	Acceptance Criteria	Comment
KCl stock solution (12890 $\mu\text{S}/\text{cm}$ )	12300	12246-13534	Pass

**Temperature performance checking**

Reference thermometer- E431 Readings ( $^{\circ}\text{C}$ )	Instrument Readings ( $^{\circ}\text{C}$ )	Correction ( $^{\circ}\text{C}$ )	Comment
20.0	20.001	-0.001	N/A

**pH performance checking**

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	3.99	$4.00 \pm 0.10$	Pass
pH QC buffer 6.86	6.91	$6.86 \pm 0.10$	Pass
pH QC buffer 9.18	9.24	$9.18 \pm 0.10$	Pass

**D.O. performance checking**

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.05	$<0.1\text{mg}/\text{L}$	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.24	8.12	Difference between Titration value and instrument reading $<0.2\text{mg}/\text{L}$	Pass

**Turbidity performance checking**

Turbidity stock solution	Instrument Readings (NTU)	Acceptance Criteria	Comment
10 NTU	9.55	9.0-11.0	Pass
50 NTU	43.51	45.0-55.0	Pass
100 NTU	95.6	90.0-110.0	Pass

**Depth performance checking**

Water Depth	Instrument Readings (m)	Acceptance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

\*\*\*\*\*END OF REPORT\*\*\*\*\*

**TEST REPORT**

**APPLICANT:** Wellab Limited (EM&A)  
RM 1808, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Test Report No.:	37645C
Date of Issue:	2022-12-25
Date Received:	2022-12-24
Date Tested:	2022-12-24 to 2022-12-25
Date Completed:	2022-12-25

**ATTN:** Miss Mei Ling Tang

Page: 1 of 2

**Certificate of Calibration**

**Item for calibration:**

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-121	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17B101447
- EXO Optical DO Sensor, Ti	599100-01	16J101001
- EXO conductivity/Temperature Sensor, Ti	599870	17B100798
- EXO Turbidity Sensor, Ti	599101-01	17B102266
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B100250

**Test conditions:**

Room Temperature : 17-22 degree Celsius  
Relative Humidity : 40-70%

**Test Specifications:**

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

**Methodology:**

According to manufacturer instruction manual, APHA 20e 4500-O C

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*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

## TEST REPORT

Test Report No.:	37645C
Date of Issue:	2022-12-25
Date Received:	2022-12-24
Date Tested:	2022-12-24 to 2022-12-25
Date Completed:	2022-12-25
Page:	2 of 2

### Certificate of Calibration

**Results:**

**Conductivity performance checking**

	Instrument Readings ( $\mu\text{S}/\text{cm}$ )	Acceptance Criteria	Comment
KCl stock solution (12890 $\mu\text{S}/\text{cm}$ )	12700	12246-13534	Pass

**Temperature performance checking**

Reference thermometer- E431 Readings ( $^{\circ}\text{C}$ )	Instrument Readings ( $^{\circ}\text{C}$ )	Correction ( $^{\circ}\text{C}$ )	Comment
20.0	20.001	-0.001	N/A

**pH performance checking**

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.02	$4.00 \pm 0.10$	Pass
pH QC buffer 6.86	6.87	$6.86 \pm 0.10$	Pass
pH QC buffer 9.18	9.20	$9.18 \pm 0.10$	Pass

**D.O. performance checking**

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.09	$<0.1\text{mg}/\text{L}$	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.24	8.07	Difference between Titration value and instrument reading $<0.2\text{mg}/\text{L}$	Pass

**Turbidity performance checking**

Turbidity stock solution	Instrument Readings (NTU)	Acceptance Criteria	Comment
10 NTU	10.63	9.0-11.0	Pass
50 NTU	51.44	45.0-55.0	Pass
100 NTU	103.52	90.0-110.0	Pass

**Depth performance checking**

Water Depth	Instrument Readings (m)	Acceptance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

\*\*\*\*\*END OF REPORT\*\*\*\*\*

**TEST REPORT**

**APPLICANT:** Wellab Limited (EM&A)  
RM 1808, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Test Report No.:	38018D
Date of Issue:	2023-03-24
Date Received:	2023-03-23
Date Tested:	2023-03-23 to 2023-03-24
Date Completed:	2023-03-24

**ATTN:** Miss Mei Ling Tang

Page: 1 of 2

**Certificate of Calibration**

**Item for calibration:**

YSI EXO1 Multiparameter Sondes	Equipment No.:	SW-08-129
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17B101455
- EXO Optical DO Sensor, Ti	599100-01	17M101337
- EXO conductivity/Temperature Sensor, Ti	599870	17B100784
- EXO Turbidity Sensor, Ti	599101-01	16J101112
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J100565

**Test conditions:**

Room Temperature : 17-22 degree Celsius  
Relative Humidity : 40-70%

**Test Specifications:**

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

**Methodology:**

According to manufacturer instruction manual, APHA 20e 4500-O C

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*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
**PATRICK TSE**  
General Manager

**TEST REPORT**

Test Report No.:	38018D
Date of Issue:	2023-03-24
Date Received:	2023-03-23
Date Tested:	2023-03-23 to 2023-03-24
Date Completed:	2023-03-24
Page:	2 of 2

**Certificate of Calibration**

**Results:**

**Conductivity performance checking**

	Instrument Readings ( $\mu\text{S}/\text{cm}$ )	Acceptance Criteria	Comment
KCl stock solution (12890 $\mu\text{S}/\text{cm}$ )	13200	12246-13534	Pass

**Temperature performance checking**

Reference thermometer- E431 Readings ( $^{\circ}\text{C}$ )	Instrument Readings ( $^{\circ}\text{C}$ )	Correction ( $^{\circ}\text{C}$ )	Comment
20.0	20.001	-0.001	N/A

**pH performance checking**

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.00	$4.00 \pm 0.10$	Pass
pH QC buffer 6.86	6.88	$6.86 \pm 0.10$	Pass
pH QC buffer 9.18	9.21	$9.18 \pm 0.10$	Pass

**D.O. performance checking**

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.08	$<0.1\text{mg}/\text{L}$	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.16	8.10	Difference between Titration value and instrument reading $<0.2\text{mg}/\text{L}$	Pass

**Turbidity performance checking**

Turbidity stock solution	Instrument Readings (NTU)	Acceptance Criteria	Comment
10 NTU	9.58	9.0-11.0	Pass
50 NTU	48.86	45.0-55.0	Pass
100 NTU	97.2	90.0-110.0	Pass

**Depth performance checking**

Water Depth	Instrument Readings (m)	Acceptance Criteria	Comment
0.5 meter	0.50	0.45-0.55	Pass

\*\*\*\*\*END OF REPORT\*\*\*\*\*

**TEST REPORT**

**APPLICANT:** Wellab Limited (EM&A)  
RM 1808, Technology Park,  
18 On Lai Street,  
Shatin, N.T., Hong Kong

Test Report No.:	38018E
Date of Issue:	2023-03-24
Date Received:	2023-03-23
Date Tested:	2023-03-23 to 2023-03-24
Date Completed:	2023-03-24

**ATTN:** Miss Mei Ling Tang

Page: 1 of 2

**Certificate of Calibration**

**Item for calibration:**

YSI EXO1 Multiparameter Sondes	Equipment No.:	SW-08-150
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17B103705
- EXO Optical DO Sensor, Ti	599100-01	17B102237
- EXO conductivity/Temperature Sensor, Ti	599870	17B100807
- EXO Turbidity Sensor, Ti	599101-01	17B102280
- EXO pH Sensor Assembly, Guarded, Ti	599701	17C100695

**Test conditions:**

Room Temperature : 17-22 degree Celsius  
Relative Humidity : 40-70%

**Test Specifications:**

Performance checking for Conductivity, Temperature, pH, Dissolved oxygen (D.O.) and Turbidity

**Methodology:**

According to manufacturer instruction manual, APHA 20e 4500-O C

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*PREPARED AND CHECKED BY:*  
For and On Behalf of **WELLAB Ltd.**

  
\_\_\_\_\_  
**PATRICK TSE**  
General Manager

## TEST REPORT

Test Report No.:	38018E
Date of Issue:	2023-03-24
Date Received:	2023-03-23
Date Tested:	2023-03-23 to 2023-03-24
Date Completed:	2023-03-24
Page:	2 of 2

### Certificate of Calibration

**Results:**

**Conductivity performance checking**

	Instrument Readings ( $\mu\text{S}/\text{cm}$ )	Acceptance Criteria	Comment
KCl stock solution (12890 $\mu\text{S}/\text{cm}$ )	13400	12246-13534	Pass

**Temperature performance checking**

	Instrument Readings ( $^{\circ}\text{C}$ )	Correction ( $^{\circ}\text{C}$ )	Comment
Reference thermometer- E431 Readings ( $^{\circ}\text{C}$ ) 20.0	20.001	-0.001	N/A

**pH performance checking**

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	3.99	$4.00 \pm 0.10$	Pass
pH QC buffer 6.86	6.86	$6.86 \pm 0.10$	Pass
pH QC buffer 9.18	9.19	$9.18 \pm 0.10$	Pass

**D.O. performance checking**

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.05	$<0.1\text{mg}/\text{L}$	Pass

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Winkler Titration value (mg/L) 8.16	8.02	Difference between Titration value and instrument reading $<0.2\text{mg}/\text{L}$	Pass

**Turbidity performance checking**

	Instrument Readings (NTU)	Acceptance Criteria	Comment
Turbidity stock solution 10 NTU	10.01	9.0-11.0	Pass
50 NTU	51.64	45.0-55.0	Pass
100 NTU	99.31	90.0-110.0	Pass

**Depth performance checking**

	Instrument Readings (m)	Acceptance Criteria	Comment
Water Depth 0.5 meter	0.50	0.45-0.55	Pass

\*\*\*\*\*END OF REPORT\*\*\*\*\*



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**APPENDIX D  
ENVIRONMENTAL MONITORING  
SCHEDULES**

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**Service Contract No. WD/04/2020**  
**Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team**  
**Impact Monitoring Schedule (March 2023)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1-Mar	2-Mar	3-Mar	4-Mar
			Avifauna Survey (Pond 12) 1hr TSP X 3 Noise  Water Quality Monitoring		Herpetofauna Survey  Water Quality Monitoring	
5-Mar	6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar
	Avifauna Survey (Pond 12)  24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise	Aquatic Fauna Survey (Water Quality Monitoring only)  Water Quality Monitoring		24hr TSP Water Quality Monitoring	
12-Mar	13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar
	1hr TSP X 3 Noise  Water Quality Monitoring		Avifauna Survey (Pond 12)  Water Quality Monitoring	24hr TSP	Aquatic Fauna Survey (Water Quality Monitoring only) 1hr TSP X 3  Water Quality Monitoring	
19-Mar	20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar
	Aquatic Fauna Survey (Water Quality Monitoring only)  Water Quality Monitoring		Avifauna Survey (Pond 12)  24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise	Avifauna flight line survey  Water Quality Monitoring	
26-Mar	27-Mar	28-Mar	29-Mar	30-Mar	31-Mar	
	Aquatic Fauna Survey  Water Quality Monitoring	24hr TSP	Avifauna Survey (Pond 12) 1hr TSP X 3 Noise  Water Quality Monitoring		Water Quality Monitoring	

**Air Quality Monitoring Station**

DMS-1a - Village House along Ha Wan Tsuen East Road  
DMS-2B - Site boundary near Village House along Lok Ma Chau  
DMS-3 - Village house along Old Border Road  
DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

**Noise Monitoring Station**

NMS-1 - Village House in Ha Wan Tsuen  
NMS-2 - Village house along existing Ha Wan Tsuen East Road  
NMS-3 - Village house along Old Border Road  
NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

**Water Quality Monitoring Station**

CS1 - Control Station at Old Shenzhen River Meander  
IS1 - Impact Station at Old Shenzhen River Meander  
IS2 - Impact Station at Old Shenzhen River Meander  
IS4 - Impact Station for at Ping Hang Stream  
CS5 - Control Station at channel at south of Lung Hau Road  
IS6 - Impact Station next to Lung Hau Road  
BS1 - Impact Station at Old Shenzhen River Meander  
(Terminated starting from 28 June 2021- approved by EPD  
via email dated 22 June 2021)

**Service Contract No. WD/04/2020  
Tentative Impact Monitoring Schedule (April 2023)**

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Apr
<b>2-Apr</b>	3-Apr	4-Apr	<b>5-Apr</b>	6-Apr	<b>7-Apr</b>	<b>8-Apr</b>
	Aquatic Fauna Survey (Water Quality Monitoring only) Avifauna Survey (Pond 12)  24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise		1hr TSP X 3  24hr TSP Water Quality Monitoring		Water Quality Monitoring
<b>9-Apr</b>	<b>10-Apr</b>	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr
		24hr TSP Water Quality Monitoring	Aquatic Fauna Survey (Water Quality Monitoring only) 1hr TSP X 3 Noise	Avifauna Survey (Pond 12)  Water Quality Monitoring		Water Quality Monitoring
<b>16-Apr</b>	17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr
	24hr TSP Water Quality Monitoring	1hr TSP X 3 Noise	Aquatic Fauna Survey (Water Quality Monitoring only) Avifauna Survey (Pond 12)  Herpetofauna Survey Water Quality Monitoring		Avifauna flight line survey 24hr TSP Water Quality Monitoring	
<b>23-Apr</b>	24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr
	1hr TSP X 3 Noise  Water Quality Monitoring		Aquatic Fauna Survey Avifauna Survey (Pond 12)  Water Quality Monitoring	24hr TSP	1hr TSP X 3  Water Quality Monitoring	
<b>30-Apr</b>						

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

**Air Quality Monitoring Station**

DMS-1a - Village House along Ha Wan Tsuen East Road  
DMS-2B - Site boundary near Village House along Lok Ma Chau  
DMS-3 - Village house along Old Border Road  
DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

**Noise Monitoring Station**

NMS-1 - Village House in Ha Wan Tsuen  
NMS-2 - Village house along existing Ha Wan Tsuen East Road  
NMS-3 - Village house along Old Border Road  
NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

**Water Quality Monitoring Station**

CS1 - Control Station at Old Shenzhen River Meander  
IS1 - Impact Station at Old Shenzhen River Meander  
IS2 - Impact Station at Old Shenzhen River Meander  
IS4 - Impact Station for at Ping Hang Stream  
CS5 - Control Station at channel at south of Lung Hau Road  
IS6 - Impact Station next to Lung Hau Road  
BS1 - Impact Station at Old Shenzhen River Meander  
(Terminated starting from 28 June 2021- approved by EPD via email dated 22 June 2021)

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**APPENDIX E**  
**1-HOUR TSP MONITORING RESULTS**  
**AND GRAPHICAL PRESENTATION**

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## Appendix E - 1-hour TSP Monitoring Results

Location DMS-1a - Village House along Ha Wan Tsuen East Road			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
1-Mar-23	9:00	Sunny	83.0
1-Mar-23	10:00	Sunny	182.3
1-Mar-23	11:00	Sunny	140.4
7-Mar-23	9:00	Sunny	57.6
7-Mar-23	10:00	Sunny	52.2
7-Mar-23	11:00	Sunny	54.8
13-Mar-23	9:00	Cloudy	187.4
13-Mar-23	10:00	Cloudy	193.8
13-Mar-23	11:00	Cloudy	181.7
17-Mar-23	9:00	Sunny	106.2
17-Mar-23	10:00	Sunny	97.2
17-Mar-23	11:00	Sunny	77.5
23-Mar-23	13:00	Fine	88.6
23-Mar-23	14:00	Fine	68.2
23-Mar-23	15:00	Fine	60.1
29-Mar-23	8:30	Cloudy	78.3
29-Mar-23	9:30	Cloudy	88.2
29-Mar-23	10:30	Cloudy	82.4
		Minimum	52.2
		Maximum	193.8
		Average	104.4

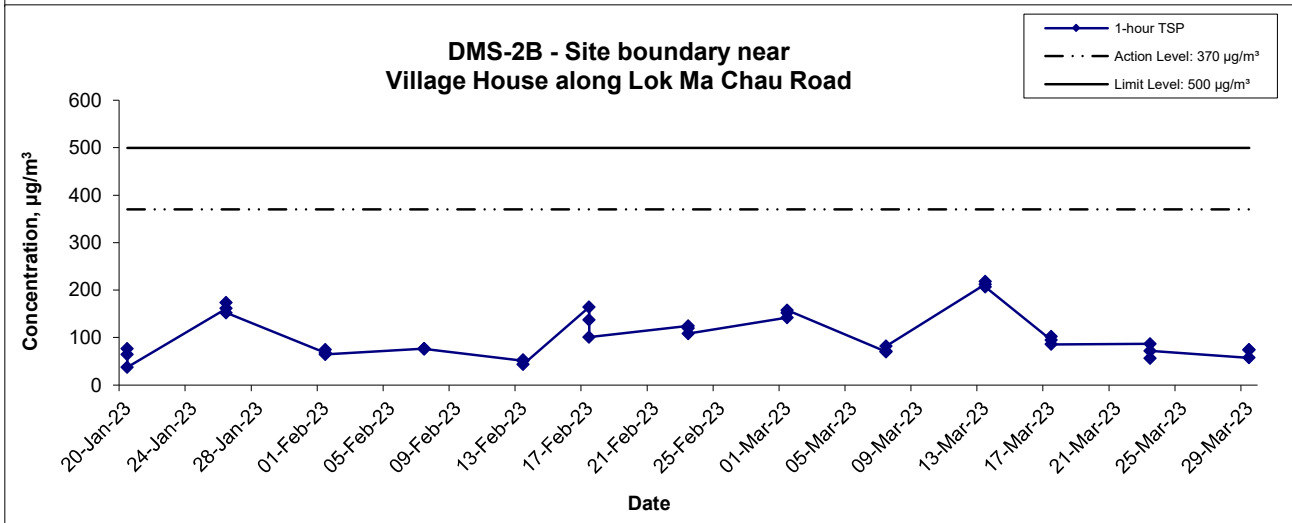
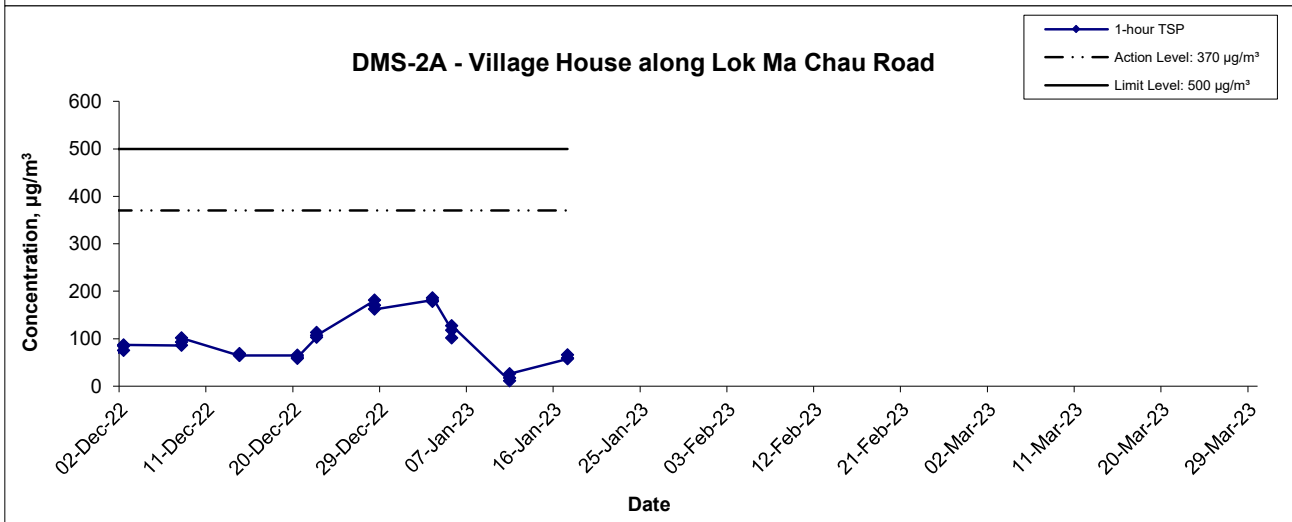
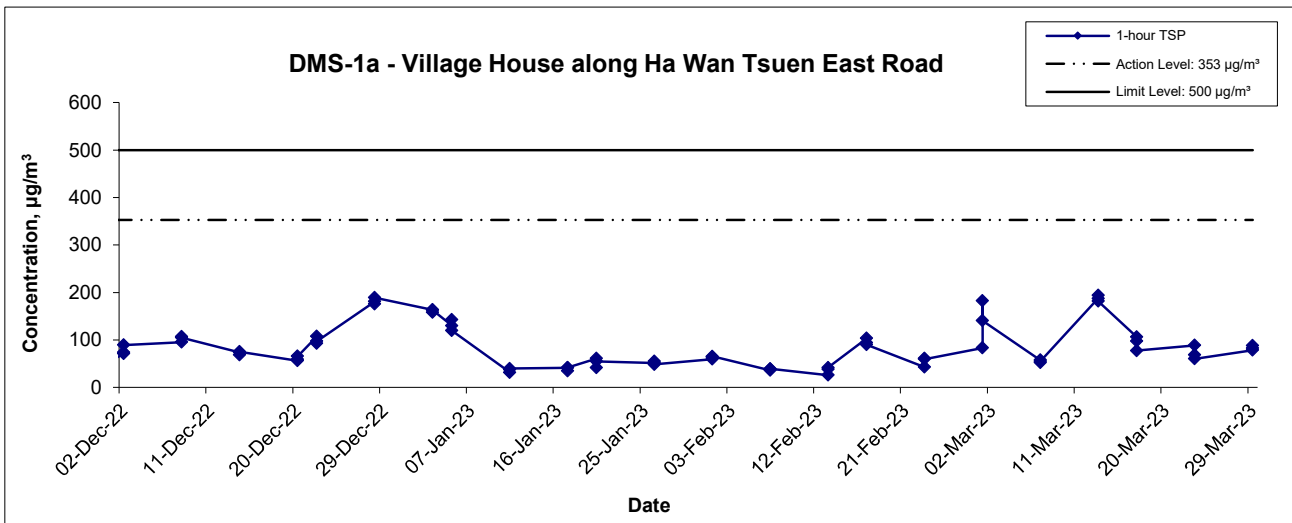
Location DMS-2B - Site boundary near Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
1-Mar-23	8:30	Sunny	142.1
1-Mar-23	9:30	Sunny	152.2
1-Mar-23	10:30	Sunny	157.6
7-Mar-23	8:30	Sunny	69.9
7-Mar-23	9:30	Sunny	71.0
7-Mar-23	10:30	Sunny	81.8
13-Mar-23	9:00	Cloudy	211.9
13-Mar-23	10:00	Cloudy	218.3
13-Mar-23	11:00	Cloudy	207.0
17-Mar-23	9:00	Sunny	95.0
17-Mar-23	10:00	Sunny	102.2
17-Mar-23	11:00	Sunny	85.7
23-Mar-23	13:15	Fine	86.9
23-Mar-23	14:15	Fine	56.5
23-Mar-23	15:15	Fine	71.8
29-Mar-23	9:00	Cloudy	57.4
29-Mar-23	10:00	Cloudy	74.3
29-Mar-23	11:00	Cloudy	74.1
		Minimum	56.5
		Maximum	218.3
		Average	112.0

## Appendix E - 1-hour TSP Monitoring Results

<b>Location DMS-3 - Village House along Old Border Road</b>			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
1-Mar-23	9:00	Sunny	128.9
1-Mar-23	10:00	Sunny	163.3
1-Mar-23	11:00	Sunny	136.6
7-Mar-23	8:30	Sunny	72.4
7-Mar-23	9:30	Sunny	82.8
7-Mar-23	10:30	Sunny	59.5
13-Mar-23	8:15	Cloudy	168.4
13-Mar-23	9:15	Cloudy	176.8
13-Mar-23	10:15	Cloudy	181.7
17-Mar-23	8:40	Sunny	67.1
17-Mar-23	9:40	Sunny	85.1
17-Mar-23	10:40	Sunny	71.0
23-Mar-23	8:00	Cloudy	56.2
23-Mar-23	9:00	Cloudy	75.5
23-Mar-23	10:00	Cloudy	63.8
29-Mar-23	8:50	Cloudy	75.5
29-Mar-23	9:50	Cloudy	79.4
29-Mar-23	10:50	Cloudy	80.7
		Minimum	56.2
		Maximum	181.7
		Average	101.4

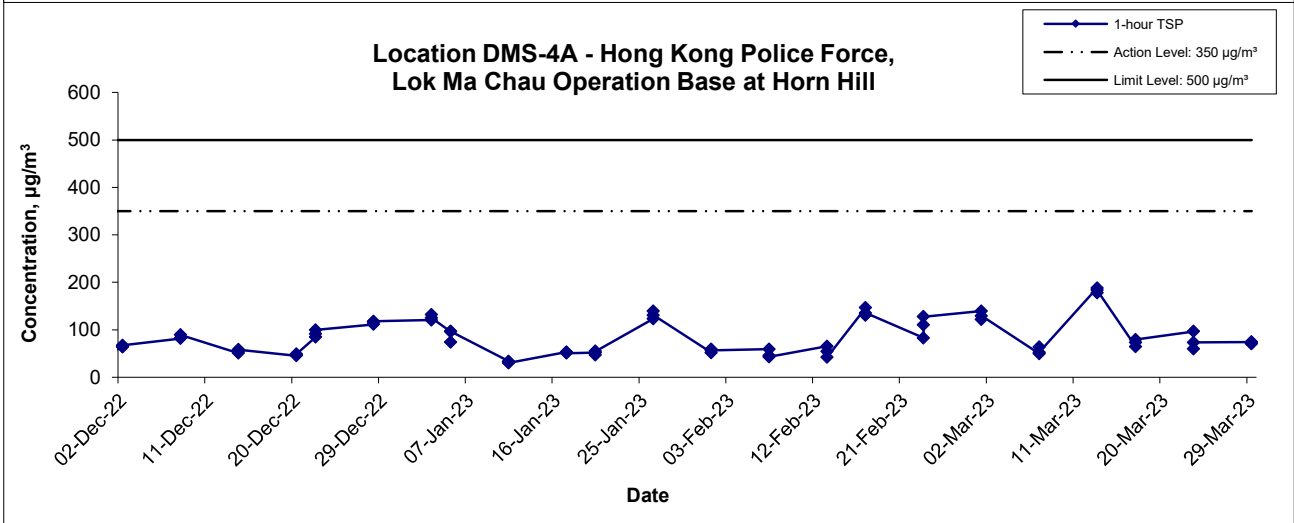
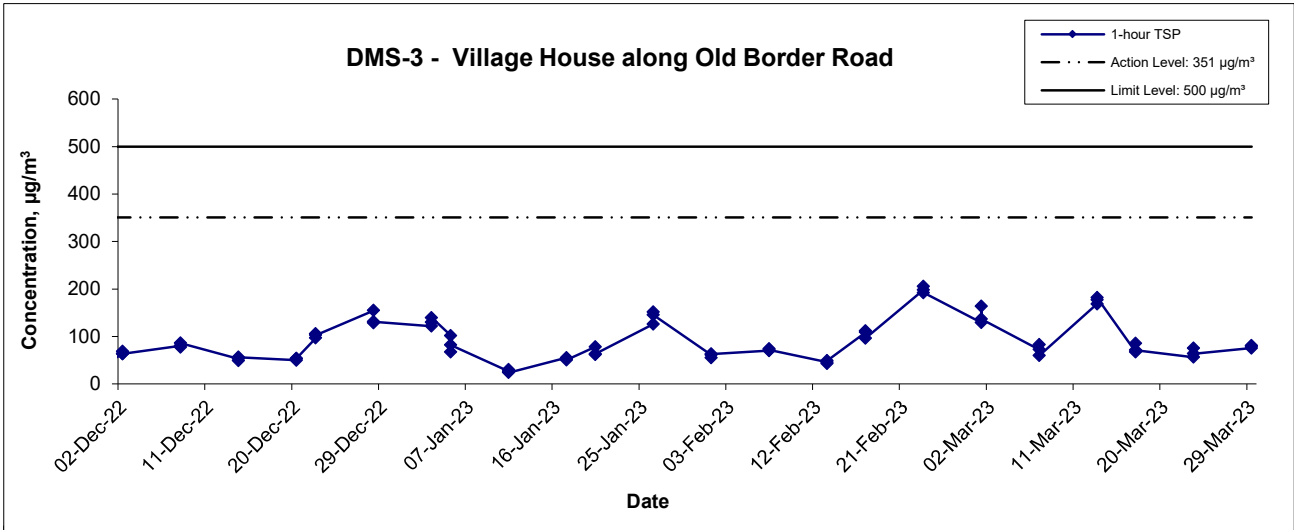
<b>Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill</b>			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
1-Mar-23	13:15	Sunny	139.2
1-Mar-23	14:15	Sunny	121.8
1-Mar-23	15:15	Sunny	129.4
7-Mar-23	13:15	Sunny	49.5
7-Mar-23	14:15	Sunny	63.9
7-Mar-23	15:15	Sunny	52.5
13-Mar-23	13:00	Cloudy	187.8
13-Mar-23	14:00	Cloudy	177.8
13-Mar-23	15:00	Cloudy	183.5
17-Mar-23	13:00	Sunny	64.2
17-Mar-23	14:00	Sunny	73.0
17-Mar-23	15:00	Sunny	79.5
23-Mar-23	9:00	Cloudy	96.5
23-Mar-23	10:00	Cloudy	59.8
23-Mar-23	11:00	Cloudy	73.2
29-Mar-23	13:15	Cloudy	74.4
29-Mar-23	14:15	Cloudy	71.5
29-Mar-23	15:15	Cloudy	70.5
		Minimum	49.5
		Maximum	187.8
		Average	98.2

# 1-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. WMA21009	
	Date Mar 23	Appendix E	

# 1-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. WMA21009	
	Date Mar 23	Appendix E	



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**APPENDIX F  
24-HOUR TSP MONITORING RESULTS  
AND GRAPHICAL PRESENTATION**

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## Appendix F - 24-hour TSP Monitoring Results

<b>Location DMS-1a - Village House along Ha Wan Tsuen East Road</b>			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
6-Mar-23	8:25	Sunny	58.7
10-Mar-23	9:00	Sunny	63.3
16-Mar-23	8:55	Sunny	82.3
22-Mar-23	10:55	Fine	92.0
28-Mar-23	9:15	Cloudy	89.3
		Minimum	58.7
		Maximum	92.0
		Average	77.1

<b>Location DMS-2B - Site boundary near Village House along Lok Ma Chau Road</b>			
Date	Time	Weather	Particulate Concentration ( $\mu\text{g}/\text{m}^3$ )
6-Mar-23	8:20	Sunny	78.5
10-Mar-23	9:00	Sunny	90.5
16-Mar-23	8:50	Sunny	85.6
22-Mar-23	10:45	Fine	60.3
28-Mar-23	9:25	Cloudy	60.6
		Minimum	60.3
		Maximum	90.5
		Average	75.1

## Appendix F - 24-hour TSP Monitoring Results

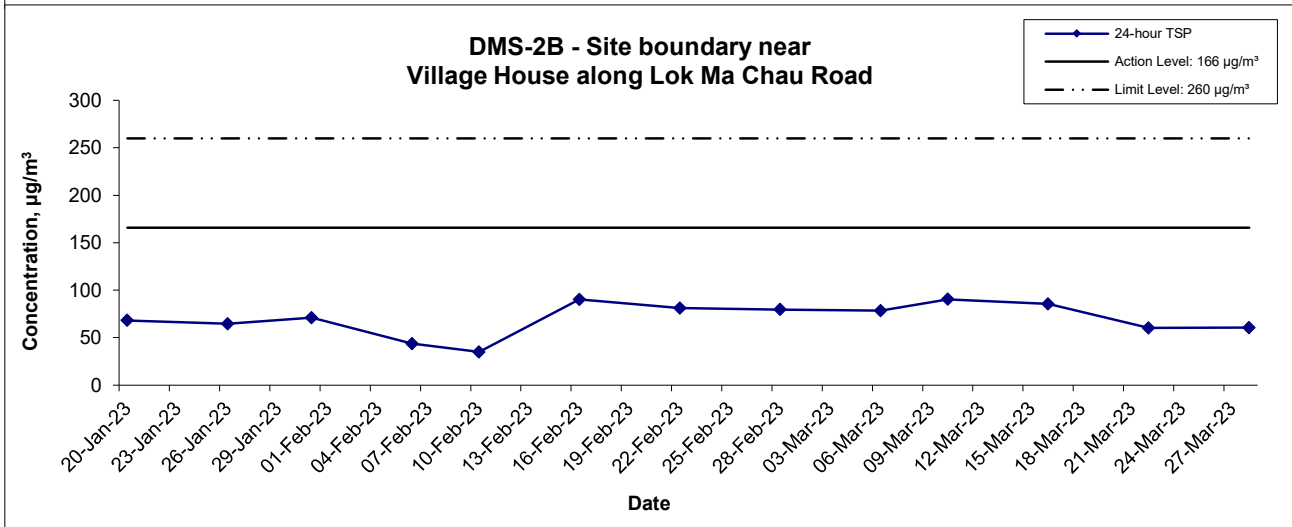
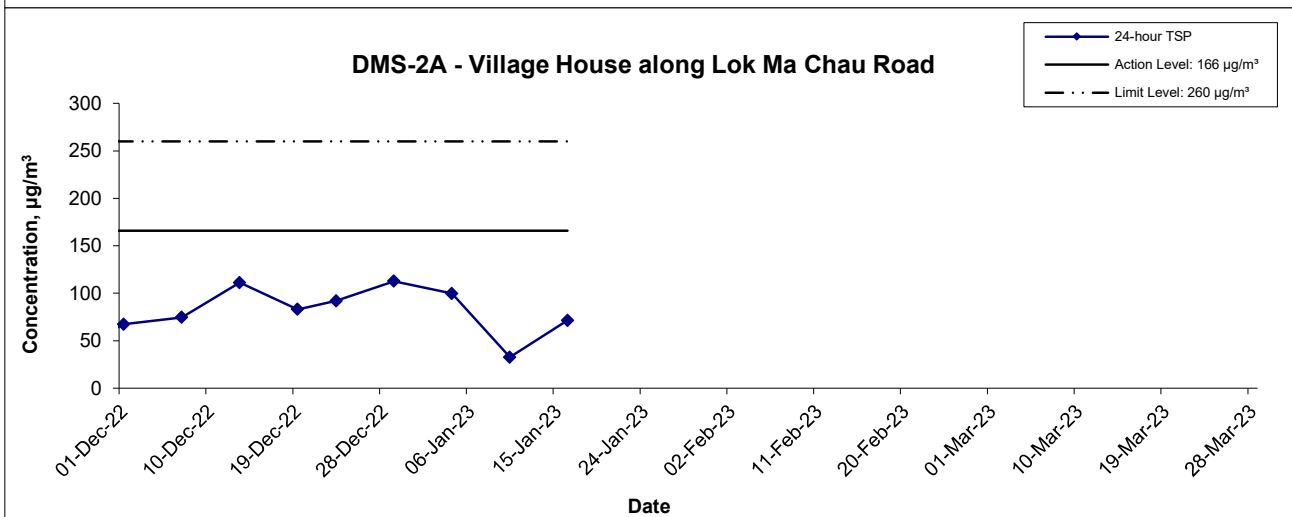
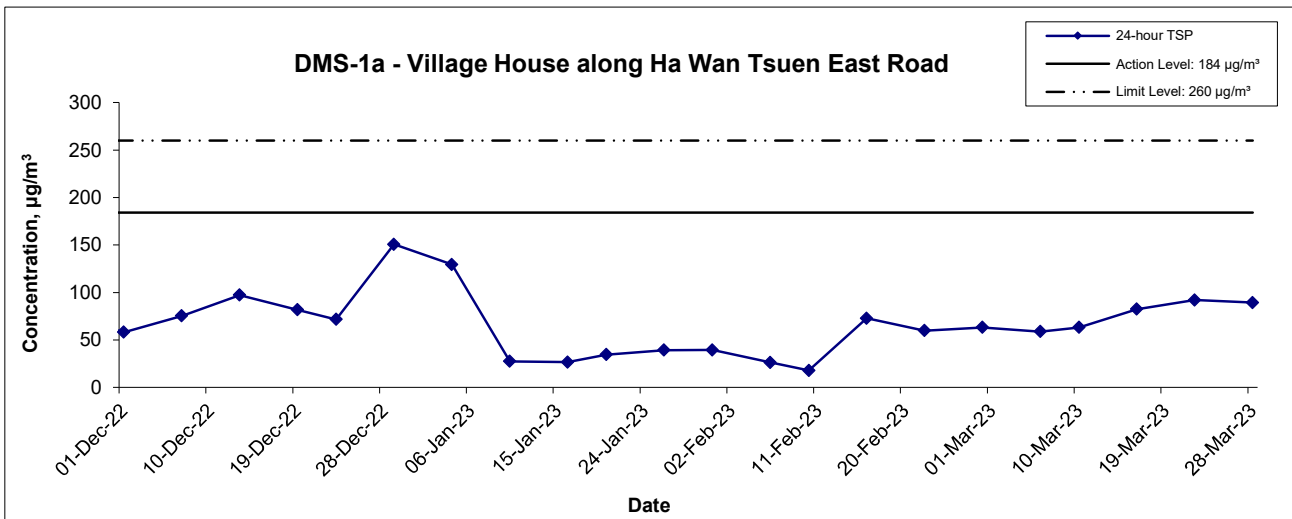
### Location DMS-3 - Village House along Old Border Road

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-23	Sunny	291.1	770.6	2.9676	3.0779	0.1103	3693.9	3717.9	24.0	1.237	1.235	1.236	1779.3	62.0
10-Mar-23	Cloudy	291.8	766.6	2.9373	3.0707	0.1334	3717.9	3741.9	24.0	1.233	1.228	1.230	1771.8	75.3
16-Mar-23	Sunny	292.1	765.7	2.8784	2.9970	0.1186	3741.9	3765.9	24.0	1.230	1.228	1.229	1769.6	67.0
22-Mar-23	Cloudy	296.1	759.7	2.9289	3.0057	0.0768	3765.9	3789.9	24.0	1.219	1.210	1.214	1748.6	43.9
28-Mar-23	Cloudy	289.2	765.5	2.9581	3.0291	0.0710	3789.9	3813.9	24.0	1.234	1.237	1.235	1779.1	39.9
													Min	39.9
													Max	75.3
													Average	57.6

### Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

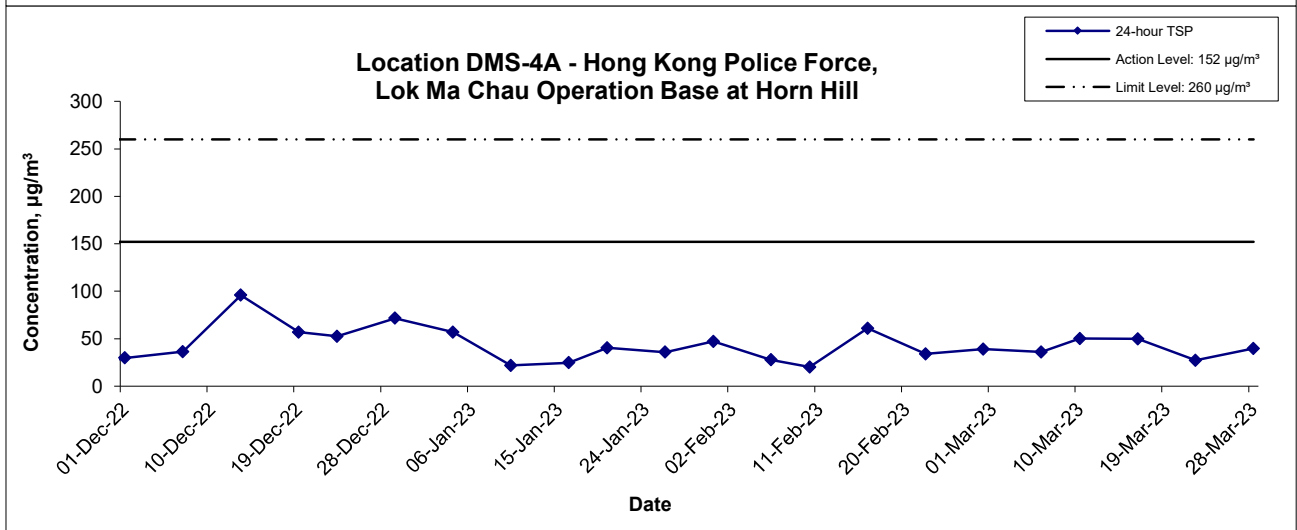
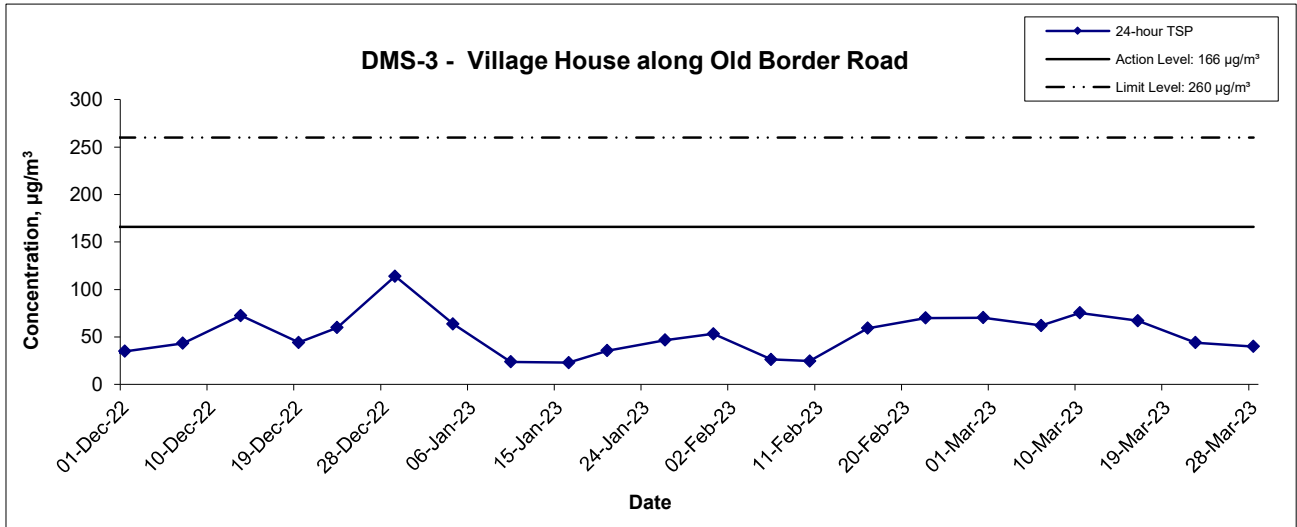
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m <sup>3</sup> /min.)		Av. flow (m <sup>3</sup> /min)	Total vol. (m <sup>3</sup> )	Conc. (µg/m <sup>3</sup> )
				Initial	Final		Initial	Final		Initial	Final			
6-Mar-23	Sunny	291.1	770.6	2.9076	2.9711	0.0635	33242.2	33266.2	24.0	1.231	1.228	1.229	1770.5	35.9
10-Mar-23	Cloudy	291.8	766.6	2.9429	3.0313	0.0884	33266.2	33290.2	24.0	1.226	1.222	1.224	1762.6	50.2
16-Mar-23	Sunny	292.1	765.7	2.9552	3.0427	0.0875	33290.2	33314.2	24.0	1.224	1.221	1.222	1760.2	49.7
22-Mar-23	Cloudy	296.1	759.7	2.9480	2.9953	0.0473	33314.6	33338.6	24.0	1.212	1.202	1.207	1738.1	27.2
28-Mar-23	Cloudy	289.2	765.5	2.9362	3.0063	0.0701	33338.6	33362.6	24.0	1.227	1.231	1.229	1770.2	39.6
													Min	27.2
													Max	50.2
													Average	40.5

## 24-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 24-hour TSP Monitoring Results	Scale	N.T.S	Project No.	WMA21009	匯力 consulting . testing . research
	Date	Mar 23	Appendix	F	

## 24-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 24-hour TSP Monitoring Results	Scale	N.T.S	Project No.	WMA21009	consulting . testing . research
	Date	Mar 23	Appendix	F	

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**APPENDIX G  
NOISE MONITORING RESULTS AND  
GRAPHICAL PRESENTATION**

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**Appendix G - Noise Monitoring Results**

Location NMS-1 -Village house in Ha Wan Tsuen							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>
1-Mar-23	Sunny	08:30	65.1	67.2	62.4	64.5	47.3
		08:35	65.4	67.3	62.6		
		08:40	64.0	65.6	62.6		
		08:45	64.6	66.4	62.9		
		08:50	63.9	65.2	62.8		
08:55	64.0	65.2	62.8				
7-Mar-23	Sunny	10:05	61.9	64.3	59.8	60.2	
		10:10	63.1	65.5	60.5		
		10:15	60.2	61.9	58.2		
		10:20	58.4	59.4	57.4		
		10:25	57.4	59.8	53.7		
10:30	56.0	57.7	53.6				
13-Mar-23	Cloudy	09:50	61.7	66.6	53.3	60.2	
		09:55	55.9	58.3	53.1		
		10:00	60.1	65.0	52.6		
		10:05	60.6	66.2	53.4		
		10:10	60.0	64.4	53.5		
10:15	60.8	64.8	53.4				
23-Mar-23	Cloudy	09:40	56.7	58.2	55.3	67.3	
		09:45	72.3	78.4	57.0		
		09:50	70.1	72.8	57.1		
		09:55	59.9	63.2	56.2		
		10:00	60.7	62.5	58.4		
10:05	63.9	63.6	58.8				
29-Mar-23	Cloudy	10:50	63.6	67.7	55.9	61.7	
		10:55	62.2	65.2	57.1		
		11:00	61.0	63.5	57.2		
		11:05	61.1	63.8	56.7		
		11:10	60.9	63.6	56.7		
11:15	60.3	62.9	59.5				

Location NMS-2 - Village house along existing Ha Wan Tsuen East Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>
1-Mar-23	Sunny	09:50	71.2	75.2	57.2	71.4	68.4
		09:55	72.0	75.2	56.7		
		10:00	72.1	75.7	58.6		
		10:05	72.4	74.6	54.3		
		10:10	69.5	74.1	56.6		
10:15	70.8	74.0	54.1				
7-Mar-23	Sunny	11:15	72.7	75.7	66.8	73.0	
		11:20	73.5	76.2	67.9		
		11:25	71.6	75.2	67.1		
		11:30	71.6	75.1	64.9		
		11:35	73.8	74.2	66.8		
11:40	74.2	77.1	64.1				
13-Mar-23	Cloudy	10:35	71.5	75.0	58.4	72.0	
		10:40	72.5	75.9	55.9		
		10:45	70.6	74.8	57.0		
		10:50	73.3	75.5	58.7		
		10:55	71.9	74.7	54.3		
11:00	72.0	75.7	52.5				
23-Mar-23	Cloudy	13:22	71.6	75.2	67.1	72.5	
		13:27	73.4	76.1	67.8		
		13:32	69.5	74.2	60.3		
		13:37	71.5	74.9	60.4		
		13:42	73.5	76.2	67.9		
13:47	73.8	74.3	66.2				
29-Mar-23	Sunny	09:55	71.8	75.8	59.5	72.7	
		10:00	71.0	74.8	57.7		
		10:05	75.4	78.1	58.3		
		10:10	73.5	77.4	59.2		
		10:15	70.3	74.2	59.3		
10:20	72.3	75.1	60.9				

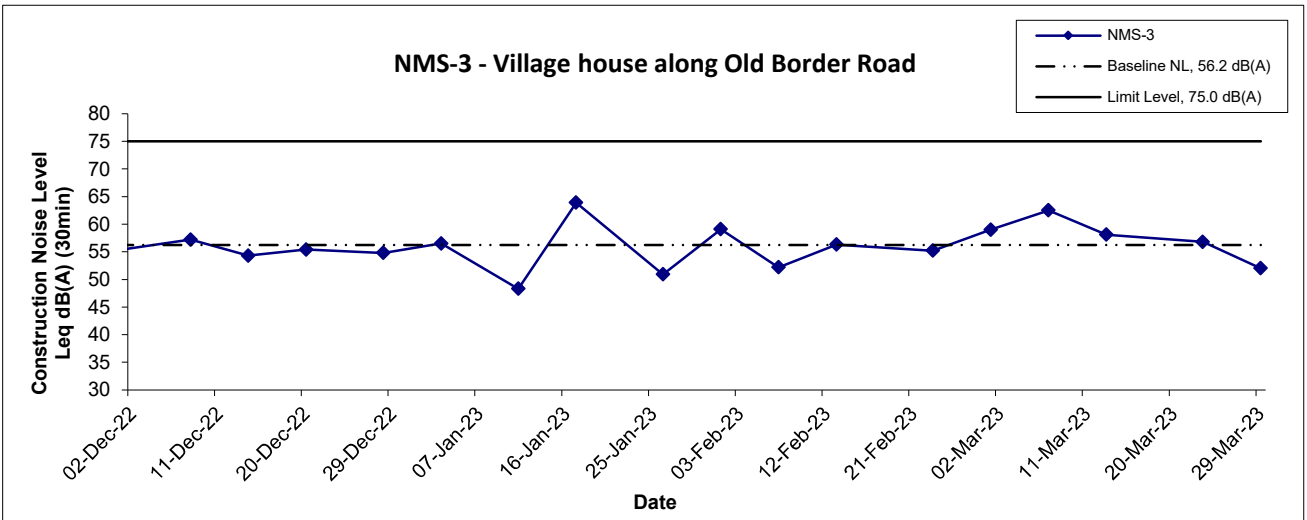
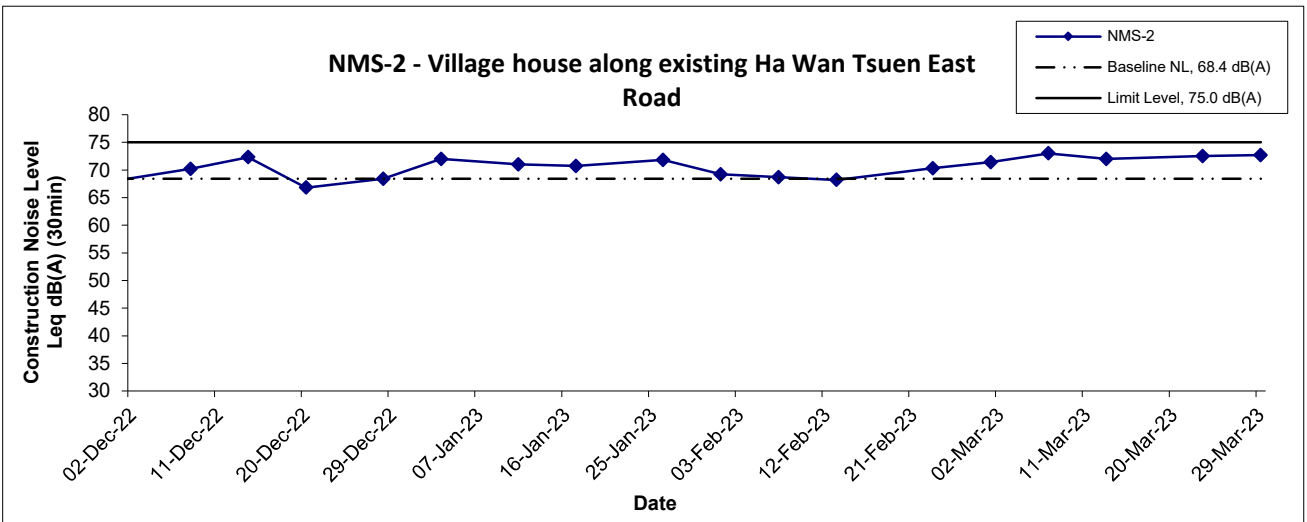
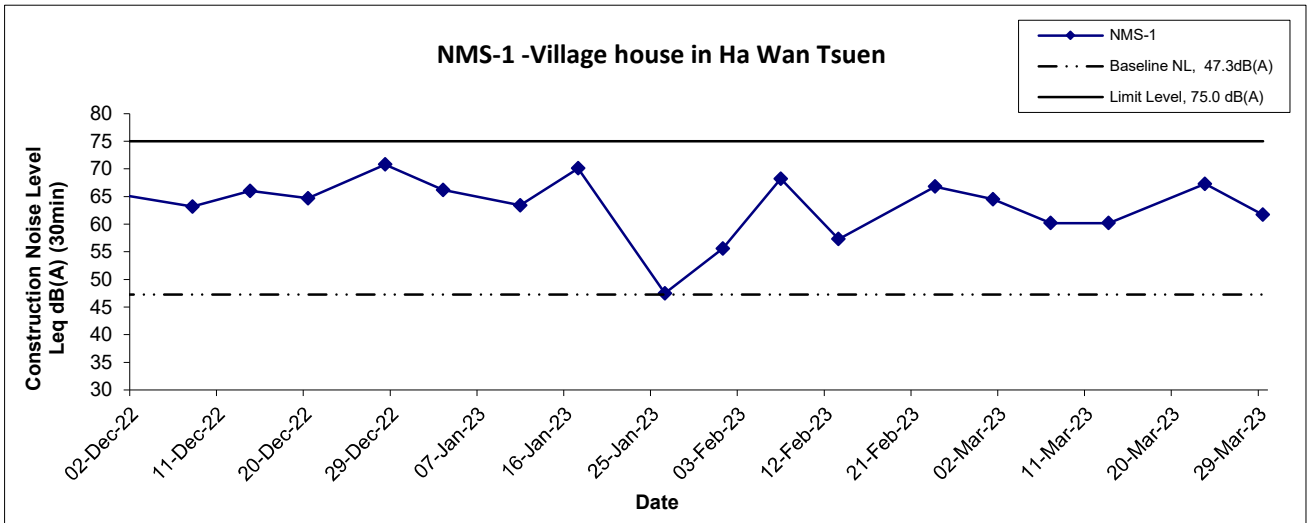
**Appendix G - Noise Monitoring Results**

Location NMS-3 - Village house along Old Border Road									
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level		
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>		
1-Mar-23	Sunny	11:00	59.5	61.9	57.5	59.0	56.2		
		11:05	59.8	60.8	57.8				
		11:10	59.5	61.3	57.9				
		11:15	58.1	58.6	57.5				
		11:20	58.8	59.2	57.4				
11:25	58.2	58.8	57.4						
7-Mar-23	Sunny	08:40	57.6	58.6	56.2	62.5		56.2	
		08:45	68.8	73.5	58.1				
		08:50	58.9	61.9	56.3				
		08:55	58.5	59.0	56.1				
		09:00	56.7	57.5	55.8				
09:05	57.4	58.6	55.9						
13-Mar-23	Cloudy	08:30	55.3	58.6	53.7	58.1			56.2
		08:35	55.2	56.9	53.4				
		08:40	55.4	56.6	53.7				
		08:45	58.4	60.5	53.9				
		08:50	54.9	56.0	53.5				
08:55	62.7	64.4	53.9						
23-Mar-23	Cloudy	09:00	55.9	59.6	45.0	56.8	56.2		
		09:05	58.7	59.4	46.3				
		09:10	59.7	63.7	47.4				
		09:15	54.9	55.4	43.9				
		09:20	54.7	59.1	44.1				
09:25	52.4	55.2	46.0						
29-Mar-23	Cloudy	09:05	49.6	52.6	44.2	52.0		56.2	
		09:10	55.1	59.5	43.9				
		09:15	50.6	53.4	44.6				
		09:20	51.6	53.6	43.5				
		09:25	50.8	53.0	44.0				
09:30	51.7	54.7	43.9						

Location NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill									
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level		
			L <sub>eq</sub>	L <sub>10</sub>	L <sub>90</sub>	L <sub>eq</sub>	L <sub>eq</sub>		
1-Mar-23	Sunny	13:25	49.1	50.3	45.7	48.8	52.5		
		13:30	49.1	50.7	45.3				
		13:35	49.0	51.4	45.5				
		13:40	45.8	47.2	44.3				
		13:45	50.3	53.6	44.7				
13:50	48.3	51.6	44.4						
7-Mar-23	Sunny	14:00	48.5	51.4	44.1	46.6		52.5	
		14:05	46.3	48.4	43.6				
		14:10	45.1	46.4	43.7				
		14:15	47.1	49.6	44.1				
		14:20	46.0	47.0	43.5				
14:25	46.0	47.8	43.5						
13-Mar-23	Cloudy	13:05	53.6	54.1	43.2	50.1			52.5
		13:10	46.4	47.5	42.4				
		13:15	50.9	53.9	43.0				
		13:20	48.4	51.1	43.3				
		13:25	48.9	48.6	41.9				
13:30	48.3	51.5	44.1						
23-Mar-23	Cloudy	09:00	54.7	56.2	44.9	50.9	52.5		
		09:05	48.4	49.7	43.2				
		09:10	51.4	54.2	43.1				
		09:15	50.1	53.0	43.4				
		09:20	48.3	51.4	44.1				
09:25	48.4	51.3	43.2						
29-Mar-23	Cloudy	13:10	54.2	55.2	52.6	53.7		52.5	
		13:15	54.5	55.3	52.6				
		13:20	53.7	54.7	53.8				
		13:25	53.7	54.5	52.5				
		13:30	53.6	54.4	52.8				
13:35	52.0	54.1	58.0						

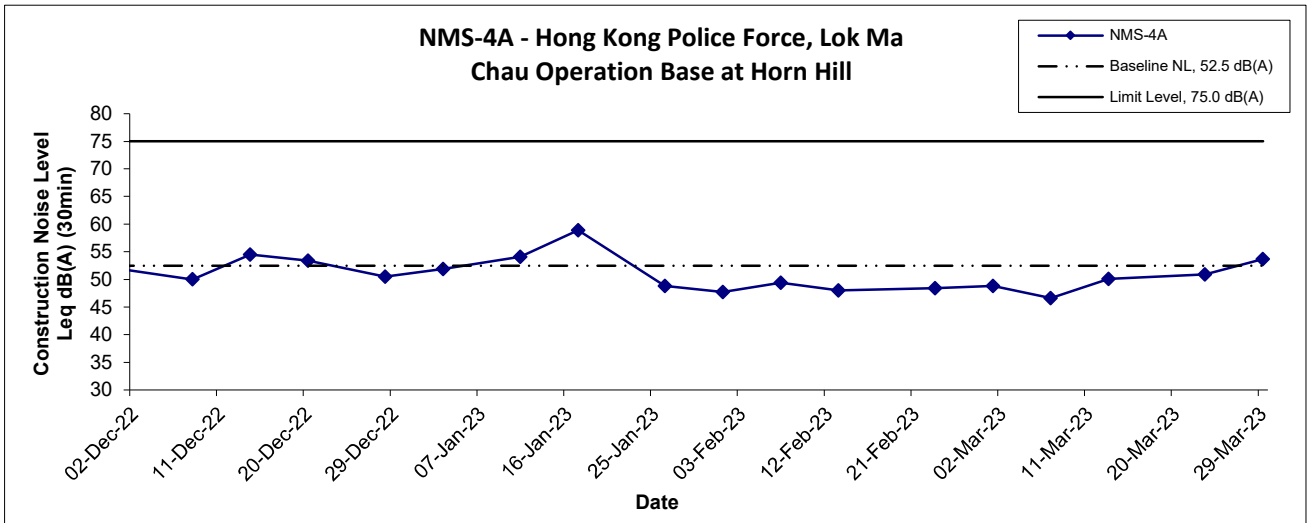


## Noise Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. WMA21009	consulting . testing . research
	Date Mar 23	Appendix G	

## Noise Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. WMA21009	 consulting . testing . research
	Date Mar 23	Appendix G	

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**APPENDIX H  
WATER QUALITY MONITORING  
RESULTS AND GRAPHICAL  
PRESENTATION**

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### Water Quality Monitoring Results at CS1

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
1-Mar-23	Sunny	Calm	10:28	Middle	0.5	20.8 20.8	20.8	7.8 7.8	7.8	8.9 8.9	8.9	83.9 83.9	83.9	7.1 7.1	7.1	13.3 13.3	13.3	26 25	25.5
3-Mar-23	Sunny	Calm	10:55	Middle	0.3	22.1 22.1	22.1	7.7 7.6	7.7	4.5 4.5	4.5	87.3 87.1	87.2	7.4 7.4	7.4	7.3 7.2	7.3	8 9	8.5
6-Mar-23	Sunny	Calm	11:38	Middle	0.3	23.9 23.9	23.9	7.3 7.3	7.3	4.5 4.5	4.5	91.8 91.4	91.6	7.6 7.5	7.6	9.9 10.0	10.0	13 11	12.0
8-Mar-23	Sunny	Calm	13:08	Middle	0.5	24.3 24.3	24.3	7.8 7.8	7.8	8.9 8.9	8.9	96.9 96.8	96.9	7.7 7.7	7.7	12.8 12.6	12.7	16 18	17.0
10-Mar-23	Sunny	Calm	09:49	Middle	0.5	23.2 23.2	23.2	7.4 7.4	7.4	8.8 8.8	8.8	92.6 92.4	92.5	7.5 7.5	7.5	13.4 13.4	13.4	30 28	29.0
13-Mar-23	Fine	Calm	14:06	Middle	0.5	22.3 22.3	22.3	7.1 7.1	7.1	8.8 8.8	8.8	64.1 63.7	63.9	5.3 5.3	5.3	14.0 13.9	14.0	18 19	18.5
15-Mar-23	Cloudy	Calm	10:06	Middle	0.3	23.8 23.8	23.8	7.3 7.3	7.3	4.5 4.5	4.5	90.4 90.1	90.3	7.4 7.4	7.4	6.3 6.2	6.3	18 19	18.5
17-Mar-23	Sunny	Calm	09:38	Middle	0.6	23.1 23.1	23.1	7.4 7.4	7.4	8.7 8.7	8.7	92.3 92.0	92.2	7.5 7.5	7.5	18.6 18.4	18.5	28 32	30.0
20-Mar-23	Sunny	Calm	09:02	Middle	0.5	23.3 23.3	23.3	7.4 7.4	7.4	8.6 8.6	8.6	61.1 61.2	61.2	5.0 5.0	5.0	11.7 11.6	11.7	31 30	30.5
22-Mar-23	Cloudy	Calm	11:48	Middle	0.3	24.7 24.7	24.7	7.7 7.7	7.7	8.0 8.0	8.0	77.0 77.0	77.0	6.1 6.1	6.1	50.0 49.6	49.8	24 24	24.0
24-Mar-23	Cloudy	Calm	12:13	Middle	0.5	25.7 25.8	25.8	8.0 8.0	8.0	8.4 8.4	8.4	129.4 129.9	129.7	10.1 10.1	10.1	13.5 13.1	13.3	18 18	18.0
27-Mar-23	Cloudy	Calm	11:37	Middle	0.3	21.3 21.3	21.3	7.4 7.4	7.4	4.8 4.8	4.8	58.8 58.7	58.8	5.1 5.1	5.1	10.7 10.7	10.7	10 10	10.0
29-Mar-23	Cloudy	Calm	13:30	Middle	0.5	21.6 21.6	21.6	7.2 7.2	7.2	5.9 5.9	5.9	59.1 58.5	58.8	5.0 5.0	5.0	17.6 18.1	17.9	14 16	15.0
31-Mar-23	Cloudy	Calm	10:50	Middle	0.4	22.1 22.1	22.1	7.7 7.7	7.7	5.6 5.6	5.6	57.0 57.6	57.3	4.8 4.9	4.9	5.6 5.6	5.6	10 12	11.0

Remarks: \*DA: Depth-Averaged

\*\*Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

### Water Quality Monitoring Results at CS5

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
1-Mar-23	Sunny	Calm	09:09	Middle	0.1	17.4	17.4	7.8	7.8	1.4	1.4	95.3	95.3	9.1	9.1	6.8	7.1	8	8.0
						17.4		7.8		1.4		95.3		9.1		7.4		8	
3-Mar-23	Sunny	Calm	10:02	Middle	0.1	19.1	19.2	7.3	7.3	2.2	2.2	73.2	73.2	6.7	6.7	15.2	15.2	16	17.0
						19.2		7.3		2.2		73.1		6.7		15.2		18	
6-Mar-23	Sunny	Calm	10:36	Middle	0.1	24.3	24.4	8.3	8.3	0.8	0.8	134.6	134.7	11.2	11.2	10.0	10.0	8	8.0
						24.4		8.3		0.8		134.7		9.9		8			
8-Mar-23	Sunny	Calm	12:24	Middle	0.1	25.4	25.4	8.5	8.5	0.8	0.8	192.9	193.1	15.8	15.8	9.5	9.5	9	10.0
						25.4		8.5		0.8		193.3		15.8		9.5		11	
10-Mar-23	Sunny	Calm	09:17	Middle	0.1	21.4	21.4	7.9	7.9	0.6	0.6	92.9	92.9	8.2	8.2	6.4	6.4	3	3.5
						21.4		7.9		0.6		92.9		8.2		6.3		4	
13-Mar-23	Fine	Calm	13:25	Middle	0.2	21.7	21.7	7.1	7.1	3.0	3.0	70.1	70.0	6.1	6.1	44.0	44.2	58	60.5
						21.7		7.1		3.0		69.9		6.0		44.4		63	
15-Mar-23	Cloudy	Calm	09:19	Middle	0.1	24.0	24.0	8.4	8.4	0.8	0.8	149.0	149.1	12.5	12.5	5.7	5.8	3	2.8
						24.0		8.4		0.8		149.2		12.5		5.8		<2.5	
17-Mar-23	Sunny	Calm	08:56	Middle	0.1	21.1	21.1	7.8	7.8	0.4	0.4	69.8	69.6	6.2	6.2	9.3	8.9	6	6.0
						21.1		7.7		0.4		69.4		6.2		8.5		6	
20-Mar-23	Sunny	Calm	08:19	Middle	0.1	21.7	21.7	7.7	7.7	0.7	0.7	69.1	69.4	6.1	6.1	10.4	10.3	12	12.0
						21.7		7.7		0.7		69.6		6.1		10.2		12	
22-Mar-23	Cloudy	Calm	11:06	Middle	0.2	24.9	25.0	7.5	7.5	0.8	0.8	73.3	72.9	6.0	6.0	62.2	62.5	47	50.0
						25.0		7.5		0.8		72.5		6.0		62.7		53	
24-Mar-23	Cloudy	Calm	11:18	Middle	0.3	25.2	25.2	6.9	6.9	0.7	0.7	73.1	72.9	6.0	6.0	63.9	63.7	60	56.0
						25.2		6.9		0.7		72.6		6.0		63.5		52	
27-Mar-23	Cloudy	Calm	10:29	Middle	0.2	19.9	19.9	7.3	7.3	0.9	0.9	79.2	79.2	7.2	7.2	33.1	33.1	26	29.5
						19.9		7.3		0.9		79.1		7.2		33.1		33	
29-Mar-23	Cloudy	Calm	11:14	Middle	0.2	19.7	19.7	7.6	7.6	1.2	1.2	67.2	67.3	6.1	6.1	8.7	8.6	9	8.5
						19.7		7.6		1.2		67.4		6.1		8.5		8	
31-Mar-23	Cloudy	Calm	09:52	Middle	0.1	22.4	22.4	8.1	8.1	0.9	0.9	83.8	83.7	7.2	7.2	7.9	7.9	27	25.0
						22.4		8.1		0.9		83.6		7.2		7.9		23	

Remarks: \*DA: Depth-Averaged

\*\*Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

### Water Quality Monitoring Results at IS1

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
1-Mar-23	Sunny	Calm	10:11	Middle	0.5	20.4 20.4	20.4	8.0 8.1	8.1	8.5 8.5	8.5	124.9 125.2	125.1	10.7 10.7	10.7	8.9 8.8	8.9	23 19	21.0
3-Mar-23	Sunny	Calm	10:37	Middle	0.3	21.6 21.6	21.6	7.7 7.7	7.7	8.2 8.2	8.2	91.9 91.8	91.9	7.7 7.7	7.7	11.1 10.1	10.6	16 14	15.0
6-Mar-23	Sunny	Calm	11:23	Middle	0.3	25.5 25.5	25.5	7.2 7.1	7.2	4.0 4.0	4.0	88.8 88.9	88.9	7.1 7.1	7.1	7.8 7.7	7.8	12 10	11.0
8-Mar-23	Sunny	Calm	12:55	Middle	0.5	24.3 24.3	24.3	8.0 8.0	8.0	8.9 8.9	8.9	145.3 145.6	145.5	11.6 11.6	11.6	12.4 12.3	12.4	17 18	17.5
10-Mar-23	Sunny	Calm	09:38	Middle	0.5	23.2 23.2	23.2	7.2 7.2	7.2	8.6 8.6	8.6	93.7 93.6	93.7	7.6 7.6	7.6	15.2 15.2	15.2	25 23	24.0
13-Mar-23	Fine	Calm	13:45	Middle	0.5	21.8 21.8	21.8	7.0 7.0	7.0	8.4 8.4	8.4	89.0 91.6	90.3	7.4 7.7	7.6	13.4 13.3	13.4	15 15	15.0
15-Mar-23	Cloudy	Calm	09:42	Middle	0.3	24.8 24.8	24.8	7.0 7.0	7.0	4.0 4.0	4.0	87.9 88.6	88.3	7.1 7.2	7.2	6.0 6.1	6.1	7 7	7.0
17-Mar-23	Sunny	Calm	09:19	Middle	0.5	22.3 22.3	22.3	7.2 7.2	7.2	8.2 8.2	8.2	89.0 90.1	89.6	7.4 7.5	7.5	12.5 12.4	12.5	29 26	27.5
20-Mar-23	Sunny	Calm	08:44	Middle	0.5	22.8 22.8	22.8	7.2 7.2	7.2	7.8 7.8	7.8	86.8 87.5	87.2	7.1 7.2	7.2	16.6 16.6	16.6	17 18	17.5
22-Mar-23	Cloudy	Calm	12:07	Middle	0.3	24.9 24.9	24.9	7.3 7.3	7.3	4.8 4.8	4.8	91.8 91.5	91.7	7.4 7.4	7.4	19.1 18.9	19.0	20 22	21.0
24-Mar-23	Cloudy	Calm	11:53	Middle	0.5	25.6 25.6	25.6	7.2 7.2	7.2	8.0 8.0	8.0	92.7 92.4	92.6	7.2 7.2	7.2	15.2 15.2	15.2	23 24	23.5
27-Mar-23	Cloudy	Calm	11:10	Middle	0.3	21.4 21.4	21.4	7.7 7.7	7.7	4.8 4.8	4.8	86.8 84.2	85.5	7.5 7.3	7.4	13.3 13.1	13.2	13 11	12.0
29-Mar-23	Cloudy	Calm	13:10	Middle	0.5	21.1 21.1	21.1	7.1 7.1	7.1	5.8 5.8	5.8	83.4 82.8	83.1	7.2 7.1	7.2	16.3 15.9	16.1	12 11	11.5
31-Mar-23	Cloudy	Calm	10:31	Middle	0.4	21.7 21.7	21.7	7.4 7.4	7.4	5.5 5.5	5.5	82.8 83.1	83.0	7.1 7.1	7.1	11.2 11.2	11.2	13 13	13.0

Remarks: \*DA: Depth-Averaged

\*\*Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

### Water Quality Monitoring Results at IS2

Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
1-Mar-23	Sunny	Calm	08:55	Middle	0.1	18.8 18.8	18.8	7.2 7.2	7.2	7.7 7.7	7.7	70.9 70.6	70.8	6.3 6.3	6.3	29.1 28.4	28.8	35 37	36.0
3-Mar-23	Sunny	Calm	10:18	Middle	0.1	20.7 20.7	20.7	7.4 7.4	7.4	6.9 6.9	6.9	73.9 73.8	73.9	6.4 6.4	6.4	11.8 11.9	11.9	24 30	27.0
6-Mar-23	Sunny	Calm	10:52	Middle	0.1	22.5 22.5	22.5	8.0 8.0	8.0	4.4 4.4	4.4	69.7 69.4	69.6	5.9 5.9	5.9	12.3 12.3	12.3	26 32	29.0
8-Mar-23	Sunny	Calm	12:15	Middle	0.1	22.4 22.4	22.4	7.1 7.1	7.1	6.1 6.1	6.1	65.3 65.6	65.5	5.5 5.5	5.5	32.7 32.6	32.7	33 29	31.0
10-Mar-23	Sunny	Calm	08:28	Middle	0.1	22.0 22.0	22.0	7.3 7.3	7.3	7.6 7.6	7.6	76.8 76.6	76.7	6.4 6.4	6.4	31.0 28.0	29.5	28 34	31.0
13-Mar-23	Fine	Calm	13:05	Middle	0.1	21.9 21.9	21.9	7.1 7.1	7.1	10.2 10.2	10.2	72.7 72.7	72.7	6.0 6.0	6.0	34.9 33.0	34.0	33 33	33.0
15-Mar-23	Cloudy	Calm	09:06	Middle	0.1	22.1 22.1	22.1	7.8 7.8	7.8	4.4 4.4	4.4	71.6 71.4	71.5	6.1 6.1	6.1	9.0 8.7	8.9	26 24	25.0
17-Mar-23	Sunny	Calm	08:37	Middle	0.1	22.5 22.6	22.6	7.1 7.1	7.1	2.8 2.8	2.8	75.0 75.4	75.2	6.4 6.4	6.4	29.7 30.2	30.0	38 38	38.0
20-Mar-23	Sunny	Calm	08:03	Middle	0.1	22.8 22.7	22.8	7.2 7.2	7.2	7.3 7.3	7.3	73.6 72.6	73.1	6.1 6.0	6.1	17.1 17.5	17.3	40 33	36.5
22-Mar-23	Cloudy	Calm	11:18	Middle	0.1	24.1 24.1	24.1	7.5 7.5	7.5	7.9 7.9	7.9	67.7 68.3	68.0	5.4 5.5	5.5	32.2 35.1	33.7	33 34	33.5
24-Mar-23	Cloudy	Calm	10:59	Middle	0.2	25.0 25.0	25.0	6.6 6.6	6.6	3.3 3.3	3.3	68.2 67.9	68.1	5.5 5.5	5.5	32.5 31.6	32.1	36 34	35.0
27-Mar-23	Cloudy	Calm	10:39	Middle	0.1	21.5 21.5	21.5	7.3 7.3	7.3	0.4 0.4	0.4	61.4 61.2	61.3	5.4 5.4	5.4	34.5 34.6	34.6	28 28	28.0
29-Mar-23	Cloudy	Calm	11:02	Middle	0.1	21.4 21.3	21.4	7.0 7.0	7.0	3.1 3.1	3.1	61.6 62.9	62.3	5.4 5.5	5.5	22.4 22.0	22.2	23 20	21.5
31-Mar-23	Cloudy	Calm	09:37	Middle	0.1	22.4 22.4	22.4	7.2 7.2	7.2	5.9 5.9	5.9	64.9 64.3	64.6	5.5 5.4	5.5	11.5 11.5	11.5	20 19	19.5

Remarks: \*DA: Depth-Averaged

\*\*Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

### Water Quality Monitoring Results at IS4

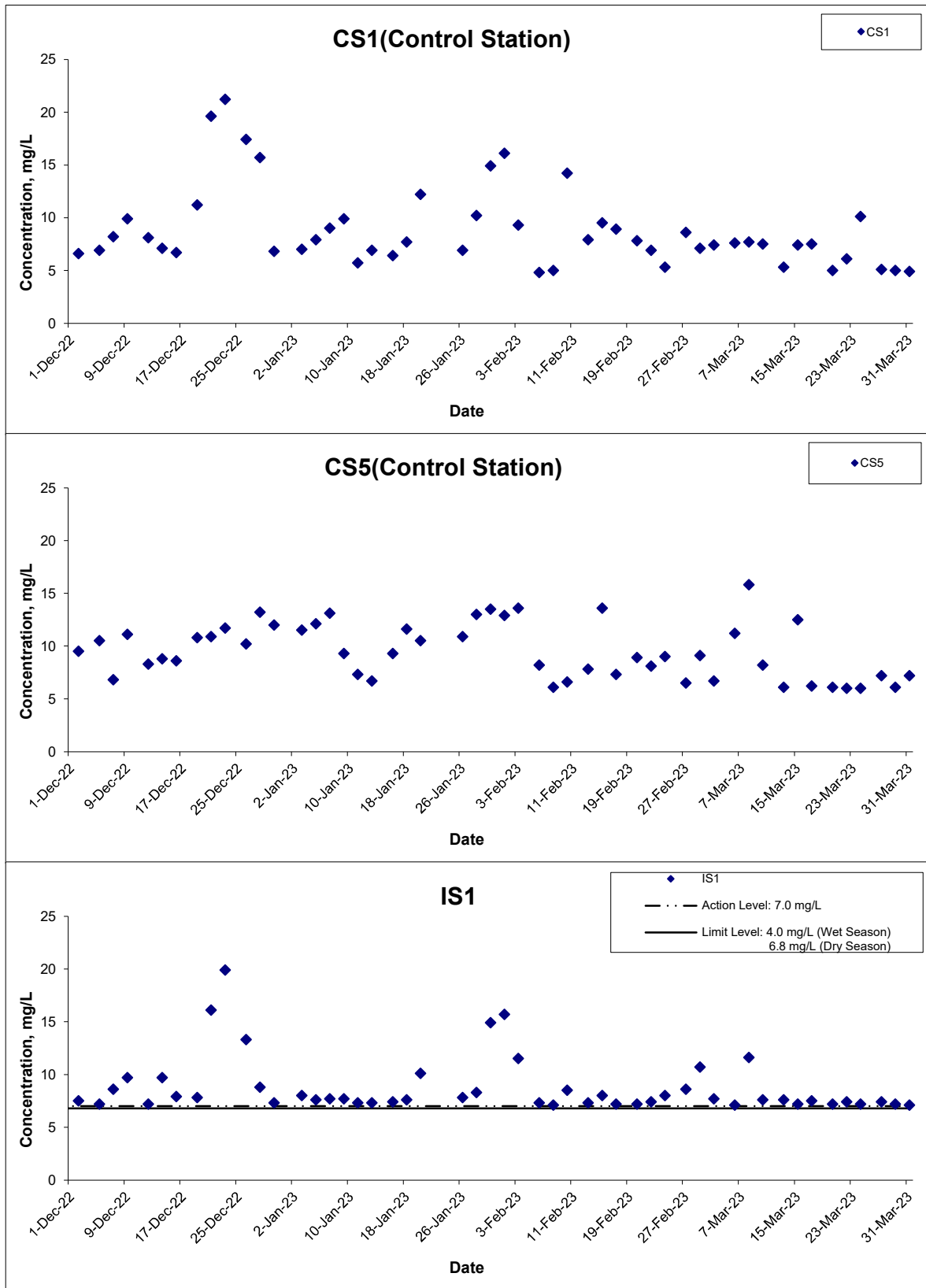
Date	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)		Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
8-Mar-23	Sunny	Calm	12:33	Middle	0.1	20.5	20.5	7.4	7.4	1.4	1.4	87.5	87.4	7.8	7.8	17.0	17.0	14	14.5
						20.5		7.4		1.4		87.2		7.8		16.9			
10-Mar-23	Sunny	Calm	09:28	Middle	0.1	19.3	19.3	6.6	6.6	2.4	2.4	46.0	45.9	4.2	4.2	55.9	55.2	33	31.5
						19.3		6.6		2.4		45.8		4.2		54.5			
24-Mar-23	Cloudy	Calm	11:36	Middle	0.1	25.4	25.4	6.5	6.5	0.8	0.8	76.4	76.4	6.2	6.2	60.9	61.0	56	51.5
						25.4		6.5		0.8		76.3		6.2		61.1			
27-Mar-23	Cloudy	Calm	10:54	Middle	0.2	20.2	20.2	7.3	7.3	0.3	0.3	50.8	50.8	4.6	4.6	18.3	18.3	9	9.5
						20.2		7.3		0.3		50.7		4.6		18.3			
29-Mar-23	Cloudy	Calm	11:59	Middle	0.1	20.2	20.2	6.8	6.8	0.3	0.3	46.6	46.9	4.2	4.3	11.2	11.2	19	20.0
						20.2		6.8		0.3		47.2		4.3		11.2			
31-Mar-23	Cloudy	Calm	10:07	Middle	0.2	20.9	20.9	7.3	7.3	0.3	0.3	48.3	48.8	4.3	4.4	11.3	11.3	42	44.5
						20.9		7.3		0.3		49.2		4.4		11.3			

Remarks: \*DA: Depth-Averaged

\*\*Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.



## Dissolved Oxygen



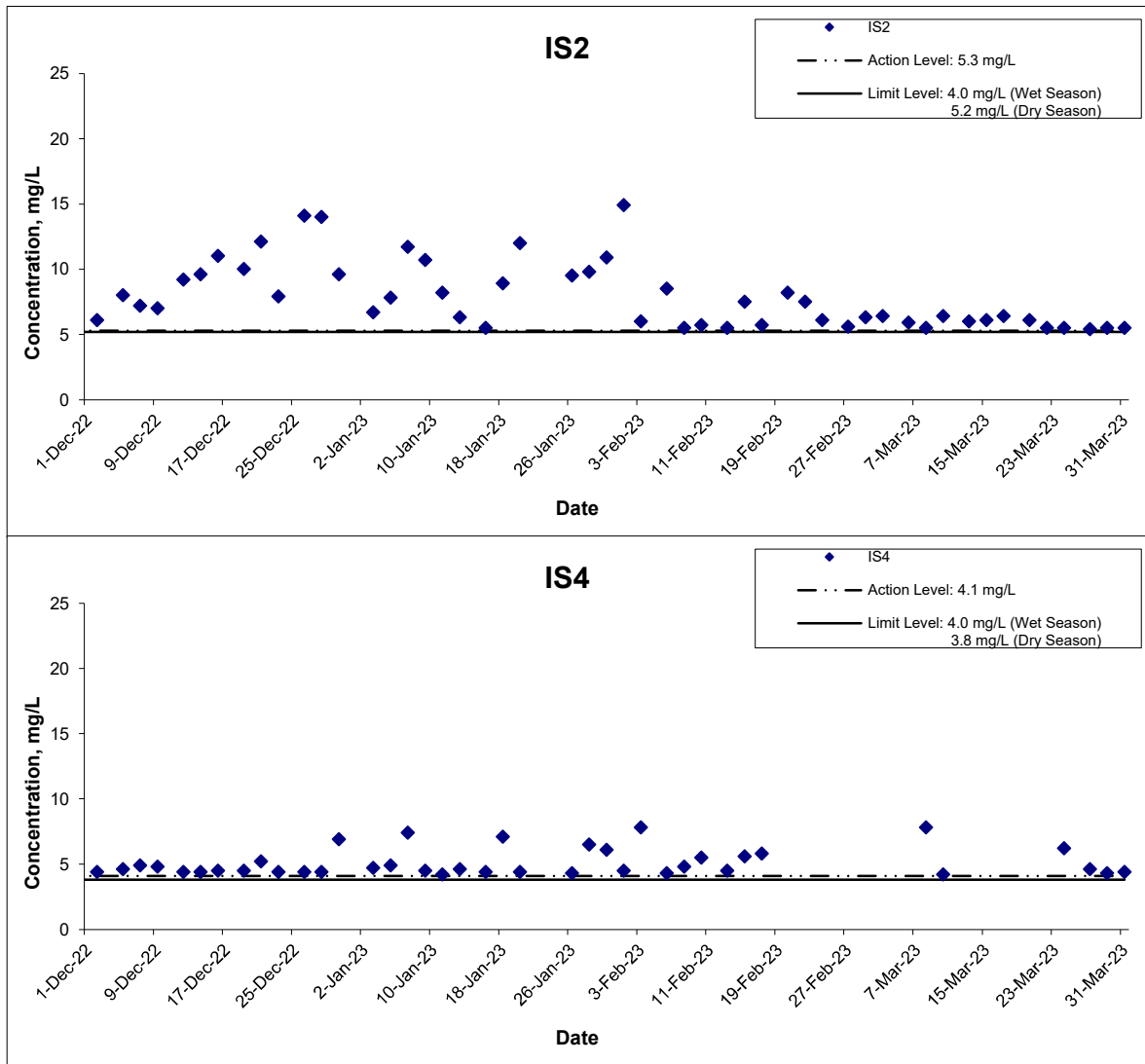
Title  
 Service Contract No. WD/04/2020  
 Development of Lok Ma Chau Loop:  
 Main Works Package 1 - Environmental Team  
 Graphical Presentation of Water Quality Monitoring  
 Results

Scale  
 N.T.S  
 Date  
 Mar 23

Project  
 No. WMA21009  
 Appendix  
 H



## Dissolved Oxygen



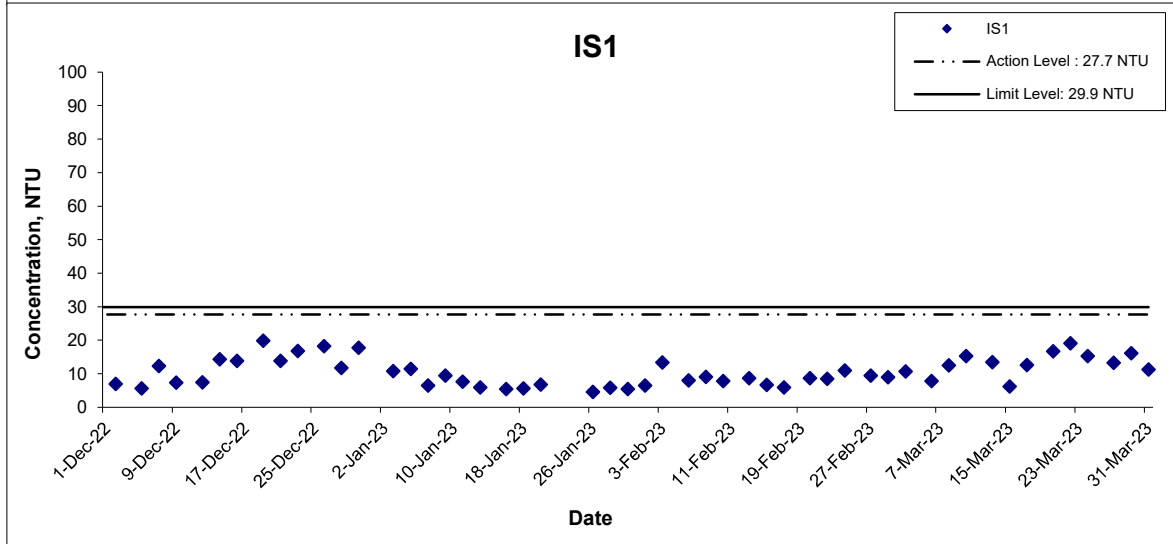
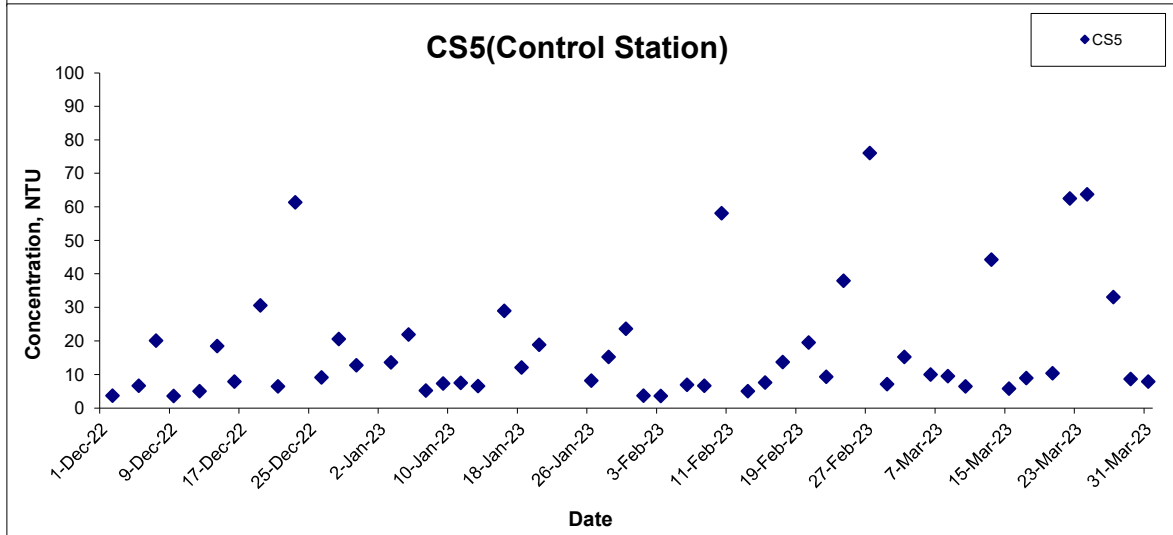
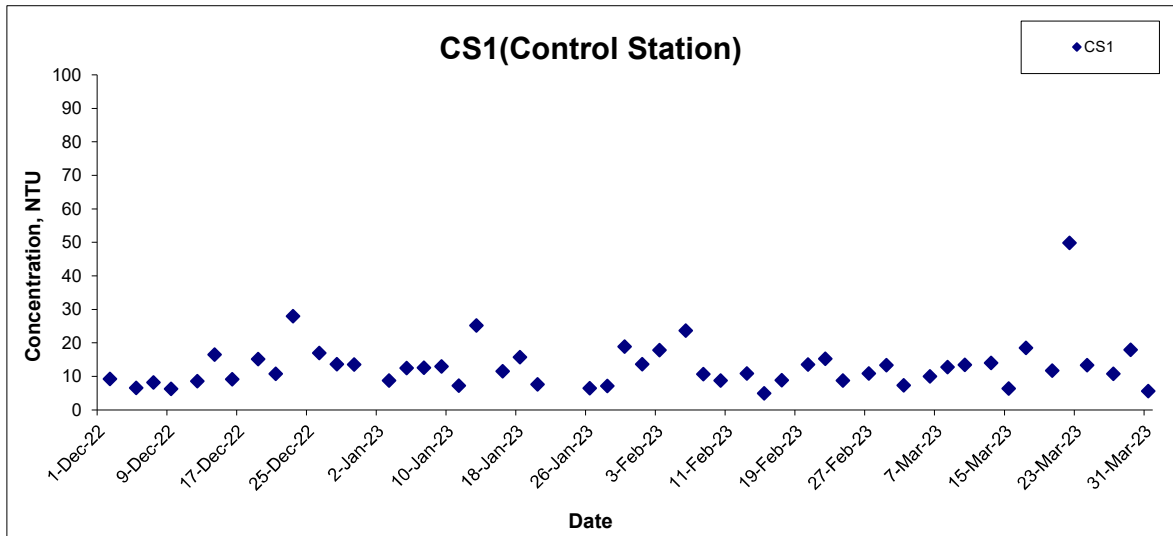
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 Development of Lok Ma Chau Loop:  
 Main Works Package 1 - Environmental Team  
 Graphical Presentation of Water Quality Monitoring  
 Results

Scale  
 N.T.S  
 Date  
 Mar 23

Project  
 No. WMA21009  
 Appendix  
 H



## Turbidity



Title                      Service Contract No. WD/04/2020  
 Development of Lok Ma Chau Loop:  
 Main Works Package 1 - Environmental Team

**Graphical Presentation of Water Quality Monitoring Results**

Scale                      N.T.S

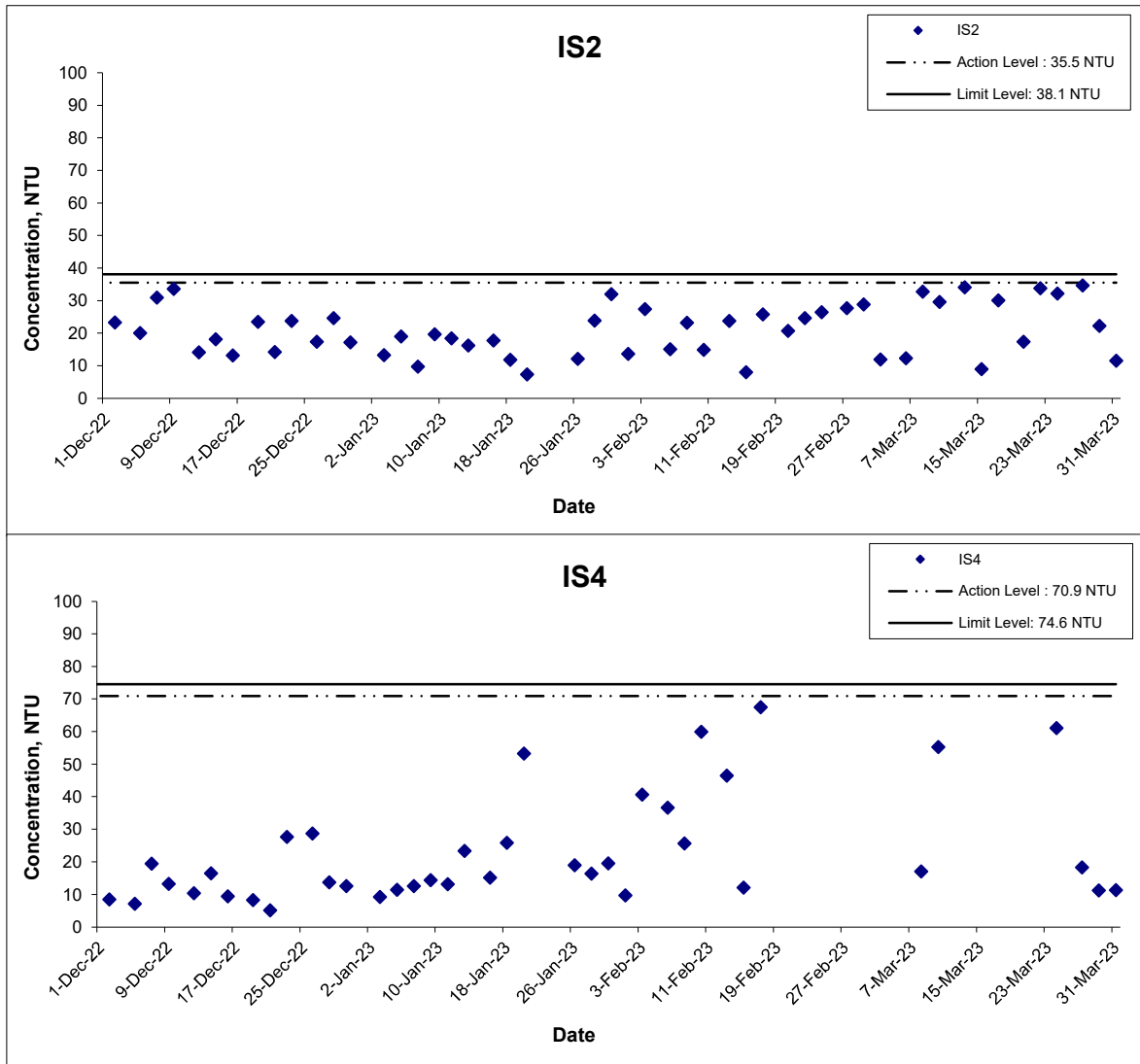
Date                        Mar 23

Project No.                WMA21009

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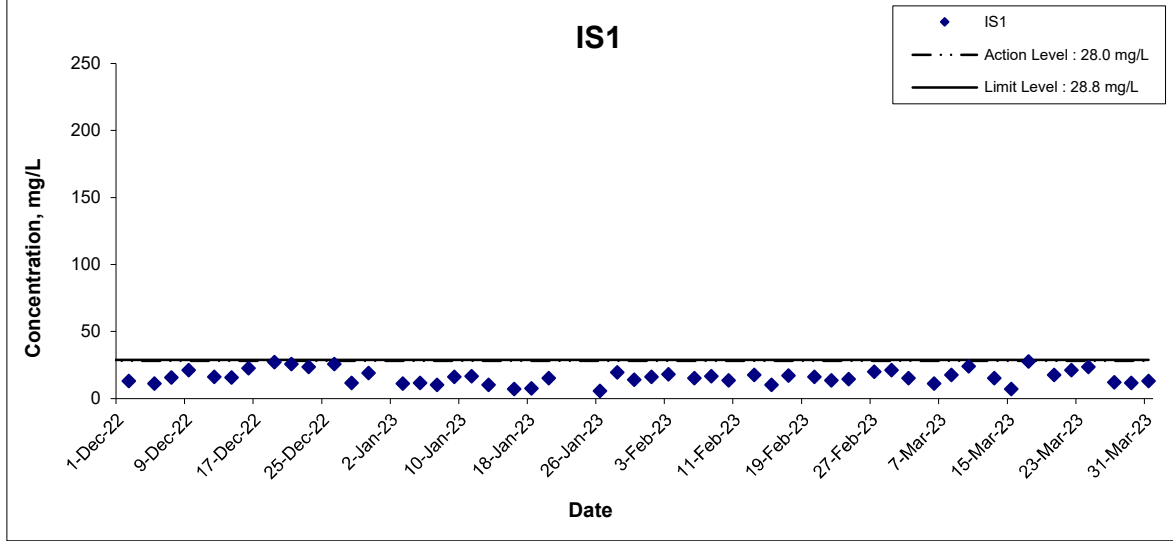
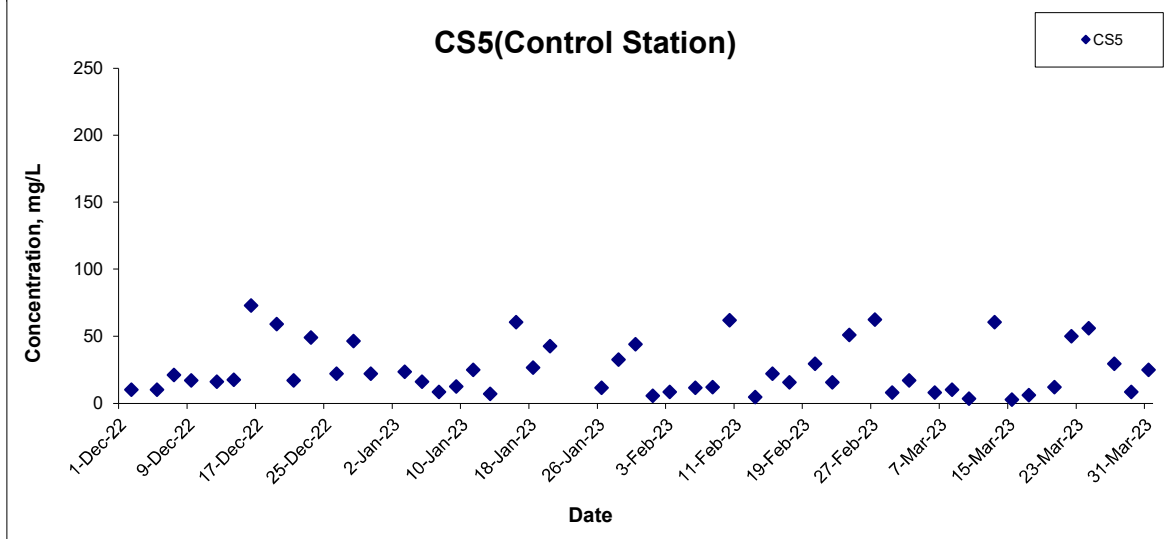
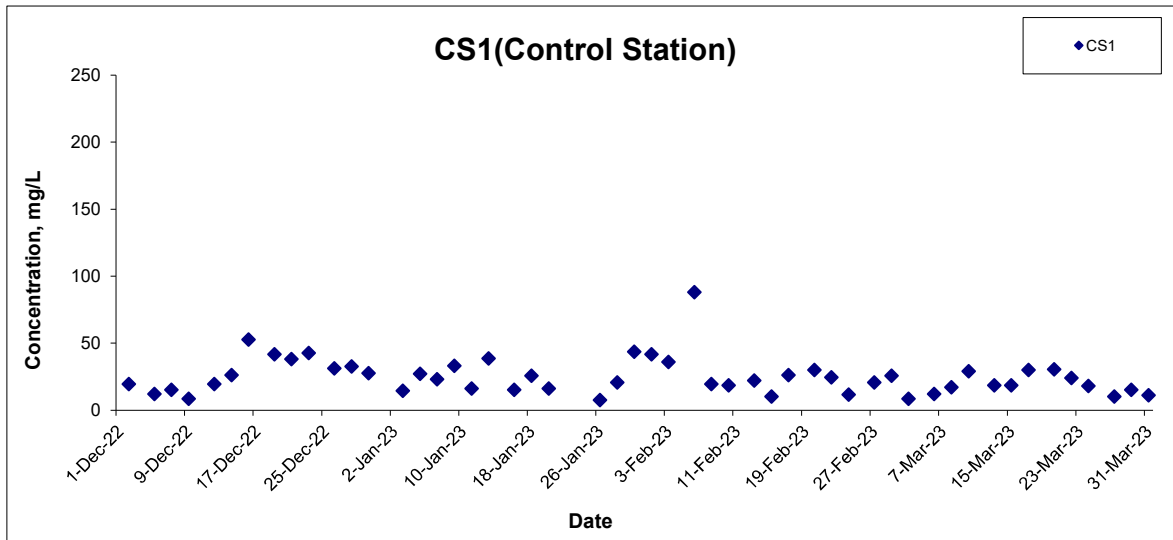


## Turbidity



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team  Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. WMA21009	consulting . testing . research
	Date Mar 23	Appendix H	

## Suspended Solids



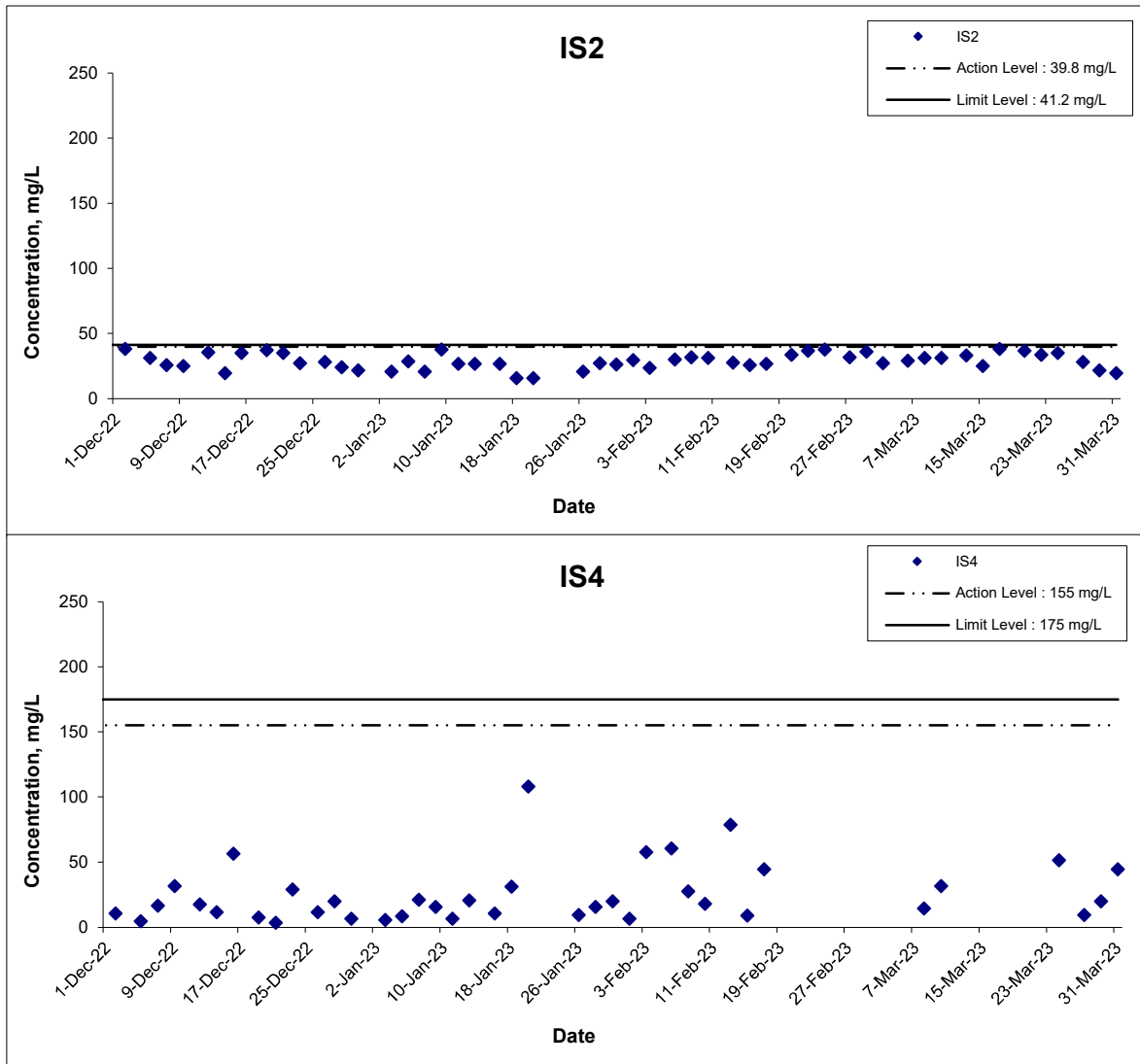
Title                      Service Contract No. WD/04/2020  
 Development of Lok Ma Chau Loop:  
 Main Works Package 1 - Environmental Team  
**Graphical Presentation of Water Quality Monitoring Results**

Scale                      N.T.S  
 Date                      Mar 23

Project No.                WMA21009  
 Appendix                H



## Suspended Solids



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team  Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. WMA21009	 consulting . testing . research
	Date Mar 23	Appendix H	

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**APPENDIX I**  
**WEATHER CONDITION**

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**APPENDIX I –  
GENERAL WEATHER CONDITIONS DURING THE MONITORING PERIOD**

<b>Date</b>	<b>Mean Air Temperature (°C)</b>	<b>Mean Relative Humidity (%)</b>	<b>Precipitation (mm)</b>
1 March 2023	19.7	71	-
2 March 2023	19.8	70	-
3 March 2023	18.6	56	-
4 March 2023	19.6	65	-
5 March 2023	19.7	57	-
6 March 2023	20	50	-
7 March 2023	20.1	56	-
8 March 2023	21.6	77	-
9 March 2023	22.5	75	-
10 March 2023	22.4	68	-
11 March 2023	22.1	67	-
12 March 2023	22.6	71	0.1
13 March 2023	20.1	64	Trace
14 March 2023	19.7	73	-
15 March 2023	21	77	-
16 March 2023	22	72	Trace



<b>Date</b>	<b>Mean Air Temperature (°C)</b>	<b>Mean Relative Humidity (%)</b>	<b>Precipitation (mm)</b>
17 March 2023	21.7	83	0.5
18 March 2023	22.3	80	-
19 March 2023	20.6	86	0.6
20 March 2023	21.8	88	0.3
21 March 2023	23.7	85	Trace
22 March 2023	24.7	83	Trace
23 March 2023	25	81	-
24 March 2023	25.6	80	-
25 March 2023	23.4	89	53.5
26 March 2023	20.8	91	5.9
27 March 2023	18.6	86	6.3
28 March 2023	18.7	84	Trace
29 March 2023	19.9	86	0.9
30 March 2023	20.8	89	0.3
31 March 2023	20.3	92	1.9

\* The above information was extracted from the daily weather summary by Hong Kong Observatory.

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
1-Mar-2023	00:00	0.0	W
1-Mar-2023	01:00	0.0	W
1-Mar-2023	02:00	0.0	W
1-Mar-2023	03:00	0.0	WNW
1-Mar-2023	04:00	0.0	---
1-Mar-2023	05:00	0.0	WNW
1-Mar-2023	06:00	0.0	WNW
1-Mar-2023	07:00	0.0	---
1-Mar-2023	08:00	0.0	NW
1-Mar-2023	09:00	0.0	SW
1-Mar-2023	10:00	0.0	SSW
1-Mar-2023	11:00	0.0	SSW
1-Mar-2023	12:00	0.0	E
1-Mar-2023	13:00	0.0	SW
1-Mar-2023	14:00	0.4	ENE
1-Mar-2023	15:00	0.4	E
1-Mar-2023	16:00	0.9	ENE
1-Mar-2023	17:00	0.9	ENE
1-Mar-2023	18:00	0.4	ENE
1-Mar-2023	19:00	0.0	---
1-Mar-2023	20:00	0.0	---
1-Mar-2023	21:00	0.0	---
1-Mar-2023	22:00	0.0	---
1-Mar-2023	23:00	0.0	---
2-Mar-2023	00:00	0.0	---
2-Mar-2023	01:00	0.0	---
2-Mar-2023	02:00	0.0	---
2-Mar-2023	03:00	0.0	---
2-Mar-2023	04:00	0.0	WNW
2-Mar-2023	05:00	0.4	W
2-Mar-2023	06:00	0.4	WSW
2-Mar-2023	07:00	0.4	WSW
2-Mar-2023	08:00	0.4	WSW
2-Mar-2023	09:00	0.4	WSW
2-Mar-2023	10:00	0.4	WSW
2-Mar-2023	11:00	0.0	SSW
2-Mar-2023	12:00	0.0	SSW
2-Mar-2023	13:00	0.0	WSW
2-Mar-2023	14:00	0.0	SW
2-Mar-2023	15:00	0.0	W
2-Mar-2023	16:00	0.9	ENE
2-Mar-2023	17:00	0.0	NW
2-Mar-2023	18:00	0.9	WSW
2-Mar-2023	19:00	0.4	W
2-Mar-2023	20:00	0.9	WSW
2-Mar-2023	21:00	0.4	WSW
2-Mar-2023	22:00	0.4	WSW
2-Mar-2023	23:00	0.4	WSW
3-Mar-2023	00:00	0.4	WSW
3-Mar-2023	01:00	0.9	WSW
3-Mar-2023	02:00	0.9	WSW
3-Mar-2023	03:00	0.4	WSW
3-Mar-2023	04:00	0.0	WSW
3-Mar-2023	05:00	0.0	WSW
3-Mar-2023	06:00	0.0	WSW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Mar-2023	07:00	0.4	WSW
3-Mar-2023	08:00	0.0	WSW
3-Mar-2023	09:00	0.4	WSW
3-Mar-2023	10:00	0.4	WSW
3-Mar-2023	11:00	0.4	WSW
3-Mar-2023	12:00	0.4	W
3-Mar-2023	13:00	0.4	WSW
3-Mar-2023	14:00	0.4	WNW
3-Mar-2023	15:00	0.0	WNW
3-Mar-2023	16:00	0.9	ENE
3-Mar-2023	17:00	0.4	E
3-Mar-2023	18:00	0.0	E
3-Mar-2023	19:00	0.0	WNW
3-Mar-2023	20:00	0.0	W
3-Mar-2023	21:00	0.0	WNW
3-Mar-2023	22:00	0.0	WNW
3-Mar-2023	23:00	0.0	WSW
4-Mar-2023	00:00	0.0	WSW
4-Mar-2023	01:00	0.0	WSW
4-Mar-2023	02:00	0.0	WSW
4-Mar-2023	03:00	0.0	WSW
4-Mar-2023	04:00	0.0	WSW
4-Mar-2023	05:00	0.4	WSW
4-Mar-2023	06:00	0.0	WSW
4-Mar-2023	07:00	0.4	WSW
4-Mar-2023	08:00	0.4	WSW
4-Mar-2023	09:00	0.4	WSW
4-Mar-2023	10:00	0.0	WSW
4-Mar-2023	11:00	0.0	WSW
4-Mar-2023	12:00	0.4	SSW
4-Mar-2023	13:00	0.4	SSW
4-Mar-2023	14:00	0.4	SSW
4-Mar-2023	15:00	0.0	WSW
4-Mar-2023	16:00	0.0	WSW
4-Mar-2023	17:00	0.4	ENE
4-Mar-2023	18:00	0.0	ENE
4-Mar-2023	19:00	0.0	NNE
4-Mar-2023	20:00	0.0	WSW
4-Mar-2023	21:00	0.0	WSW
4-Mar-2023	22:00	0.0	WSW
4-Mar-2023	23:00	0.0	WSW
5-Mar-2023	00:00	0.4	WSW
5-Mar-2023	01:00	0.9	WSW
5-Mar-2023	02:00	0.9	WSW
5-Mar-2023	03:00	0.9	WSW
5-Mar-2023	04:00	0.0	WSW
5-Mar-2023	05:00	0.0	WSW
5-Mar-2023	06:00	0.0	---
5-Mar-2023	07:00	0.0	WSW
5-Mar-2023	08:00	0.0	WSW
5-Mar-2023	09:00	0.0	WSW
5-Mar-2023	10:00	0.4	WSW
5-Mar-2023	11:00	0.0	WNW
5-Mar-2023	12:00	0.4	NW
5-Mar-2023	13:00	0.4	NW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Mar-2023	14:00	0.4	WSW
5-Mar-2023	15:00	0.4	NW
5-Mar-2023	16:00	0.9	NW
5-Mar-2023	17:00	0.4	WNW
5-Mar-2023	18:00	0.4	NW
5-Mar-2023	19:00	0.0	WNW
5-Mar-2023	20:00	0.0	NW
5-Mar-2023	21:00	0.0	WNW
5-Mar-2023	22:00	0.0	WSW
5-Mar-2023	23:00	0.0	WSW
6-Mar-2023	00:00	0.0	WSW
6-Mar-2023	01:00	0.4	WSW
6-Mar-2023	02:00	0.4	WSW
6-Mar-2023	03:00	0.0	WSW
6-Mar-2023	04:00	0.0	W
6-Mar-2023	05:00	0.0	W
6-Mar-2023	06:00	0.9	W
6-Mar-2023	07:00	0.9	W
6-Mar-2023	08:00	0.4	WSW
6-Mar-2023	09:00	0.9	WSW
6-Mar-2023	10:00	0.4	WSW
6-Mar-2023	11:00	0.4	WSW
6-Mar-2023	12:00	0.4	WSW
6-Mar-2023	13:00	0.4	WSW
6-Mar-2023	14:00	0.9	WNW
6-Mar-2023	15:00	0.9	WSW
6-Mar-2023	16:00	0.9	WSW
6-Mar-2023	17:00	0.4	NNW
6-Mar-2023	18:00	0.0	WNW
6-Mar-2023	19:00	0.0	WSW
6-Mar-2023	20:00	0.0	WSW
6-Mar-2023	21:00	0.4	WSW
6-Mar-2023	22:00	0.4	WSW
6-Mar-2023	23:00	0.9	WSW
7-Mar-2023	00:00	0.4	WSW
7-Mar-2023	01:00	0.0	WSW
7-Mar-2023	02:00	0.0	WSW
7-Mar-2023	03:00	0.0	---
7-Mar-2023	04:00	0.0	---
7-Mar-2023	05:00	0.0	---
7-Mar-2023	06:00	0.0	WNW
7-Mar-2023	07:00	0.0	WNW
7-Mar-2023	08:00	0.0	WSW
7-Mar-2023	09:00	0.4	WSW
7-Mar-2023	10:00	0.4	WSW
7-Mar-2023	11:00	0.4	WSW
7-Mar-2023	12:00	0.4	NW
7-Mar-2023	13:00	0.4	NNW
7-Mar-2023	14:00	0.4	WSW
7-Mar-2023	15:00	0.4	WSW
7-Mar-2023	16:00	0.4	WSW
7-Mar-2023	17:00	0.9	WSW
7-Mar-2023	18:00	0.4	WSW
7-Mar-2023	19:00	0.0	W
7-Mar-2023	20:00	0.0	W

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Mar-2023	21:00	0.0	WSW
7-Mar-2023	22:00	0.0	WSW
7-Mar-2023	23:00	0.0	WSW
8-Mar-2023	00:00	0.0	W
8-Mar-2023	01:00	0.0	SW
8-Mar-2023	02:00	0.0	---
8-Mar-2023	03:00	0.0	---
8-Mar-2023	04:00	0.0	---
8-Mar-2023	05:00	0.0	WSW
8-Mar-2023	06:00	0.0	WNW
8-Mar-2023	07:00	0.0	---
8-Mar-2023	08:00	0.4	WNW
8-Mar-2023	09:00	0.0	SW
8-Mar-2023	10:00	0.0	WSW
8-Mar-2023	11:00	0.0	ESE
8-Mar-2023	12:00	0.0	S
8-Mar-2023	13:00	0.9	ENE
8-Mar-2023	14:00	0.9	ENE
8-Mar-2023	15:00	0.9	ENE
8-Mar-2023	16:00	0.9	ENE
8-Mar-2023	17:00	0.4	ENE
8-Mar-2023	18:00	0.4	ENE
8-Mar-2023	19:00	0.0	E
8-Mar-2023	20:00	0.0	---
8-Mar-2023	21:00	0.0	---
8-Mar-2023	22:00	0.0	WNW
8-Mar-2023	23:00	0.4	WNW
9-Mar-2023	00:00	0.0	NW
9-Mar-2023	01:00	0.0	---
9-Mar-2023	02:00	0.0	---
9-Mar-2023	03:00	0.0	---
9-Mar-2023	04:00	0.0	---
9-Mar-2023	05:00	0.0	---
9-Mar-2023	06:00	0.0	---
9-Mar-2023	07:00	0.0	---
9-Mar-2023	08:00	0.0	---
9-Mar-2023	09:00	0.0	---
9-Mar-2023	10:00	0.0	ENE
9-Mar-2023	11:00	0.0	E
9-Mar-2023	12:00	0.0	E
9-Mar-2023	13:00	0.0	ENE
9-Mar-2023	14:00	0.4	E
9-Mar-2023	15:00	0.0	E
9-Mar-2023	16:00	0.0	E
9-Mar-2023	17:00	0.0	WNW
9-Mar-2023	18:00	0.0	WNW
9-Mar-2023	19:00	0.0	WNW
9-Mar-2023	20:00	0.0	WNW
9-Mar-2023	21:00	0.0	WNW
9-Mar-2023	22:00	0.0	WNW
9-Mar-2023	23:00	0.0	WNW
10-Mar-2023	00:00	0.0	W
10-Mar-2023	01:00	0.0	W
10-Mar-2023	02:00	0.0	W
10-Mar-2023	03:00	0.0	W

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Mar-2023	04:00	0.0	WSW
10-Mar-2023	05:00	0.0	W
10-Mar-2023	06:00	0.4	WSW
10-Mar-2023	07:00	0.0	WSW
10-Mar-2023	08:00	0.4	W
10-Mar-2023	09:00	0.4	WSW
10-Mar-2023	10:00	0.4	WSW
10-Mar-2023	11:00	0.9	WSW
10-Mar-2023	12:00	0.9	NW
10-Mar-2023	13:00	0.9	NNW
10-Mar-2023	14:00	0.9	W
10-Mar-2023	15:00	0.9	W
10-Mar-2023	16:00	0.9	WNW
10-Mar-2023	17:00	0.4	NW
10-Mar-2023	18:00	0.4	WNW
10-Mar-2023	19:00	0.0	WSW
10-Mar-2023	20:00	0.4	WSW
10-Mar-2023	21:00	0.9	WSW
10-Mar-2023	22:00	0.0	WSW
10-Mar-2023	23:00	0.0	---
11-Mar-2023	00:00	0.0	W
11-Mar-2023	01:00	0.4	WSW
11-Mar-2023	02:00	0.4	WSW
11-Mar-2023	03:00	0.0	WSW
11-Mar-2023	04:00	0.0	WSW
11-Mar-2023	05:00	0.0	WSW
11-Mar-2023	06:00	0.0	WNW
11-Mar-2023	07:00	0.0	WNW
11-Mar-2023	08:00	0.0	WSW
11-Mar-2023	09:00	0.4	WSW
11-Mar-2023	10:00	0.4	WSW
11-Mar-2023	11:00	0.4	WSW
11-Mar-2023	12:00	0.9	WSW
11-Mar-2023	13:00	0.9	WSW
11-Mar-2023	14:00	0.9	WSW
11-Mar-2023	15:00	0.4	WNW
11-Mar-2023	16:00	0.4	NW
11-Mar-2023	17:00	0.4	NW
11-Mar-2023	18:00	0.4	WSW
11-Mar-2023	19:00	0.4	WSW
11-Mar-2023	20:00	0.0	WSW
11-Mar-2023	21:00	0.0	WNW
11-Mar-2023	22:00	0.0	WNW
11-Mar-2023	23:00	0.0	WNW
12-Mar-2023	00:00	0.0	NW
12-Mar-2023	01:00	0.0	---
12-Mar-2023	02:00	0.0	WNW
12-Mar-2023	03:00	0.0	WNW
12-Mar-2023	04:00	0.0	WNW
12-Mar-2023	05:00	0.4	WNW
12-Mar-2023	06:00	0.0	WNW
12-Mar-2023	07:00	0.0	---
12-Mar-2023	08:00	0.0	---
12-Mar-2023	09:00	0.0	NW
12-Mar-2023	10:00	0.0	N

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Mar-2023	11:00	0.0	WNW
12-Mar-2023	12:00	0.4	E
12-Mar-2023	13:00	0.0	ENE
12-Mar-2023	14:00	0.0	SSW
12-Mar-2023	15:00	0.4	SW
12-Mar-2023	16:00	0.4	SSW
12-Mar-2023	17:00	0.9	SSW
12-Mar-2023	18:00	0.4	SSW
12-Mar-2023	19:00	0.4	SSW
12-Mar-2023	20:00	0.0	SSW
12-Mar-2023	21:00	0.4	SSW
12-Mar-2023	22:00	0.4	SSW
12-Mar-2023	23:00	0.4	SW
13-Mar-2023	00:00	0.4	SW
13-Mar-2023	01:00	0.4	WSW
13-Mar-2023	02:00	0.4	SW
13-Mar-2023	03:00	0.4	WSW
13-Mar-2023	04:00	0.4	WSW
13-Mar-2023	05:00	0.4	WSW
13-Mar-2023	06:00	0.4	WSW
13-Mar-2023	07:00	0.0	WSW
13-Mar-2023	08:00	0.4	WSW
13-Mar-2023	09:00	0.4	WSW
13-Mar-2023	10:00	0.4	WSW
13-Mar-2023	11:00	0.0	WSW
13-Mar-2023	12:00	0.0	WSW
13-Mar-2023	13:00	0.4	WSW
13-Mar-2023	14:00	0.0	WSW
13-Mar-2023	15:00	0.0	SSW
13-Mar-2023	16:00	0.0	ENE
13-Mar-2023	17:00	0.4	ENE
13-Mar-2023	18:00	0.0	ENE
13-Mar-2023	19:00	0.0	---
13-Mar-2023	20:00	0.0	NW
13-Mar-2023	21:00	0.4	WNW
13-Mar-2023	22:00	0.0	W
13-Mar-2023	23:00	0.0	---
14-Mar-2023	00:00	0.0	W
14-Mar-2023	01:00	0.0	W
14-Mar-2023	02:00	0.0	W
14-Mar-2023	03:00	0.0	WSW
14-Mar-2023	04:00	0.0	WSW
14-Mar-2023	05:00	0.0	WSW
14-Mar-2023	06:00	0.0	WSW
14-Mar-2023	07:00	0.0	WSW
14-Mar-2023	08:00	0.0	WSW
14-Mar-2023	09:00	0.4	WSW
14-Mar-2023	10:00	0.4	NW
14-Mar-2023	11:00	0.4	WSW
14-Mar-2023	12:00	0.4	NW
14-Mar-2023	13:00	0.9	NW
14-Mar-2023	14:00	0.4	NW
14-Mar-2023	15:00	0.0	WSW
14-Mar-2023	16:00	0.0	ENE
14-Mar-2023	17:00	0.9	NW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Mar-2023	18:00	0.0	NW
14-Mar-2023	19:00	0.0	W
14-Mar-2023	20:00	0.0	WNW
14-Mar-2023	21:00	0.0	NW
14-Mar-2023	22:00	0.0	WSW
14-Mar-2023	23:00	0.0	WSW
15-Mar-2023	00:00	0.0	WSW
15-Mar-2023	01:00	0.0	WSW
15-Mar-2023	02:00	0.0	WSW
15-Mar-2023	03:00	0.0	W
15-Mar-2023	04:00	0.0	W
15-Mar-2023	05:00	0.0	W
15-Mar-2023	06:00	0.4	NW
15-Mar-2023	07:00	0.0	WSW
15-Mar-2023	08:00	0.4	WSW
15-Mar-2023	09:00	0.4	WSW
15-Mar-2023	10:00	0.4	WSW
15-Mar-2023	11:00	0.4	SSW
15-Mar-2023	12:00	0.0	SSW
15-Mar-2023	13:00	0.0	WNW
15-Mar-2023	14:00	0.0	SSW
15-Mar-2023	15:00	0.4	E
15-Mar-2023	16:00	1.3	ENE
15-Mar-2023	17:00	1.3	ENE
15-Mar-2023	18:00	0.4	E
15-Mar-2023	19:00	0.0	E
15-Mar-2023	20:00	0.0	---
15-Mar-2023	21:00	0.0	---
15-Mar-2023	22:00	0.0	---
15-Mar-2023	23:00	0.0	SW
16-Mar-2023	00:00	0.0	WNW
16-Mar-2023	01:00	0.0	---
16-Mar-2023	02:00	0.0	W
16-Mar-2023	03:00	0.0	WNW
16-Mar-2023	04:00	0.0	WNW
16-Mar-2023	05:00	0.0	WNW
16-Mar-2023	06:00	0.0	WNW
16-Mar-2023	07:00	0.0	NW
16-Mar-2023	08:00	0.0	NW
16-Mar-2023	09:00	0.0	---
16-Mar-2023	10:00	0.0	WSW
16-Mar-2023	11:00	0.9	WSW
16-Mar-2023	12:00	0.9	WSW
16-Mar-2023	13:00	0.9	WSW
16-Mar-2023	14:00	0.9	WNW
16-Mar-2023	15:00	0.4	WSW
16-Mar-2023	16:00	0.4	WSW
16-Mar-2023	17:00	0.4	WNW
16-Mar-2023	18:00	0.4	W
16-Mar-2023	19:00	0.0	WSW
16-Mar-2023	20:00	0.4	WSW
16-Mar-2023	21:00	0.0	WSW
16-Mar-2023	22:00	0.0	WSW
16-Mar-2023	23:00	0.0	WSW
17-Mar-2023	00:00	0.0	WSW



## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
17-Mar-2023	01:00	0.0	WSW
17-Mar-2023	02:00	0.0	WSW
17-Mar-2023	03:00	0.4	WSW
17-Mar-2023	04:00	0.4	WSW
17-Mar-2023	05:00	0.4	WSW
17-Mar-2023	06:00	0.4	WSW
17-Mar-2023	07:00	0.0	WSW
17-Mar-2023	08:00	0.4	WSW
17-Mar-2023	09:00	0.4	WSW
17-Mar-2023	10:00	0.0	WSW
17-Mar-2023	11:00	0.4	WSW
17-Mar-2023	12:00	0.4	WSW
17-Mar-2023	13:00	0.0	WSW
17-Mar-2023	14:00	0.0	W
17-Mar-2023	15:00	0.4	ENE
17-Mar-2023	16:00	0.9	ENE
17-Mar-2023	17:00	0.4	ENE
17-Mar-2023	18:00	0.0	E
17-Mar-2023	19:00	0.4	WNW
17-Mar-2023	20:00	0.0	WNW
17-Mar-2023	21:00	0.0	WNW
17-Mar-2023	22:00	0.0	W
17-Mar-2023	23:00	0.0	WSW
18-Mar-2023	00:00	0.0	WNW
18-Mar-2023	01:00	0.0	WSW
18-Mar-2023	02:00	0.0	WSW
18-Mar-2023	03:00	0.0	WSW
18-Mar-2023	04:00	0.0	---
18-Mar-2023	05:00	0.0	---
18-Mar-2023	06:00	0.0	---
18-Mar-2023	07:00	0.0	---
18-Mar-2023	08:00	0.0	---
18-Mar-2023	09:00	0.0	---
18-Mar-2023	10:00	0.0	---
18-Mar-2023	11:00	0.4	ENE
18-Mar-2023	12:00	0.4	E
18-Mar-2023	13:00	0.4	E
18-Mar-2023	14:00	0.9	E
18-Mar-2023	15:00	0.4	WSW
18-Mar-2023	16:00	0.4	WSW
18-Mar-2023	17:00	0.4	WSW
18-Mar-2023	18:00	0.9	WSW
18-Mar-2023	19:00	0.4	WSW
18-Mar-2023	20:00	0.4	WSW
18-Mar-2023	21:00	0.9	WSW
18-Mar-2023	22:00	0.9	WSW
18-Mar-2023	23:00	0.4	WSW
19-Mar-2023	00:00	0.4	WSW
19-Mar-2023	01:00	0.4	WSW
19-Mar-2023	02:00	0.4	W
19-Mar-2023	03:00	0.4	WSW
19-Mar-2023	04:00	1.3	WSW
19-Mar-2023	05:00	0.9	WSW
19-Mar-2023	06:00	1.3	WSW
19-Mar-2023	07:00	1.3	WSW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Mar-2023	08:00	1.3	WSW
19-Mar-2023	09:00	0.9	WSW
19-Mar-2023	10:00	0.9	WSW
19-Mar-2023	11:00	0.4	WSW
19-Mar-2023	12:00	1.3	WSW
19-Mar-2023	13:00	0.9	WSW
19-Mar-2023	14:00	0.9	WSW
19-Mar-2023	15:00	0.4	WNW
19-Mar-2023	16:00	0.4	NW
19-Mar-2023	17:00	0.4	WSW
19-Mar-2023	18:00	0.4	WSW
19-Mar-2023	19:00	0.4	WSW
19-Mar-2023	20:00	0.0	WSW
19-Mar-2023	21:00	0.4	WSW
19-Mar-2023	22:00	0.0	WSW
19-Mar-2023	23:00	0.4	WSW
20-Mar-2023	00:00	0.4	WSW
20-Mar-2023	01:00	0.4	WSW
20-Mar-2023	02:00	0.9	WSW
20-Mar-2023	03:00	0.4	WSW
20-Mar-2023	04:00	0.4	WSW
20-Mar-2023	05:00	0.4	WSW
20-Mar-2023	06:00	0.4	WSW
20-Mar-2023	07:00	0.4	WSW
20-Mar-2023	08:00	0.4	WSW
20-Mar-2023	09:00	0.4	WSW
20-Mar-2023	10:00	0.9	WSW
20-Mar-2023	11:00	0.4	WSW
20-Mar-2023	12:00	1.3	WSW
20-Mar-2023	13:00	1.3	WSW
20-Mar-2023	14:00	0.4	WSW
20-Mar-2023	15:00	0.4	WNW
20-Mar-2023	16:00	0.4	WSW
20-Mar-2023	17:00	0.4	WSW
20-Mar-2023	18:00	0.4	NW
20-Mar-2023	19:00	0.0	WNW
20-Mar-2023	20:00	0.0	W
20-Mar-2023	21:00	0.0	WNW
20-Mar-2023	22:00	0.0	WNW
20-Mar-2023	23:00	0.0	WNW
21-Mar-2023	00:00	0.0	NW
21-Mar-2023	01:00	0.0	---
21-Mar-2023	02:00	0.0	WNW
21-Mar-2023	03:00	0.0	WNW
21-Mar-2023	04:00	0.0	NW
21-Mar-2023	05:00	0.0	WNW
21-Mar-2023	06:00	0.4	WNW
21-Mar-2023	07:00	0.0	WNW
21-Mar-2023	08:00	0.0	WSW
21-Mar-2023	09:00	0.0	WNW
21-Mar-2023	10:00	0.0	NW
21-Mar-2023	11:00	0.4	ENE
21-Mar-2023	12:00	0.4	ENE
21-Mar-2023	13:00	0.4	ENE
21-Mar-2023	14:00	0.4	NE

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Mar-2023	15:00	0.0	ENE
21-Mar-2023	16:00	0.0	ENE
21-Mar-2023	17:00	0.0	NE
21-Mar-2023	18:00	0.0	NNW
21-Mar-2023	19:00	0.0	ENE
21-Mar-2023	20:00	0.0	ENE
21-Mar-2023	21:00	0.0	NE
21-Mar-2023	22:00	0.0	ENE
21-Mar-2023	23:00	0.0	ENE
22-Mar-2023	00:00	0.4	ENE
22-Mar-2023	01:00	0.4	ENE
22-Mar-2023	02:00	0.0	ENE
22-Mar-2023	03:00	0.0	ENE
22-Mar-2023	04:00	0.0	ENE
22-Mar-2023	05:00	0.0	ENE
22-Mar-2023	06:00	0.0	ENE
22-Mar-2023	07:00	0.0	E
22-Mar-2023	08:00	0.0	ENE
22-Mar-2023	09:00	0.4	ENE
22-Mar-2023	10:00	0.4	ENE
22-Mar-2023	11:00	0.0	ENE
22-Mar-2023	12:00	0.0	ENE
22-Mar-2023	13:00	0.0	ENE
22-Mar-2023	14:00	0.0	NE
22-Mar-2023	15:00	0.0	ENE
22-Mar-2023	16:00	0.0	ENE
22-Mar-2023	17:00	0.0	ENE
22-Mar-2023	18:00	0.0	ENE
22-Mar-2023	19:00	0.0	NE
22-Mar-2023	20:00	0.0	ENE
22-Mar-2023	21:00	0.0	ENE
22-Mar-2023	22:00	0.0	ENE
22-Mar-2023	23:00	0.0	ENE
23-Mar-2023	00:00	0.0	ENE
23-Mar-2023	01:00	0.0	E
23-Mar-2023	02:00	0.0	ENE
23-Mar-2023	03:00	0.0	NNW
23-Mar-2023	04:00	0.0	NE
23-Mar-2023	05:00	0.0	---
23-Mar-2023	06:00	0.0	NE
23-Mar-2023	07:00	0.0	ENE
23-Mar-2023	08:00	0.0	ENE
23-Mar-2023	09:00	0.0	ENE
23-Mar-2023	10:00	0.4	NE
23-Mar-2023	11:00	0.4	ENE
23-Mar-2023	12:00	0.4	ENE
23-Mar-2023	13:00	0.4	ENE
23-Mar-2023	14:00	0.9	ENE
23-Mar-2023	15:00	0.4	ENE
23-Mar-2023	16:00	0.0	ENE
23-Mar-2023	17:00	0.4	ENE
23-Mar-2023	18:00	0.0	ENE
23-Mar-2023	19:00	0.0	NE
23-Mar-2023	20:00	0.0	NNW
23-Mar-2023	21:00	0.0	ENE

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Mar-2023	22:00	0.0	NE
23-Mar-2023	23:00	0.0	NW
24-Mar-2023	00:00	0.0	WNW
24-Mar-2023	01:00	0.0	NNW
24-Mar-2023	02:00	0.0	NNE
24-Mar-2023	03:00	0.0	NW
24-Mar-2023	04:00	0.0	WNW
24-Mar-2023	05:00	0.0	NW
24-Mar-2023	06:00	0.0	WNW
24-Mar-2023	07:00	0.0	NW
24-Mar-2023	08:00	0.0	---
24-Mar-2023	09:00	0.0	WNW
24-Mar-2023	10:00	0.0	E
24-Mar-2023	11:00	0.4	WSW
24-Mar-2023	12:00	0.0	WSW
24-Mar-2023	13:00	0.0	WNW
24-Mar-2023	14:00	0.4	WNW
24-Mar-2023	15:00	0.4	ENE
24-Mar-2023	16:00	0.4	NE
24-Mar-2023	17:00	0.0	ENE
24-Mar-2023	18:00	0.0	NW
24-Mar-2023	19:00	0.0	W
24-Mar-2023	20:00	0.0	W
24-Mar-2023	21:00	0.0	WNW
24-Mar-2023	22:00	0.0	W
24-Mar-2023	23:00	0.0	W
25-Mar-2023	00:00	0.0	WNW
25-Mar-2023	01:00	0.0	WNW
25-Mar-2023	02:00	0.0	WNW
25-Mar-2023	03:00	0.9	NW
25-Mar-2023	04:00	0.0	NW
25-Mar-2023	05:00	0.0	WNW
25-Mar-2023	06:00	0.0	WNW
25-Mar-2023	07:00	0.0	WSW
25-Mar-2023	08:00	0.0	WSW
25-Mar-2023	09:00	0.4	WSW
25-Mar-2023	10:00	0.4	WSW
25-Mar-2023	11:00	0.9	WSW
25-Mar-2023	12:00	0.9	WSW
25-Mar-2023	13:00	0.4	WSW
25-Mar-2023	14:00	0.4	WNW
25-Mar-2023	15:00	0.0	WNW
25-Mar-2023	16:00	0.0	WSW
25-Mar-2023	17:00	0.9	WSW
25-Mar-2023	18:00	0.9	WSW
25-Mar-2023	19:00	0.4	W
25-Mar-2023	20:00	0.4	WSW
25-Mar-2023	21:00	0.9	WSW
25-Mar-2023	22:00	0.4	NW
25-Mar-2023	23:00	0.0	WSW
26-Mar-2023	00:00	0.0	WSW
26-Mar-2023	01:00	0.9	W
26-Mar-2023	02:00	0.4	WSW
26-Mar-2023	03:00	0.4	WSW
26-Mar-2023	04:00	0.0	WSW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
26-Mar-2023	05:00	0.0	W
26-Mar-2023	06:00	0.4	WSW
26-Mar-2023	07:00	0.0	WSW
26-Mar-2023	08:00	0.4	WSW
26-Mar-2023	09:00	0.4	WNW
26-Mar-2023	10:00	0.4	WNW
26-Mar-2023	11:00	0.0	---
26-Mar-2023	12:00	0.0	WSW
26-Mar-2023	13:00	0.0	WSW
26-Mar-2023	14:00	0.0	WSW
26-Mar-2023	15:00	0.0	WSW
26-Mar-2023	16:00	0.0	WSW
26-Mar-2023	17:00	0.0	WSW
26-Mar-2023	18:00	0.0	WSW
26-Mar-2023	19:00	0.0	SSW
26-Mar-2023	20:00	0.0	SW
26-Mar-2023	21:00	0.0	W
26-Mar-2023	22:00	0.0	WSW
26-Mar-2023	23:00	0.0	WSW
27-Mar-2023	00:00	0.0	WSW
27-Mar-2023	01:00	0.0	WSW
27-Mar-2023	02:00	0.0	WSW
27-Mar-2023	03:00	0.0	WSW
27-Mar-2023	04:00	0.0	WSW
27-Mar-2023	05:00	0.4	WSW
27-Mar-2023	06:00	0.0	WSW
27-Mar-2023	07:00	0.0	WSW
27-Mar-2023	08:00	0.9	WSW
27-Mar-2023	09:00	0.4	WSW
27-Mar-2023	10:00	0.9	WSW
27-Mar-2023	11:00	0.9	WSW
27-Mar-2023	12:00	0.4	WSW
27-Mar-2023	13:00	0.4	WSW
27-Mar-2023	14:00	0.0	WSW
27-Mar-2023	15:00	0.0	WSW
27-Mar-2023	16:00	0.0	WSW
27-Mar-2023	17:00	0.0	WSW
27-Mar-2023	18:00	0.0	WSW
27-Mar-2023	19:00	0.0	WSW
27-Mar-2023	20:00	0.4	WSW
27-Mar-2023	21:00	0.0	WSW
27-Mar-2023	22:00	0.4	WSW
27-Mar-2023	23:00	0.0	SW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Mar-2023	00:00	0.0	SSW
28-Mar-2023	01:00	0.0	WSW
28-Mar-2023	02:00	0.0	WSW
28-Mar-2023	03:00	0.0	WSW
28-Mar-2023	04:00	0.0	WSW
28-Mar-2023	05:00	0.0	WSW
28-Mar-2023	06:00	0.0	WSW
28-Mar-2023	07:00	0.0	WSW
28-Mar-2023	08:00	0.0	WSW
28-Mar-2023	09:00	0.4	WSW
28-Mar-2023	10:00	0.9	WSW
28-Mar-2023	11:00	0.4	WSW
28-Mar-2023	12:00	0.4	WSW
28-Mar-2023	13:00	0.4	WSW
28-Mar-2023	14:00	0.0	WSW
28-Mar-2023	15:00	0.4	WSW
28-Mar-2023	16:00	0.0	WSW
28-Mar-2023	17:00	0.0	W
28-Mar-2023	18:00	0.0	WSW
28-Mar-2023	19:00	0.0	W
28-Mar-2023	20:00	0.0	WSW
28-Mar-2023	21:00	0.0	WSW
28-Mar-2023	22:00	0.0	WSW
28-Mar-2023	23:00	0.0	WSW
29-Mar-2023	00:00	0.0	---
29-Mar-2023	01:00	0.0	WSW
29-Mar-2023	02:00	0.0	WSW
29-Mar-2023	03:00	0.9	WSW
29-Mar-2023	04:00	0.4	WSW
29-Mar-2023	05:00	0.4	WSW
29-Mar-2023	06:00	0.4	WSW
29-Mar-2023	07:00	0.9	WSW
29-Mar-2023	08:00	0.9	WSW
29-Mar-2023	09:00	0.9	WSW
29-Mar-2023	10:00	0.9	WSW
29-Mar-2023	11:00	0.9	WSW
29-Mar-2023	12:00	1.3	WSW
29-Mar-2023	13:00	0.9	WSW
29-Mar-2023	14:00	0.4	WSW
29-Mar-2023	15:00	0.4	WSW
29-Mar-2023	16:00	0.4	WSW
29-Mar-2023	17:00	0.0	W
29-Mar-2023	18:00	0.4	WSW
29-Mar-2023	19:00	0.0	WNW
29-Mar-2023	20:00	0.0	WNW
29-Mar-2023	21:00	0.0	NW
29-Mar-2023	22:00	0.0	WSW
29-Mar-2023	23:00	0.0	WSW
30-Mar-2023	00:00	0.0	WSW
30-Mar-2023	01:00	0.0	SW
30-Mar-2023	02:00	0.0	---
30-Mar-2023	03:00	0.0	---
30-Mar-2023	04:00	0.0	WSW
30-Mar-2023	05:00	0.0	W
30-Mar-2023	06:00	0.0	WSW

## Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Mar-2023	07:00	0.0	WSW
30-Mar-2023	08:00	0.0	WSW
30-Mar-2023	09:00	0.0	WSW
30-Mar-2023	10:00	0.0	WSW
30-Mar-2023	11:00	0.0	W
30-Mar-2023	12:00	0.0	WSW
30-Mar-2023	13:00	0.4	WSW
30-Mar-2023	14:00	0.0	WSW
30-Mar-2023	15:00	0.0	W
30-Mar-2023	16:00	0.0	WSW
30-Mar-2023	17:00	0.0	WSW
30-Mar-2023	18:00	0.0	WSW
30-Mar-2023	19:00	0.0	WNW
30-Mar-2023	20:00	0.0	WSW
30-Mar-2023	21:00	0.0	W
30-Mar-2023	22:00	0.0	WSW
30-Mar-2023	23:00	0.0	WSW
31-Mar-2023	00:00	0.0	WSW
31-Mar-2023	01:00	0.0	WSW
31-Mar-2023	02:00	0.0	WSW
31-Mar-2023	03:00	0.4	WSW
31-Mar-2023	04:00	0.0	WSW
31-Mar-2023	05:00	0.0	WSW
31-Mar-2023	06:00	0.0	WSW
31-Mar-2023	07:00	0.0	WSW
31-Mar-2023	08:00	0.0	WSW
31-Mar-2023	09:00	0.0	WSW
31-Mar-2023	10:00	0.4	WSW
31-Mar-2023	11:00	0.4	WSW
31-Mar-2023	12:00	1.3	WSW
31-Mar-2023	13:00	0.9	WSW
31-Mar-2023	14:00	1.3	WSW
31-Mar-2023	15:00	0.4	WSW
31-Mar-2023	16:00	0.9	WSW
31-Mar-2023	17:00	0.4	WSW
31-Mar-2023	18:00	0.4	WSW
31-Mar-2023	19:00	0.9	WSW
31-Mar-2023	20:00	0.4	WSW
31-Mar-2023	21:00	0.9	WSW
31-Mar-2023	22:00	0.9	WSW
31-Mar-2023	23:00	0.4	WSW

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**APPENDIX J**  
**EVENT ACTION PLANS**

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**Appendix J Event / Action Plan for Air Quality**

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>ACTION LEVEL</b>				
1. Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC, ER and Contractor;</li> <li>3. Repeat measurement to confirm finding; and</li> <li>4. Increase monitoring frequency to daily.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method; and</li> <li>3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify Contractor.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Rectify any unacceptable practice and implement remedial measures; and</li> <li>3. Amend working methods agreed with ER if appropriate.</li> </ol>
2. Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform IEC, ER and Contractor;</li> <li>3. Advise the ER and Contractor on the effectiveness of the proposed remedial measures;</li> <li>4. Repeat measurements to confirm findings;</li> <li>5. Increase monitoring frequency to daily;</li> <li>6. Discuss with IEC, ER and Contractor on remedial actions required;</li> <li>7. If exceedance continues, arrange meeting with IEC and ER; and</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET and Contractor on possible remedial measures;</li> <li>4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and</li> <li>5. Supervise Implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor; and</li> <li>3. Supervise and ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures</li> <li>2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals; and</li> <li>4. Amend proposal if appropriate.</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
<b>LIMIT LEVEL</b>				
1.Exceedance for one sample	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Inform ER, Contractor, IEC and EPD;</li> <li>3. Repeat measurement to confirm finding;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss with ET, ER and Contractor on possible remedial measures;</li> <li>4. Advise the ER and ET on the effectiveness of the proposed remedial measures;</li> <li>5. Supervise implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor; and</li> <li>3. Supervise and ensure remedial measures properly implemented.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification;</li> <li>4. Implement the agreed proposals; and</li> <li>5. Amend proposal if appropriate.</li> </ol>
2.Exceedance for two or more consecutive samples	<ol style="list-style-type: none"> <li>1. Notify IEC, ER, Contractor and EPD;</li> <li>2. Identify source;</li> <li>3. Repeat measurement to confirm findings;</li> <li>4. Increase monitoring frequency to daily;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> </ol>	<ol style="list-style-type: none"> <li>1. Check monitoring data submitted by ET;</li> <li>2. Check Contractor's working method;</li> <li>3. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and</li> <li>5. Supervise the implementation</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented;</li> <li>4. Supervise and ensure remedial measures properly implemented; and</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source, investigate the causes of exceedance and propose remedial measures;</li> <li>2. Take immediate action to avoid further exceedance;</li> <li>3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification;</li> <li>4. Implement the agreed proposals;</li> <li>5. Resubmit proposals if problem still not under control;</li> </ol>

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	8. If exceedance stops, cease additional monitoring.	of remedial measures.	Contractor to stop that portion of work until the exceedance is abated.	6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

## Event / Action Plan for Construction Noise

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action Level	<ol style="list-style-type: none"> <li>1. Notify IEC, ER and Contractor;</li> <li>2. Carry out investigation;</li> <li>3. Report the results of investigation to the IEC, ER and Contractor;</li> <li>4. Discuss with the Contractor and formulate remedial measures;</li> <li>5. Increase monitoring frequency to check mitigation effectiveness.</li> </ol>	<ol style="list-style-type: none"> <li>1. Review the analysed results submitted by the ET;</li> <li>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures are properly implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Submit noise mitigation proposals to IEC and ER;</li> <li>2. Implement noise mitigation proposals.</li> </ol>
Limit Level	<ol style="list-style-type: none"> <li>1. Identify source;</li> <li>2. Inform IEC, ER, EPD and Contractor;</li> <li>3. Repeat measurements to confirm findings;</li> <li>4. Increase monitoring frequency;</li> <li>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</li> <li>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</li> <li>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</li> <li>8. If exceedance stops, cease additional monitoring.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</li> <li>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</li> <li>3. Supervise the implementation of remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of failure in writing;</li> <li>2. Notify Contractor;</li> <li>3. Require Contractor to propose remedial measures for the analysed noise problem;</li> <li>4. Ensure remedial measures properly implemented;</li> <li>5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.</li> </ol>	<ol style="list-style-type: none"> <li>1. Take immediate action to avoid further exceedance;</li> <li>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</li> <li>3. Implement the agreed proposals;</li> <li>4. Resubmit proposals if problem still not under control;</li> <li>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</li> </ol>

## Event and Action Plan for Water Quality

	<b>Action</b>			
<b>Event</b>	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>Contractor</b>
Action level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Inform IEC, Contractor and ER;</li> <li>2. Check monitoring data, all plant, equipment and Contractor's working methods; and</li> <li>3. Discuss remedial measures with IEC and Contractor and ER.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, ER and Contractor on the implemented mitigation measures;</li> <li>2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with IEC, ET and Contractor on the implemented mitigation measures;</li> <li>2. Make agreement on the remedial measures to be implemented;</li> <li>3. Supervise the implementation of agreed remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>3. Rectify unacceptable practice;</li> <li>4. Check all plant and equipment;</li> <li>5. Consider changes of working methods;</li> <li>6. Discuss with ER, ET and IEC and purpose remedial measures to IEC and ER; and</li> <li>7. Implement the agreed mitigation measures.</li> </ol>
Action level being exceeded by two or more consecutive sampling days	<ol style="list-style-type: none"> <li>1. Repeat in-situ measurement on next day of exceedance to confirm findings;</li> <li>2. Inform IEC, contractor and ER;</li> <li>3. Check monitoring data, all plant, equipment and Contractor's working methods;</li> <li>4. Discuss remedial measures with IEC, contractor and ER</li> <li>5. Ensure remedial measures are implemented</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, Contractor and ER on the implemented mitigation measures;</li> <li>2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and</li> <li>3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, IEC and Contractor on the proposed mitigation measures;</li> <li>2. Make agreement on the remedial measures to be implemented; and</li> <li>3. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Inform the ER and confirm notification of the non-compliance in writing;</li> <li>3. Rectify unacceptable practice;</li> <li>4. Check all plant and equipment and consider changes of working methods;</li> <li>5. Discuss with ET, IEC and ER and submit proposal of remedial measures to ER and IEC within 3 working days of notification; and</li> <li>6. Implement the agreed mitigation measures.</li> </ol>
Limit level being exceeded by one sampling day	<ol style="list-style-type: none"> <li>1. Repeat measurement on next day of exceedance to confirm findings;</li> <li>2. Inform IEC, contractor and ER;</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, Contractor and ER on the implemented mitigation measures;</li> </ol>	<ol style="list-style-type: none"> <li>1. Discuss with ET, IEC and Contractor on the implemented remedial measures;</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source(s) of impact;</li> <li>2. Inform the ER and confirm notification of the non-compliance in writing;</li> </ol>

	<b>Action</b>			
<b>Event</b>	<b>ET</b>	<b>IEC</b>	<b>ER</b>	<b>Contractor</b>
	3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and Contractor's working methods; 5. Consider changes of working methods; 6. Discuss mitigation measures with IEC, ER and Contractor; and 7. Ensure the agreed remedial measures are implemented	2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Discuss with ET, IEC and Contractor on the effectiveness of the implemented remedial measures.	3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed remedial measures.
Limit level being exceeded by two or more consecutive sampling days	1. Inform IEC, contractor and ER; 2. Check monitoring data, all plant, equipment and Contractor's working methods; 3. Discuss mitigation measures with IEC, ER and Contractor; and 4. Ensure mitigation measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit Level for two consecutive days	1. Discuss with ET, Contractor and ER on the implemented mitigation measures; 2. Review the proposed remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER on the effectiveness of the implemented mitigation measures.	1. Discuss with ET, IEC and Contractor on the implemented remedial measures; 2. Request Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with ET and IEC on the effectiveness of the implemented mitigation measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the dredging activities until no exceedance of Limit level.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment and consider changes of working methods; 5. Discuss with ET, IEC and ER and submit proposal of additional mitigation measures to ER and IEC within 3 working days of notification; and 6. Implement the agreed remedial measures. 7. As directed by the ER, to slow down or stop all or part of the dredging activities until no exceedance of Limit level.

## Event / Action Plan for Landscape and Visual during construction phase

Event	Action			
	ET	IEC	ER	Contractor
Non-conformity on one occasion	<ol style="list-style-type: none"> <li>1. Inform the Contractor, IEC and ER</li> <li>2. Discuss remedial actions with IEC, ER and Contractor</li> <li>3. Monitor remedial actions until rectification has been completed</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check Contractor's working method</li> <li>3. Discuss with ET, ER and Contractor on possible remedial measures</li> <li>4. Advise ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Confirm receipt of notification of non-conformity in writing</li> <li>2. Review and agree on the remedial measures proposed by the Contractor</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement</li> </ol>
Repeated Non-conformity	<ol style="list-style-type: none"> <li>1. Identify source(s)</li> <li>2. Inform Contractor, IEC and ER</li> <li>3. Discuss inspection frequency</li> <li>4. Discuss remedial actions with IEC, ER and Contractor</li> <li>5. Monitor remedial actions until rectification has been completed</li> <li>6. If non-conformity stops, cease additional monitoring</li> </ol>	<ol style="list-style-type: none"> <li>1. Check inspection report</li> <li>2. Check Contractor's working method</li> <li>3. Discuss with ET, ER and Contractor on possible remedial measures</li> <li>4. Advise ER on effectiveness of proposed remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Notify the Contractor</li> <li>2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented</li> <li>3. Supervise implementation of remedial measures</li> </ol>	<ol style="list-style-type: none"> <li>1. Identify source and investigate the non-conformity</li> <li>2. Implement remedial measures</li> <li>3. Amend working methods agreed with ER as appropriate</li> <li>4. Rectify damage and undertake any necessary replacement. Stop relevant portion of works as determined by ER until the non-conformity is abated.</li> </ol>

Abbreviations: ET – Environmental Team, IEC – Independent Environmental Checker, ER – Engineer's Representative

Each step of actions required shall be implemented within 1 working day unless otherwise specified or agreed with EPD.

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**APPENDIX K**  
**SUMMARY OF EXCEEDANCE**

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**Appendix K Exceedance Report**

**(A) Exceedance Report for Air Quality**

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Air Quality	1-hr TSP	0	0	0	0
	24-hr TSP	0	0	0	0

**(B) Exceedance Report for Construction Noise**

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Noise	L <sub>eq</sub> (30 min.) dB(A)	1	0	0	0

**(C) Exceedance Report for Water Quality**

Environmental Monitoring	Parameter	No. of non-project related Exceedance		No. of Exceedance related to the Construction Activities of the Project	
		Action Level	Limit Level	Action Level	Limit Level
Water Quality	Dissolved Oxygen (DO)	0	0	0	0
	Turbidity	0	0	0	0
	Suspended Solids (SS)	0	0	0	0

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**APPENDIX L**  
**SITE AUDIT SUMMARY**

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**Contract No. YL/2020/01 - Development of Lok Ma Chau  
Loop: Main Works Package 1 – Contract 1 Site Formation  
and Infrastructure Works inside Lok Ma Chau Loop and  
Western Connection Road Phase 1**

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western  
Connection Road Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230301
Date	1 March 2023 (Wednesday)
Time	10:45 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	Follow-up on previous audit section (Ref. No.: 230222), all major environmental deficiency had been rectified/ improved by the Contractors..	

	Name	Signature	Date
Recorded by	Adrian Lam		4 March 2023
Checked by	Dr. Priscilla Choy		4 March 2023

Service Contract No. WD/04/2020

**Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team**



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western  
Connection Road Phase 1**

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	230308
Date	8 March 2023 (Wednesday)
Time	09:45 – 10:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>C. Noise</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>D. Water Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>E. Waste / Chemical Management</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>F. Land Contamination</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>G. Landscape and Visual</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>H. Ecology</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>I. Fisheries</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>J. Permits/Licences</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>K. Others</b>	
	Follow-up on previous audit section (Ref. No.: 230301), no major environmental deficiency was identified during site inspection..	

	Name	Signature	Date
Recorded by	Adrian Lam		9 March 2023
Checked by	Dr. Priscilla Choy		9 March 2023

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western  
Connection Road Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230315
Date	15 March 2023 (Wednesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
230315-R01	<ul style="list-style-type: none"><li>Green nets used to cover the stockpile at Box Culvert A should be replaced by impermeable tarpaulin sheets.</li></ul>	B 2
	<b>C. Noise</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>D. Water Quality</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>E. Waste / Chemical Management</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>F. Land Contamination</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>G. Landscape and Visual</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>H. Ecology</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>I. Fisheries</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>J. Permits/Licences</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>K. Others</b>	
	Follow-up on previous audit section (Ref. No.: 230308), no major environmental deficiency was identified during site inspection..	

	Name	Signature	Date
Recorded by	Adrian Lam		16 March 2023
Checked by	Dr. Priscilla Choy		16 March 2023

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western  
Connection Road Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230322
Date	22 March 2023 (Wednesday)
Time	14:00 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
230322-R02	<ul style="list-style-type: none"><li>The dusty stockpile at Box Culvert C should be covered with impervious tarpaulin sheets.</li></ul>	B 2
	<b>C. Noise</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>D. Water Quality</b>	
230322-R01	<ul style="list-style-type: none"><li>Exposed slopes at pond 5 shall be covered with tarpaulin sheets.</li></ul>	D 8
	<b>E. Waste / Chemical Management</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>F. Land Contamination</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>G. Landscape and Visual</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>H. Ecology</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>I. Fisheries</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>J. Permits/Licences</b>	
	<ul style="list-style-type: none"><li>No environmental deficiency was identified during site inspection.</li></ul>	
	<b>K. Others</b>	
	Follow-up on previous audit section (Ref. No.: 230315), all environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Adrian Lam		25 March 2023
Checked by	Dr. Priscilla Choy		25 March 2023

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western  
Connection Road Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230329
Date	29 March 2023 (Wednesday)
Time	14:00 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	Follow-up on previous audit section (Ref. No.: 230322), all environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Adrian Lam		30 March 2023
Checked by	Dr. Priscilla Choy		30 March 2023



**Contract No. YL/2020/02 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 2 Western**

**Connection Road Phase 2, Connection Roads to Fanling /**

**San Tin Highway and Direct Road Link Phase 1**

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230301
Date	1 March 2023 (Wednesday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
230301-R02	<ul style="list-style-type: none"> <li>To ensure vehicles leave the site at Reed Bed 3A without debris of dirt with wheel-washing facilities, and clear the dusty debris outside the site exit of Reed Bed 3A</li> </ul>	B 9
	<b>C. Noise</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>D. Water Quality</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>E. Waste / Chemical Management</b>	
230301-R01	<ul style="list-style-type: none"> <li>To provide drip trays for chemical storages at CS1 and LCS.</li> </ul>	E 13
	<b>F. Land Contamination</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>G. Landscape and Visual</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>H. Ecology</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>I. Fisheries</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>J. Permits/Licences</b>	
	<ul style="list-style-type: none"> <li>No environmental deficiency was identified during site inspection.</li> </ul>	
	<b>K. Others</b>	
	<ul style="list-style-type: none"> <li>Follow-up on previous audit section (Ref. No.: 230222), all major environmental deficiency were rectified/ improved by the Contractor.</li> </ul>	

	Name	Signature	Date
Recorded by	Adrian Lam		6 March 2023
Checked by	Dr. Priscilla Choy		6 March 2023

**Service Contract No. WD/04/2020**

**Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team**



**Contract No. YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway  
and Direct Road Link Phase 1**

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	230308
Date	8 March 2023 (Wednesday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230301), all major environmental deficiency were rectified/ improved by the Contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		13 March 2023
Checked by	Dr. Priscilla Choy		13 March 2023

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway  
and Direct Road Link Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230315
Date	15 March 2023 (Wednesday)
Time	09:30 – 11:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
230315-R01	• The idle stockpiles of dusty materials should be covered entirely with impervious tarpaulin sheet at TAR1	B 2
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
230315-R03	• To further clear the muddy blockage at the perimeter cut-off drain at CS1.	D 2
230315-R04	• To enhance the water mitigation measure at the sloped opening at site boundary of LCS.	D 4
	<b>E. Waste / Chemical Management</b>	
230315-R02	• To clear the existing oil leakage and avoid further leakage from the air compressor at CS1 and the hammer drill at LCS.	E 12
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230308), no major environmental deficiency was identified during site inspection..	

	Name	Signature	Date
Recorded by	Adrian Lam		16 March 2023
Checked by	Dr. Priscilla Choy		16 March 2023

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team



Contract No. YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway  
and Direct Road Link Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230322
Date	22 March 2023 (Wednesday)
Time	09:30 – 11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
230322-R01	• The idle stockpiles of dusty materials should be covered entirely with impervious tarpaulin sheet at TAR1.	B 2
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
230322-R02	• To enhance water mitigation measures around existing drainage at Reed Bed 3.	D 1, 4
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230315), follow-up actions were required for item 230315-R01, which was remarked as 230322-R01.	

	Name	Signature	Date
Recorded by	Adrian Lam		25 March 2023
Checked by	Dr. Priscilla Choy		25 March 2023

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team

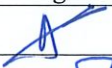

Contract No. YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 –  
Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway  
and Direct Road Link Phase 1

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230329
Date	29 March 2023 (Wednesday)
Time	09:30 – 12:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230322), all major environmental deficiency were rectified/improved by the Contractors.	

	Name	Signature	Date
Recorded by	Adrian Lam		30 March 2023
Checked by	Dr. Priscilla Choy		30 March 2023

**Contract No. YL/2021/01 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 3 Direct Road**

**Link Phase 2**

Service Contract No. WD/04/2020

Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team

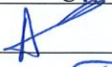

Contract No. YL/2021/01 – Direct Road Link Phase 2

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230306
Date	6 March 2023 (Monday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
230306-R01	• To provide further noise mitigation measures at EEAA.	C 8
	<b>D. Water Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230227), all environmental deficiency have been rectified/ improved by the Contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		7 March, 2023
Checked by	Dr. Priscilla Choy		7 March, 2023

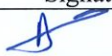
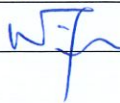


**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	230313
Date	13 March 2023 (Monday)
Time	14:00 – 14:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
230313-R01	• To enhance water mitigation measure for the stockpile of soil next to the site boundary of EEAA.	D 4
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230306), all environmental deficiency have been rectified/ improved by the Contractor.	


	Name	Signature	Date
Recorded by	Adrian Lam		16 March, 2023
Checked by	Dr. Priscilla Choy		16 March, 2023

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	230320
Date	20 March 2023 (Monday)
Time	14:00 – 14:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b><i>B. Air Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>C. Noise</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>D. Water Quality</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>E. Waste / Chemical Management</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>F. Land Contamination</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>G. Landscape and Visual</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>H. Ecology</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>I. Fisheries</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>J. Permits/Licences</i></b>	
	• No environmental deficiency was identified during site inspection.	
	<b><i>K. Others</i></b>	
	• Follow-up on previous audit section (Ref. No.: 230313) all environmental deficiency have been rectified/ improved by the Contractor.	



	Name	Signature	Date
Recorded by	Adrian Lam		21 March, 2023
Checked by	Dr. Priscilla Choy		21 March, 2023

**Weekly Site Inspection Record Summary**

**Inspection Information**

Checklist Reference Number	230327
Date	27 March 2023 (Monday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<b>B. Air Quality</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>C. Noise</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>D. Water Quality</b>	
230327-R01	• The silt retention pond should be properly connected to the wetsep for treatment at EEAA.	D4
	<b>E. Waste / Chemical Management</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>F. Land Contamination</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>G. Landscape and Visual</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>H. Ecology</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>I. Fisheries</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>J. Permits/Licences</b>	
	• No environmental deficiency was identified during site inspection.	
	<b>K. Others</b>	
	• Follow-up on previous audit section (Ref. No.: 230320), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		27 March 2023
Checked by	Dr. Priscilla Choy		27 March 2023

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**APPENDIX M  
ENVIRONMENTAL MITIGATION  
IMPLEMENTATION SCHEDULE (EMIS)**

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EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
<b>Construction Dust Impact</b>							
S3.8	D1-DP 1/DP2/ DP3	Mitigation measures in form of regular watering under a good site practice should be adopted. Watering once per hour on exposed worksites and haul road is proposed to achieve dust removal efficiency of 92.1%. While the above watering frequencies are to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.6 L/m <sup>2</sup> to achieve the respective dust removal efficiencies	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	^
S3.8	D2-DP 1/DP2/ DP3	The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation <ul style="list-style-type: none"> <li>• All vehicles shall be shut down in intermittent use</li> <li>• Only well-maintained plant should be operated on-site to avoid emission of dark smoke</li> <li>• Valid No-Road Mobile Machinery (NRMM) labels should be provided to regulated machines</li> </ul>	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	^ ^ ^
S3.8	D2-DP 1/DP2/ DP3	<ul style="list-style-type: none"> <li>• Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction Phase</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty material do not leak from</li> </ul>	Minimize dust impact at the nearby sensitive receivers	Contractor	All construction sites	Construction stage	^ * ^ ^ *



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		impervious sheeting or placed in an area sheltered on the top and the 3 sides; <ul style="list-style-type: none"> <li>• Cement or dry PFA delivered in bulk should be stored in a closed silo fitted with an audible high level alarm which is interlocked with the material filling line and no overfilling is allowed;</li> <li>• Loading, unloading, transfer, handling or storage of bulk cement or dry PFA should be carried out in a totally enclosed system or facility, and any vent or exhaust should be fitted with an effective fabric filter or equivalent air pollution control system; and</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies.</li> </ul>					N/A  N/A  ^
S3.8	D4-DP 1/DP2/ DP3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	^
<b>Construction Noise Impact</b>							
S4.8	N-CP1-DP1/D P2/DP3	Implement the following good site management practices: <ul style="list-style-type: none"> <li>• Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme;</li> <li>• Machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum;</li> <li>• Plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; silencers or mufflers on construction</li> </ul>	Control construction airborne noise	Contractor	All construction sites	Construction stage	^  ^  ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>equipment should be properly fitted and maintained during the construction works;</p> <ul style="list-style-type: none"> <li>• Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.</li> </ul>					<p>^</p> <p>^</p>
S4.8	N-CP2-DP1/D P2/DP3	Install temporary site hoarding (approx 2.4m high) located on the site boundaries between noisy construction activities and NSRs. The conditions of the hoardings shall be properly maintained throughout the construction period.	Reduce the construction noise levels at low-level zone of NSRs through partial screening.	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP3-DP1/D P2/DP3	Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator.	Screen the noisy plant items to be used at all construction sites	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP4-DP1/D P2/DP3	Use of "Quiet" Plant and Working Methods	Reduce the noise levels of plant items	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP5-DP1/D P2/DP3	Sequencing operation of construction plants where practicable.	Operate sequentially within the same work site to reduce the construction airborne noise	Contractor	All construction sites where practicable	Construction phase	^
S4.8	N-CP6-DP2	Setting the concrete lorry mixer at around 25m away from the existing NSRs along Ha Wan Tsuen Road and Lok Ma Chau Road	Reduce the noise levels from concrete lorry mixer	Contractor	Sections with NSRs along Ha Wan Tsuen Road and Lok	Construction phase	^



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
					Ma Chau Road		
S4.8	N-CP8-DP2	Provide temporary noise barrier during construction phase.	Control airborne noise from construction access road traffic	Contractor	Refer to Figure 4-8 of the EIA report	Construction phase	*
S4.8	N-CP7-DP2/N-CP6-D P1/N-C P6-DP3	Implement a noise monitoring under EM&A programme.	Monitor the construction noise levels at the selected representative locations	Contractor	Selected representative noise monitoring station	Construction phase	^
<b>Water Quality Impact (Construction Phase)</b>							
S5.7	W1-CP-DP1/D P2/DP3	<p>Construction Runoff and Site Drainage</p> <p>In accordance with the Practice Note for Professional Persons on Construction Site Drainage, Environmental Protection Department, 1994 (ProPECC PN 1/94), construction phase mitigation measures, where appropriate, should include the following:</p> <ul style="list-style-type: none"> <li>Update and implementation of Stormwater Pollution Control Plan</li> <li>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> </ul>	Minimize water quality impact from construction site runoff and general construction activities	Contractor	All construction sites where practicable	Construction phase	^ *

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>• Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff. Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m3 capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.</li> <li>• The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a silt/sediment trap. The silt/sediment traps should be incorporated in the permanent drainage channels to enhance deposition rates.</li> <li>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.</li> <li>• Construction works should be programmed to minimize surface excavation works during the rainy seasons (April to September). All exposed earth areas should be completed and vegetated as soon as possible after earthworks have been completed. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed</li> </ul>					<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>slope surfaces should be covered by tarpaulin or other means.</p> <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 following rainstorms. Deposited silt and grit should be removed regularly and disposed of by spreading evenly over stable, vegetated areas.</li> <li>• Measures should be taken to minimise the ingress of site drainage into excavations. If the excavation of trenches in wet periods is necessary, it should be dug and backfilled in short sections wherever practicable. Water pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.</li> <li>• All open stockpiles of construction materials (for example, aggregates, sand and fill material) of should be covered with tarpaulin or similar fabric during rainstorms. Measures should be taken to prevent the washing away of construction materials, soil, silt or debris into any drainage system.</li> <li>• Manholes (including newly constructed ones) should always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris being washed into the drainage system and storm runoff being directed into foul sewers.</li> <li>• Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecasted, and actions to be taken during or after rainstorms are summarized in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events.</li> </ul>					<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<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 facilities should be provided at every construction site exit where practicable. Wash-water should have sand and silt settled out and removed at least on a weekly basis 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 wheelwash bay to prevent vehicle tracking of soil and silty water to public roads and drains.</li> <li>• Oil interceptors should be provided in the drainage system downstream of any oil/fuel pollution sources. The oil interceptors should be emptied and cleaned regularly to prevent the release of oil and grease into the storm water drainage system after accidental spillage. A bypass should be provided for the oil interceptors to prevent flushing during heavy rain.</li> <li>• Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts.</li> <li>• All fuel tanks and storage areas should be provided with locks and sited on sealed areas, within bunds of a capacity equal to 110% of the storage capacity of the largest tank to prevent spilled fuel oils from reaching water sensitive receivers nearby.</li> <li>• Regular environmental audit on the construction site should be carried out in order to prevent any malpractices. Notices should be posted at conspicuous locations to remind the workers not to discharge any</li> </ul>					<p style="text-align: center;">*</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		sewage or wastewater into the meander, wetlands and fish ponds.					
S5.7	W3-CP -DP1/D P2/DP3	<u>Groundwater from Contaminated Area</u> <ul style="list-style-type: none"> <li>• No mitigation measure is required for groundwater treatment in LMC Loop.</li> <li>• Additional investigation is required to identify if contaminated groundwater is found.</li> <li>• If the investigation results indicated that the groundwater to be generated from construction works would be contaminated, the contaminated groundwater should be either discharged into recharged wells, or properly treated in compliance with the requirements of Technical Memorandum on Standards for Effluents Discharged into Drainage on Sewerage Systems, Inland and Coastal Waters.</li> <li>• If recharged well method were used, the groundwater quality in the recharged well should not be affected by recharging operation, i.e. the pollution levels of the recharged groundwater should not be higher than that in the recharging wells.</li> <li>• If treatment and discharge method were used, the design of wastewater treatment facilities, such as active carbon and petrol interceptor, should be submitted to the EPD and a discharge license should be obtained under the WPCO through the Regional Offices of EPD.</li> </ul>	Minimize groundwater quality impact from contaminated area	Contractor	Areas where contamination is found.	Construction phase	N/A  N/A  N/A  N/A  N/A
S5.7	W3-CP -DP1/D P2/DP3	<u>Sewage from Workforce</u> <ul style="list-style-type: none"> <li>• Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate</li> </ul>	Minimize water quality from sewage effluent	Contractor	All construction sites where practicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>portable toilets to cater 0.15m<sup>3</sup>/day/employed populations and be responsible for appropriate disposal and maintenance.</p> <ul style="list-style-type: none"> <li>Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project.</li> <li>Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.</li> </ul>					<p>^</p> <p>^</p>
S5.7	W4-CP -DP1	<p><u>Riverbanks Formation</u></p> <ul style="list-style-type: none"> <li>In order to prevent sediment transport during riverbank works, deployment of silt curtain should be implemented, especially when construction works encroach or occur in close distance to water body. It is recommended to carry out all the riverbank works within a cofferdam or diaphragm wall.</li> <li>Water quality of the Shenzhen River and the meander would be monitored to ensure effectiveness of the implemented mitigation measures.</li> </ul>	Minimize water quality impact from riverbank works	Contractor	Riverbank works	Construction Phase	<p>^</p> <p>^</p>
S5.7	W1-CP -BR	<p><u>Bio-remediation in Shenzhen River</u></p> <ul style="list-style-type: none"> <li>Water quality monitoring and audit is recommended to ensure that the proposed bio-remediation operation would not result in adverse water quality impact. Details of the water quality monitoring programme are presented in the EM&amp;A Manual. If unacceptable water quality impact in the receiving water is recorded, additional measures such as slowing down, or rescheduling of works should be</li> </ul>	Minimize water quality impact from bio-remediation of Shenzhen River	Contractor	Shenzhen River where practicable	Construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		implemented as necessary.					
S5.7	W4-CP -DP3	<p><u>Construction of Viaduct across Reedbed in LMC Station</u></p> <p>As a precautionary measures, three options are recommended to ensure the compliance of No Net Increase in Pollution Load in Deep Bay for further consideration. They include:</p> <ul style="list-style-type: none"> <li>On-site compensate the same area of the occupied reedbed;</li> <li>Provide pilot plant during construction; or</li> <li>Increase the hydraulic retention time of the proposed Loop STW.</li> </ul> <p>Details of these measures will be subject to further liaison with MTRC and a separate VEP application.</p>	Minimize water quality impact from of viaduct on reedbed	Contractor	Construction sites across reedbed in LMC Station	Construction phase	N/A
S5.7	W5-CP -DP2/D P3	<p><u>Construction of Bridge Crossing</u></p> <ul style="list-style-type: none"> <li>Good site management as stipulated in ProPECC PN1/94 should be fully implemented to avoid polluted liquid or solid wastes from falling into the WSRs.</li> <li>All the fishponds will be drained and no fishpond will be affected by bridge crossing.</li> <li>In the meander, cofferdam or diaphragm walls should be deployed for protecting fish ponds or nearby rivers during bridge pier construction and or road widening work at fishponds.</li> <li>For the low level viaducts crossing the small streams at Ma Tso Lung, Ping Hang and channel near Lung Hau Road, precast structures will be used such that there will be no construction work in the water streams, and thus, to avoid direct water quality impacts.</li> </ul>	Minimize water quality impact from construction of bridge crossing	Contractor	Construction sites for bridge crossing where practicable	Construction phase	N/A  N/A  N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
<b>Waste Management (Construction Waste)</b>							
S7.6	WM1-D P1/DP2 /DP3	<p><u>Waste Reduction Measures</u></p> <p>Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:</p> <ul style="list-style-type: none"> <li>• Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>• proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> <li>• plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste;</li> <li>• sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.);</li> <li>• provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.</li> </ul>	Reduce waste generation	Contractor	All construction sites where practicable	Construction phase	^  * ^  ^  ^
S7.6	WM2-D P1/DP2 /DP3	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^
S7.6	WM2-D P1/DP2 /DP3	<p><u>Good Site Practice</u></p> <p>The following good site practices are recommended throughout the construction activities:</p> <ul style="list-style-type: none"> <li>• Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of</li> </ul>	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</p> <ul style="list-style-type: none"> <li>• Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling;</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 or by transporting wastes in enclosed containers;</li> <li>• Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors;</li> </ul>					<p>^</p> <p>^</p> <p>^</p> <p>^</p>
S7.6	WM4-D P1/DP2 /DP3	<p><u>Storage of Waste</u></p> <p>The following recommendation should be implemented to minimize the impacts:</p> <ul style="list-style-type: none"> <li>• Waste such as soil should be handled and stored well to ensure secure containment;</li> <li>• Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away;</li> <li>• Different locations should be designated to stockpile each material to enhance reuse;</li> </ul>	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	<p>^</p> <p>^</p> <p>^</p>
S7.6	WM5-D P1/DP2 /DP3	<p><u>Collection and Transportation of Waste</u></p> <p>The following recommendation should be implemented to minimize the impacts:</p> <ul style="list-style-type: none"> <li>• Remove waste in timely manner;</li> <li>• Employ the trucks with cover or enclosed containers for waste transportation;</li> </ul>	Minimize waste impact from storage	Contractor	All construction sites	Construction phase	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>Obtain relevant waste disposal permits from the appropriate authorities; and</li> <li>Disposal of waste should be done at licensed waste disposal facilities.</li> </ul>					<p>^</p> <p>^</p>
S7.6	WM6-D P1/DP2 /DP3	<p><u>Excavated and C&amp;D Material</u></p> <p>Wherever practicable, C&amp;D materials should be segregated from other wastes to avoid contamination and ensure acceptability at Public Fill Reception Facilities areas or reclamation sites. The following mitigation measures should be implemented in handling the excavated and C&amp;D materials:</p> <ul style="list-style-type: none"> <li>Maintain temporary stockpiles and reuse excavated fill material for backfilling;</li> <li>Carry out on-site sorting;</li> <li>Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and</li> <li>Implement a trip-ticket system for each works contract to ensure that the disposal of C&amp;D materials are properly documented and verified.</li> </ul> <p>The recommended C&amp;D materials handling should include:</p> <ul style="list-style-type: none"> <li>On-site Sorting of C&amp;D Materials</li> <li>Reuse of C&amp;D Materials</li> <li>Use of Standard Formwork and Planning of Construction Materials Purchasing</li> <li>Provision of Wheel Wash Facilities</li> </ul> <p>Details refer to Section 7.6.1.4 of the EIA report.</p>	Minimize waste impacts from excavated and C&D material	Contractor	All construction sites	Construction phase	<p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p> <p>^</p>
S7.6	WM7-D P1/DP2	<p><u>Contaminated Soil</u></p> <p>As a precaution, it is recommended that standard good site practice should be implemented during the construction phase to</p>	Remediate contaminated soil	Contractor	All construction sites where	Construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	/DP3	minimize any potential exposure to contaminated soils or groundwater. The details of mitigation measures to minimize the potential environmental implications arising from the handling of contaminated materials refer to Land Contamination Section.			applicable		
S7.6	WM8-D P1/DP2 /DP3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> <li>If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	Control the chemical waste and ensure proper storage, handling and disposal	Contractor	All construction sites	Construction phase	^
S7.6	WM9-D P1/DP2 /DP3	<p><u>General Waste</u></p> <ul style="list-style-type: none"> <li>General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling.</li> <li>Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.</li> <li>A reputable waste collector should be employed to remove</li> </ul>	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	^  ^  ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		general refuse on a daily basis.					
S7.6	WM10-DP1/D P2	<p><u>Sewage</u></p> <ul style="list-style-type: none"> <li>The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities.</li> <li>Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts.</li> </ul>	Minimize production of sewage impacts	Contractor	All construction sites	Construction phase	^  ^
S7.6	WM11-DP2	<p><u>Sediment</u></p> <p>The following mitigation measures are recommended during transportation and stockpiling:</p> <ul style="list-style-type: none"> <li>stockpiling area(s) must be properly designed and closed to the dredging locations as far as possible;</li> <li>Stockpiling area(s) should be lined with impermeable sheeting and bunded;</li> <li>stockpiles should be properly covered by impermeable sheeting;</li> <li>vehicles delivering the sediments should be covered, and truck bodies and tailgates should be sealed to prevent any discharge during transportation;</li> <li>bulk earth moving equipments should be utilized as much as possible to minimize workers' handling and contact of the excavated materials; and</li> <li>personal protective clothing should be provided to site workers.</li> </ul>	Minimize waste impacts from sediment	Contractor	All construction sites	Construction phase	N/A  N/A  N/A  N/A  N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		In case contamination of excavated materials is confirmed after testing, the mitigation measures described in Land Contamination Impacts section should also be implemented to minimize potential environmental impacts.					
<b>Land Contamination</b>							
S8.7	LC1-D P2/DP3	<u>Remediation of arsenic-contaminated soil</u> <ul style="list-style-type: none"> <li>“Solidification/Stabilization” (S/S) treatment method was proposed for the remediation of arsenic-contaminated soil. Toxicity Characteristic Leaching Procedure (TCLP) test should be undertaken after S/S in order to ensure that the contaminant will not leach to the environment. Unconfined Compressive Strength (UCS) test should be conducted, and not less than 1MPa should be met prior to the backfilling or stockpiled for future reuse within the study area. Off-site disposal or reuse of the solidified material is not allowed.</li> </ul>	To remediate arsenic-contaminated soil	Project Proponent/ Contractor	LMC Loop, contaminated area	Prior to commencement of construction works within the contaminated area	N/A
S8.7	LC1-D P1/DP2 /DP3	<u>Excavation and Transportation</u> <ul style="list-style-type: none"> <li>Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means;</li> </ul>	To minimise the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area		N/A  N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> <li>• Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils;</li> <li>• Stockpiling site(s) should be lined with impermeable sheeting and bunded. Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or contaminated run-off during rainy season. Watering should be avoided on stockpiles of contaminated soil to minimize contaminated runoff;</li> <li>• Supply of suitable clean backfill material after excavation, if required;</li> <li>• Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet season;</li> <li>• Speed control for the trucks carrying contaminated materials should be enforced; and</li> <li>• Vehicle wheel washing facilities at the site's exit points should be established and used.</li> </ul>					<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S8.7	LC3-D P1/DP2 /DP3	<p><u>Solidification/Stabilization</u></p> <ul style="list-style-type: none"> <li>• The loading, unloading, handling, transfer or storage of cement should be carried out in an enclosed system;</li> <li>• Mixing process and other associated material handling</li> </ul>	To minimize the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area	The course of remediation	<p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>activities should be properly scheduled to minimise potential noise impact and dust emission;</p> <ul style="list-style-type: none"> <li>• The mixing facilities should be sited as far apart as practicable from the nearby noise sensitive receivers;</li> <li>• Mixing of contaminated soil and cement / water / other additive(s) should be undertaken at a solidification plant to minimise the potential for leaching;</li> <li>• Runoff from the solidification / stabilization area should be prevented by constructing a concrete bund along the perimeter of the solidification / stabilization area;</li> <li>• The run-off contained in the concrete bund area along the perimeter of the paved solidification / stabilization area, if any, will be collected, stored and used for the mixing process of cement / contaminated soil;</li> <li>• If stockpile of treated soil is required, the stockpiling site(s) should be lined with impermeable sheeting and bunded.</li> <li>• Stockpiles should be properly covered by impermeable sheeting to reduce dust emission during dry season or site run-off during rainy season; and If necessary, there should be clear and separated areas for stockpiling of untreated and treated materials.</li> </ul>					<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S8.7	LC4-D P3	<p><u>Safety Measures</u></p> <ul style="list-style-type: none"> <li>• Set up a list of safety measures for site workers;</li> <li>• Provide written information and training on safety for site</li> </ul>	To minimize the potential adverse effects on health and safety of construction	Contractor	Contaminated area	The course of remediation	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>workers;</p> <ul style="list-style-type: none"> <li>• Keep a log-book and plan showing the contaminated zones and clean zones;</li> <li>• Maintain a hygienic working environment;</li> <li>• Avoid dust generation;</li> <li>• Provide face and respiratory protection gear to site workers if necessary;</li> <li>• Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers, if necessary;</li> <li>• Provide first aid training and materials to site worker;</li> <li>• Bulk earth moving equipment should be utilized as much as possible to minimize workers' handling and contact of the contaminated materials; and</li> <li>• Eating, drinking and smoking should not be allowed in contaminated areas to avoid inadvertent ingestion of contaminant.</li> </ul>	workers				
S8.8	LC5-D P3	<u>Re-appraisal on the entire contamination assessment area for associated infrastructure in the adjacent areas in Hong Kong outside LMC Loop.</u>	Ensure any potential contamination activities from land use changes after the approval of this land contamination assessment study	Project Proponent /Detailed design consultant	Entire contamination assessment area for associated infrastructure in the adjacent	After land resumption	^





EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>and root zones from vehicles and storage of materials.</p> <ul style="list-style-type: none"> <li>Specifications for the protection of existing trees will be provided during the preparation of the detailed tree survey by Detailed Design consultants at detailed design and construction phase.</li> </ul>					^
S11.5.4 Table 11.5.9	L-CP2- DP1/D P2/DP3	<p><u>Works Area and Temporary Works Areas (Good Site Practice)</u></p> <ul style="list-style-type: none"> <li>The construction sequence and construction programme shall be optimized in order to minimize the duration of impact.</li> <li>Construction site controls shall be enforced including the storage of materials, the location and appearance of site accommodation and site storage; and the careful design of site lighting to prevent light spillage.</li> <li>The temporary works areas shall be restored to its original condition or enhanced through the introduction of new amenity areas or planting areas following the completion of the construction phase.</li> </ul>	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^  ^  ^
	L-CP3- DP1/D P2/DP3	<p><u>Advance Implementation of Mitigation Planting</u></p> <ul style="list-style-type: none"> <li>Replanting of existing / disturbed vegetation shall be undertaken at the earliest possible stage of the construction phase of the project using predominantly native plant species although ornamental species may be used for roadside planting and amenity areas.</li> </ul>	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^
	L-CP4-	<p><u>Transplantation of Existing Trees</u></p>	Minimize landscape impacts	Contractor	The whole	Construction	



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>The reinstatement shall be undertaken at the earliest possible stage during the construction phase of the project.</p> <ul style="list-style-type: none"> <li>Creation of 12.78ha of Ecological Area (EA) containing reed marsh and marsh will be created at the southern portion of the LMC Loop, and a 50m width landscape buffer area will be set up in between the EA and the development area. Wetland creation concepts please refer to Figure 11.9zf and Chapter 12 Ecology Impact Assessment of this EIA.</li> <li>Native tree and shrub mix will be utilised for the creation of landscape buffer along northern edge of EA to support the creation of avifauna habitat from ecologist perspectives as well as enhance the aesthetic and landscape diversity within the LMC Loop Development.</li> <li>Creation of minimum 11.72 Ha. of permanent compensatory off-site wetland areas at Sam Po Shue and Hoo Hok Wai. For the potential locations for off-site wetlands please refer to Figure 11.9zf and 11.9zh, Chapter 2 Project Description and Chapter 12 Ecology Impact Assessment of this EIA.</li> </ul>		design consultant/ Contractor/ Operator	applicable	phases	^
	V-CP5-DP1/D P2/DP3	<p><u>Coordination with Concurrent Projects</u></p> <ul style="list-style-type: none"> <li>Coordinated implementation programme with concurrent projects to minimise impacts and where possible reduce the period of disturbance.</li> </ul>	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S11.6.5 Table 11.6.3	V-CP1- DP3	<p><u>Preservation and Protection of Existing Trees (Good Site Practice)</u></p> <ul style="list-style-type: none"> <li>The proposed works should avoid disturbance to the existing trees within and close to the works areas. The tree preservation proposals shall be coordinated with the layout and design of the engineering and architectural works at detailed design phase for further retention of individual trees.</li> <li>The preservation of existing tree shall provide instant greening and screening effect for proposed works.</li> </ul>	Minimise visual impact	Detailed design consultant / Contractor	The whole project area where applicable	Detailed design and construction phase	^
	V-CP2- DP3	<p><u>Works Area and Temporary Works Areas (Good Site Practice)</u></p> <ul style="list-style-type: none"> <li>The construction sequence and construction programme shall be optimized in order to minimize the duration of impact.</li> <li>Construction site controls shall be enforced including the storage of materials, the location and appearance of site accommodation and site storage; and the careful design of site lighting to prevent light spillage.</li> <li>Hoarding designed with recessive colour shall be set up around the construction site providing screening effect for the construction works.</li> <li>The site office or temporary above-ground structures shall be sited at less visual prominent locations.</li> </ul>	Minimise visual impact	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	V-CP3-DP3	<p><u>Advance Implementation of Mitigation Planting</u></p> <ul style="list-style-type: none"> <li>Replanting of existing / disturbed vegetation shall be undertaken at the earliest possible stage of the construction phase of the project using predominantly native plant species although ornamental species may be used for roadside planting and amenity areas.</li> </ul>	Minimise visual impact and advance mitigation planting for screening purpose.	Detailed design consultant / Contractor	The whole project area where applicable	Detailed design and construction phases	N/A
	V-CP5-DP3	<p><u>Coordination with Concurrent Projects</u></p> <ul style="list-style-type: none"> <li>Coordinated implementation programme with concurrent projects to minimise impacts and where possible reduce the period of disturbance.</li> </ul>	Minimize visual impacts	Contractor	The whole project area where applicable	Construction phase	^
<b>Ecology (Construction Phase)</b>							
S12.7	E1-DP1	<p><u>Disturbance to Fish Ponds at HHW</u></p> <ul style="list-style-type: none"> <li>Development set back a minimum of 23m from the edge Meander.</li> <li>Management of fish pond habitat to enhance ecological value to twice existing value, in order to compensate for disturbance to large waterbirds.</li> <li>Creation and establishment will occur prior to commencement of substantive works associated with any element of the project for which fish pond compensation is required.</li> </ul> <p><u>Construction phase</u></p> <ul style="list-style-type: none"> <li>Erection of a 3m high, dull green site boundary fence to</li> </ul>	On the disturbance to fish ponds at HHW	Detailed design consultant/ Contractor	Fish ponds at HHW and LMC	Detailed design, construction phase	N/A  N/A  N/A  ^

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		minimise disturbance to wetland habitats caused by human activity in LMC Loop.					
S12.7	E2-DP1 /DP3	<p><u>Construction run-off</u></p> <ul style="list-style-type: none"> <li>Temporary sewerage and drainage will be designed and installed to collect wastewater and prevent it from entering nearby water bodies;</li> <li>Proper locations well away from nearby water bodies will be used for temporary storage of materials (i.e. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction debris and spoil, and these will be identified before commencement of works;</li> <li>To prevent muddy water entering nearby water bodies, work sites close to nearby water bodies will be isolated, using such items as sandbags or silt curtains with lead edge at bottom and properly supported props. Other protective measures will also be taken to ensure that no pollution or siltation occurs to the water gathering grounds of the work site;</li> <li>If temporary access along a riverbed is unavoidable, this will be kept to the minimum in width and length. Temporary river crossings will be supported on stilts above the river bed;</li> <li>Stockpiling of construction materials, if necessary, will be properly covered and located away from nearby water</li> </ul>	Minimise the indirect impact from the increasing suspended solids and pollutants in LMC Meander	Contractor	Seawall,	During construction	<p>^</p> <p>^</p> <p>^</p> <p>^</p>





EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S12.7	E3-DP1 /DP2/D P3	<p><u>Pollutant Runoff to Downstream areas from Accidental Spillage</u></p> <ul style="list-style-type: none"> <li>Prepare an emergency contingency plan The plan will include, but not be limited to, the following:               <ul style="list-style-type: none"> <li>- Potential emergency situations;</li> <li>- Chemicals or hazardous materials used on-site (and their location);</li> <li>- Emergency response team;</li> <li>- Emergency response procedures;</li> <li>- List of emergency telephone hotlines;</li> <li>- Locations and types of emergency response equipment;</li> <li>- Training plan and testing for effectiveness.</li> </ul> </li> </ul>	Minimize indirect impact from pollutant runoff to downstream areas from accidental spillage	Contractor/ Operator	Area within project site near streams	Construction phase and operation phase	^
S12.7	E4-DP1 /DP2/D P3	<ul style="list-style-type: none"> <li>Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project.</li> <li>Design of buildings should not incorporate use of night-time lighting at or near top of buildings, highly reflective materials should not be used where vegetation is adjacent and glass surfaces should not be angled upwards in a way that reflects the sky. Unnecessary lighting should be eliminated. Appropriate glass and façade treatments should be used where required to minimise impact. Unnecessary lighting should be avoided.</li> </ul> <p>These include the following:</p> <ul style="list-style-type: none"> <li>Fritting, or the placement of ceramic lines or dots on glass,</li> </ul>	Minimize the mortality impacts on birds	Developer / Detailed design consultant/ contractor/ operator	Area within project site	Detailed design, construction and operation phases	^  ^  ^

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		<p>has little effect on the human-perceived transparency of the window but creates a visual barrier to birds outside. This treatment also has the advantage of reducing air conditioning loads by lowering heat gain, while still allowing light transmission for interior spaces. It is most successful when the frits are applied on the outside surface. Frosted glass has similar effects.</p> <ul style="list-style-type: none"> <li>• Angled glass may be used only for smaller panes in buildings with a limited amount of glass.</li> <li>• The use of glass that reflects UV light (primarily visible to birds, but not to humans) acts to reduce collision.</li> <li>• Film and art treatment allow glass surfaces to be used a medium of expression, often related to the nature and use of the building, as well indicating to birds their impenetrability.</li> <li>• Lightweight external screens can be added to windows or become a façade element of larger buildings, and are suitable where non-operable windows are prevalent, which is often the case in modern buildings in HK.</li> </ul> <p>In terms of reducing night-time mortality impacts, eliminating unnecessary lighting is one of the easiest methods, and has the added advantage of saving energy and expense. Potential impacts of nocturnal avian collision with buildings should be minimised by not creating sky glow from the use of night-time lighting at or near the top of buildings or other structures. In</p>					<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>







EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
				Detailed design consultant / Contractor /		construction phases	
S12.7	E16-DP 1	<ul style="list-style-type: none"> <li>Provision of compensatory reed marsh in the Ecological Area will provide habitat suitable for Common Evening Hawker.</li> <li>Measures designed to protect other fauna and water quality will generally benefit odonata.</li> </ul>	Protect Odonata	Project Proponent/ Detailed design consultant/ Contractor Operator	Ecological area	EA established prior to construction and manage at all phases	^ ^
S12.7	E14-DP 2	<ul style="list-style-type: none"> <li>Replacement planting of native tree species relevant to Deep Bay area and the area impacted. Planting to occur in tandem with that required for woodland loss arising</li> </ul>	Minimize the ecological impacts	Contractor	Woodland and shrubland habitat along Ha Wan Tsuen Road	Construction phase	^
S12.7	E15-DP 2	<ul style="list-style-type: none"> <li>Use noise/visual barriers to minimise disturbance.</li> <li>Construction activities should not be carried out before 0900h or after 1700h in order to minimise disturbance to the flight line corridor (and to mammals).</li> </ul>	Minimize impacts on flight line corridor from Western Connection Road	Contractor	Construction site from Western Connection Road	Construction phase	^ ^
S12.7	E16-DP 2	<ul style="list-style-type: none"> <li>Use of opaque visual/noise barriers and roadside planting of trees and shrubs to minimize disturbance impacts.</li> </ul>	Minimize impacts on flight line corridor from Western Connection	Project Proponent/ Detailed	Construction site from Western	Detailed design, construction and operation	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
			Road	design consultant/ Contractor Operator	Connection Road	phases	
S12.9	EG2-D P3	All generic mitigation measures proposed in Tables 12.82a and 12.82b in the EIA report.	Avoid, minimize and mitigate overall ecological impact.	Project proponent / contractor / detailed design consultant / developer / operator	All areas.	All phases	^
<b>Fisheries (Construction Phase)</b>							
S13.7	F4-	<ul style="list-style-type: none"> <li>• Re-provision of replacement Artificial Reefs (of the same volume as the existing ARs inside Marine Exclusion Zone)</li> </ul>	Mitigate water quality impacts on the existing ARs	Project proponent	To be determined	Construction phase or operation phase	N/A
S11.7	F2	<ul style="list-style-type: none"> <li>• Reduce re-suspension of sediments</li> <li>• Limit dredging and works fronts.</li> <li>• Good site practices</li> <li>• Strict enforcement of no marine dumping</li> <li>• Spill response plan</li> </ul>	Minimise marine water quality impacts	Contractor	Seawall	During construction	N/A N/A N/A N/A
S13.7	F4-DP3	During the construction phase, a layer of sheet pile wall will be	Bund stability	Contractor	Fish ponds	Construction	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		erected along the site boundary adjacent to fish ponds after commencement of site works. The sheet pile wall will be constructed by silent piling method (Press-in method) which induces minimal vibration. Therefore the stability of the fish pond bund will not be influenced by the construction of the sheet pile wall, subsequent construction works and the loading from the road during operational phase. In addition, the sheet pile wall will have grouting or a grout curtain to avoid water seepage from the fish pond to the excavation area. With these measures, significant impacts are not anticipated.				phase	
S13.7	F5-DP3	Temporary traffic arrangements will be instigated to maintain or provide alternative access to fish ponds during construction phase.	Prevent Blockage of Access Roads to Fish Ponds	Contractor	Fish ponds	Construction phase	^
S13.7	F6-DP3	Standard mitigation measures to control site runoff and other pollutants caused by construction activities and good site practices will be implemented during the construction phase of the Project. Excavated material and other inert construction wastes produced will be transferred to proper recipients (i.e. landfill) (see Waste Management Section). Sewage from the proposed development will be dealt with via a sewerage system and will not be discharged directly to surrounding water bodies.	Avoid water quality impact	Contractor	Fish ponds	Construction phase	^
S13.7	F7-DP3	<p><u>Dust Minimization</u></p> <ul style="list-style-type: none"> <li>• During all excavation works, good site practice should be adopted to minimize impacts on fisheries. The below site practices should be adopted during this time.</li> <li>• Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with</li> </ul>	Dust minimization	Contractor	Fish ponds	Construction phase	^



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</p> <ul style="list-style-type: none"> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;</li> <li>• Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>• In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means;</li> <li>• Supply of suitable clean backfill material after excavation, if required;</li> <li>• Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should</li> </ul>					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>be sealed to prevent any discharge during transport or during wet season;</p> <ul style="list-style-type: none"> <li>• Speed control for the trucks carrying contaminated materials should be enforced; and</li> <li>• Vehicle wheel washing facilities at the site's exit points should be established and used.</li> </ul>					
S13.7	F8-DP3	<p><u>Contingency plan</u></p> <p>The contractor should prepare an emergency contingency plan for actions to be taken if significant impacts, such as accidental spillage of chemicals, water seepage from fish ponds, damaged/destabilized pond bunds, pond water contamination by site runoff, on fish ponds occur. The contractor should submit the emergency contingency plan dealing with, but not limited to, the aforementioned potential impacts to the engineer for review, comment and approval. The fish pond operators will also be consulted for the details of the contingency plan, which will also be submitted to AFCD for review and comment. The plan should include, but not limited to, the following:</p> <ul style="list-style-type: none"> <li>• Potential emergency situations;</li> <li>• Chemicals or hazardous materials used on-site (and their location);</li> <li>• Emergency response team;</li> <li>• Emergency response procedures;</li> <li>• List of emergency telephone hotlines;</li> <li>• Locations and types of emergency response equipment;</li> <li>• Training plan and testing for effectiveness.</li> </ul>	Deal with any accidental spillage event	Contractor / Operator	Fish ponds	Construction and operational phases	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
<b>Food Safety (Construction Phase)</b>							
S15	F1-DP3	<p><u>Contingency plan</u></p> <p>The contractor should have effective communication with Food and Environmental Hygiene Department (FEHD) / Centre of Food Safety (CFS), on food surveillance and food incidents. Food Surveillance Programme (<a href="http://www.cfs.gov.hk/english/programme/programme_fs/programme_fs.html">http://www.cfs.gov.hk/english/programme/programme_fs/programme_fs.html</a>). is undertaken by CFS to inspect food safety in Hong Kong, with a three-tier surveillance strategy (consisting of routine food surveillance, targeted food surveillance and seasonal food surveillance). Under this programme, aquatic products (including pond fish) at import, wholesale and retail levels are sampled for microbiological (i.e. bacteria and viruses), chemical (i.e. natural toxins, food additives and contaminants) and radiation testings. All food safety surveillance results of by a monthly "Food Safety Report" in press releases and also presented in CFS website. If pond fish samples do not comply with food safety standards and they are verified to be from fish ponds of concerned under this study through "food tracing", fish selling shall be stopped as instructed by CFS.</p>	Minimize significant impacts on fish ponds	Contractor	Fish pond within project site	Construction phase	N/A
S15	F2-DP3	<p><u>Dust Minimization</u></p> <ul style="list-style-type: none"> <li>During all excavation works, good site practice should be adopted to minimize the release of TSP, impact of land contamination and the associated food safety implications. The below site practices should be adopted during excavation works.</li> <li>Any excavated or stockpile of dusty material should be</li> </ul>	Dust minimization	Contractor	Fish pond within project site	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</p> <ul style="list-style-type: none"> <li>• Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> <li>• Exposed earth should be properly treated by compaction, turfing, hydroseeding, vegetation planting or sealing with latex, vinyl, bitumen, shortcrete or other suitable surface stabiliser within six months after the last construction activity on the construction site or part of the construction site where the exposed earth lies;</li> <li>• Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety;</li> <li>• In case the soil to be excavated is situated beneath the groundwater table, it may be necessary to lower the groundwater table by installing well points or similar means;</li> <li>• Supply of suitable clean backfill material after excavation, if required;</li> <li>• Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or</li> </ul>					



EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>contaminated run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet season;</p> <ul style="list-style-type: none"> <li>• Speed control for the trucks carrying contaminated materials should be enforced; and</li> <li>• Vehicle wheel washing facilities at the site's exit points should be established and used.</li> </ul>					

- Remarks: ^ Compliance of mitigation measure
- \* Recommendation was made during site audit but improved/rectified by the contractor
- # Recommendation was made during site audit but not yet improved/rectified by the contractor.
- N/A Not Applicable at this stage as no such site activities were conducted in the reporting period (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

**Contract No. YL/2020/01 - Development of Lok Ma Chau  
Loop: Main Works Package 1 – Contract 1 Site Formation  
and Infrastructure Works inside Lok Ma Chau Loop and  
Western Connection Road Phase 1**



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>	 

**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**


Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> </ul>	 



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;</li> <li>• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;</li> </ul>	

**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site  
Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1  
Proactive Environmental Protection Proforma**



Working Period: 1<sup>st</sup> to 31st March 2023

- Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.



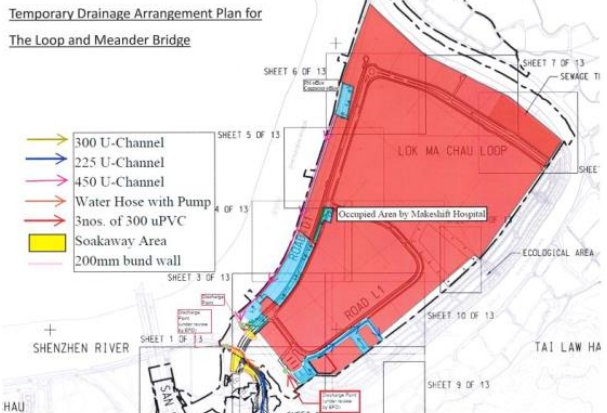

**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> <li>• Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>All generator used onsite are Quality Powered Mechanical Equipment (QPME) registered with EPD.</li> <li>• Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator.</li> </ul>	 



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S5.7	All site area	Water Pollution Control	<ul style="list-style-type: none"> <li>Update and implementation of Stormwater Pollution Control Plan.</li> <li>At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site</li> </ul>	<p><u>Temporary Drainage Arrangement Plan for The Loop and Meander Bridge</u></p>  


**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<p>drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> <li>• Diversion of natural stormwater should be provided as far as possible.</li> </ul> <p>The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff.</p> <p>Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.</p>	 



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> <li>The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.</li> </ul> <p>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 following rainstorms.</p> <ul style="list-style-type: none"> <li>Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater 0.15m<sup>3</sup>/day/employed populations and be responsible for appropriate disposal and maintenance.</li> </ul>	



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> <li>• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.</li> </ul>	 

**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**


Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> <li>• Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li>   <li>• Proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> </ul>	 





**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site  
 Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1  
 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> <li>• Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.</li> </ul>	


**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> <li>• Prepare Waste Management Plan and submit to the Engineer for approval</li> <li>• Proper storage and sorting of excavated inert materials to maximize on site reuse for backfilling</li> </ul>	 


**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"><li>• General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling.</li></ul>	 A photograph showing four recycling bins lined up against a light-colored wall. From left to right, the bins are blue, green, yellow, and brown. Each bin has a recycling symbol on its front. The blue bin has a blue recycling symbol, the green bin has a green recycling symbol, the yellow bin has a yellow recycling symbol, and the brown bin has a brown recycling symbol. The bins are placed on a gravel surface.

**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site  
Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1  
Proactive Environmental Protection Proforma**



Working Period: 1<sup>st</sup> to 31st March 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> <li>If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li> </ul>	



**Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023


Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
	Old Shenzhen River meander and other identified important ecologically sensitive areas,		Using powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any;	 

**Contract No. YL/2020/02 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 2 Western**


**Connection Road Phase 2, Connection Roads to Fanling /**

**San Tin Highway and Direct Road Link Phase 1**

Ref*	Location/Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>	



**Proactive Environmental Protection Proforma**


Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> </ul>	




- Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.




**Proactive Environmental Protection Proforma**

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> <li>• Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator.</li> </ul>	 <p>The top photograph shows a blue mobile plant (likely a generator or air compressor) at a construction site, with orange and white safety barriers in the foreground and a concrete bridge structure in the background under a cloudy sky. The bottom photograph shows a close-up of a grey, movable noise barrier installed along a road, with a clear blue sky in the background.</p>

Proactive Environmental Protection Proforma

EIA S5.7	All site area	Water Pollution Control	<ul style="list-style-type: none"><li>• At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li><li>• Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimize polluted runoff.</li></ul>	
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		<ul style="list-style-type: none"><li>• Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.</li> <li>• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.</li></ul>	 The image contains two identical photographs of a blue, pre-formed sedimentation tank. The tank is a large, rectangular structure with a sloped bottom, supported by a metal frame. It is situated outdoors at a construction site, with trees and a fence visible in the background. The tank is connected to a network of pipes and has a yellow bag or container at its base. The top of the tank is open, and there are some pipes and valves on the side.
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Contract No. YL/2020/02


Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2,  
Connection Roads to Fanling/ San Tin Highway and Direct Road Link Phase 1

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

**Proactive Environmental Protection Proforma**



			<ul style="list-style-type: none"><li>• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.</li></ul>	
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> <li>• Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>• Proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> </ul>	



**Proactive Environmental Protection Proforma**

		<ul style="list-style-type: none"><li>• Proper storage and sorting of excavated inert materials to maximize on site reuse for backfilling</li>          <li>• General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling.</li></ul>	 
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		<ul style="list-style-type: none"><li>• Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.</li> <li>• If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li></ul>	 
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S12.7	All site area	Ecology	<ul style="list-style-type: none"> <li>• Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project.</li> <li>• On-site compensate the same area of the occupied reedbed</li> </ul>	



**Contract No. YL/2021/01 – Development of Lok Ma Chau**



**Loop: Main Works Package 1 – Contract 3 Direct Road**

**Link Phase 2**

**Contract No. YL/2021/01 – Contract No.: YL/2021/01**  
**Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2**  
**Proactive Environmental Protection Proforma**

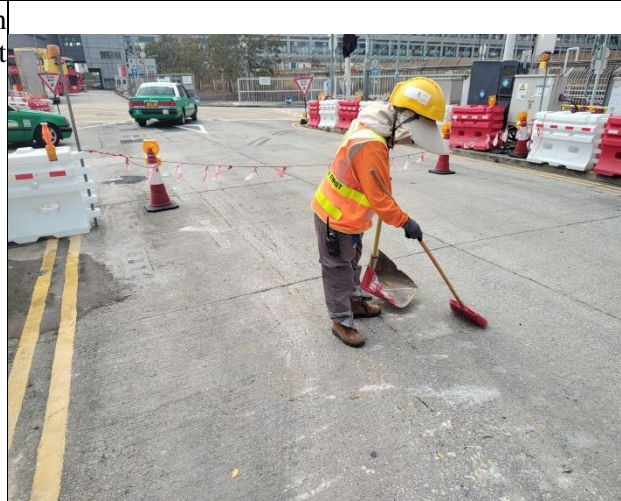
Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>Any excavated or stockpile of dusty material should be covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</li> <li>Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads;</li> </ul>	 

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> <li>• A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones;</li> <li>• The load of dusty materials on a vehicle leaving a construction site should be covered entirely by impervious sheeting to ensure that the dusty materials do not leak from the vehicle;</li> </ul>	 



• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;





• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;



- Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.



Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> <li>• Mobile plant should be sited as far away from NSRs as possible and practicable;</li> <li>• Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator.</li> </ul>	 

• An acoustic canvas had been deployed along the site boundary facing the resident of Shenzhen City.



• All generator used onsite are Quality Powered Mechanical Equipment (QPME) registered with EPD.



**Contract No. YL/2021/01 – Contract No.: YL/2021/01**  
**Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2**  
**Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

<p>EIA S5.7</p>	<p>All site area</p>	<p>Water Pollution Control</p>	<ul style="list-style-type: none"> <li>• Update and implementation of Stormwater Pollution Control Plan.</li> <li>• At the start of site establishment, perimeter cut-off drains to direct off-site water around the site should be constructed with internal drainage works and erosion and sedimentation control facilities implemented. Channels (both temporary and permanent drainage pipes and culverts), earth bunds or sand bag barriers should be provided on site to direct stormwater to silt removal facilities. The design of the temporary on-site drainage system will be undertaken by the contractor prior to the commencement of construction.</li> </ul>	<div data-bbox="1288 215 1646 726" data-label="Form"> <p style="text-align: right;">Contract No. YL/2021/01 Development of Lok Ma Chau Loop: Main Works Package 1 - Contract 3 - Direct Road Link Phase 2</p> <p style="text-align: center;">CONTRACTOR'S SUBMISSION FORM</p> <p>To : AECOM</p> <p>Attention : Mr. Roger Man (Project Manager's delegate)</p> <p>Submission Ref. No. : CS/21/00008A</p> <p>AECOM Ref. No. :</p> <p>Date of Submission : 3 Dec 2022</p> <p>Title of Submission : Temporary Drainage Management Plan (Rev. 2)</p> <p>Proposed Location of Works : Portion 1</p> <p>Specification/Drawing Reference : P.S. Clause 1.21A</p> <p>Description of Context :</p> <p>Pursuant to P.S. Clause 1.24(A), We would like to submit the captioned subject for your review and approval.</p> <p>Attachments :</p> <p>Reply required by :</p> <p>Purpose of Submission :</p> <p>For Approval <input checked="" type="checkbox"/> For Comment <input type="checkbox"/> For Information <input type="checkbox"/> For Record <input type="checkbox"/> For Action <input type="checkbox"/></p> <p>FROM : Paul Yee-Chun Wo - CREC Joint Venture</p> <table border="1"> <thead> <tr> <th>Prepared by:</th> <th>Reviewed by:</th> <th>Approved &amp; submitted by:</th> </tr> </thead> <tbody> <tr> <td>Graduate Engineer Stephane Leung</td> <td>Section Agent Charles Choi CW</td> <td>Site Agent Dimitrios Kiang</td> </tr> <tr> <td></td> <td></td> <td></td> </tr> <tr> <td>Date: 3 Dec 2022</td> <td>Date: 3 Dec 2022</td> <td>Date: 3 Dec 2022</td> </tr> </tbody> </table> <p><small>* User Guide for Submission Form              B - Design &amp; Construction   C - Construction   D - Operation &amp; Maintenance   E - Decommissioning              F - Other   G - Environmental &amp; Social   H - Health, Safety &amp; Environment   I - Quality Management   J - Other</small></p> </div> <div data-bbox="1265 957 1814 1380" data-label="Image"> </div>	Prepared by:	Reviewed by:	Approved & submitted by:	Graduate Engineer Stephane Leung	Section Agent Charles Choi CW	Site Agent Dimitrios Kiang				Date: 3 Dec 2022	Date: 3 Dec 2022	Date: 3 Dec 2022
Prepared by:	Reviewed by:	Approved & submitted by:														
Graduate Engineer Stephane Leung	Section Agent Charles Choi CW	Site Agent Dimitrios Kiang														
Date: 3 Dec 2022	Date: 3 Dec 2022	Date: 3 Dec 2022														

• Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff.



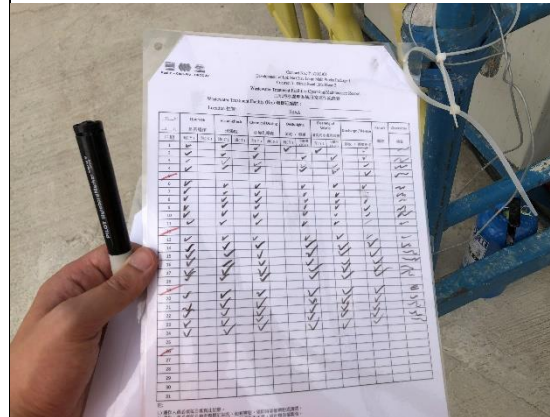
• Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 m<sup>3</sup> capacities, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity shall be flexible and able to handle multiple inputs from a variety of sources and suited to applications where the influent is pumped.



- The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.



- 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 following rainstorms.



• Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater 0.15m<sup>3</sup>/day/employed populations and be responsible for appropriate disposal and maintenance.



• Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.








**Contract No. YL/2021/01 – Contract No.: YL/2021/01**

**Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2**

**Proactive Environmental Protection Proforma**

Working Period: 1<sup>st</sup> to 31<sup>st</sup> March 2023

			<ul style="list-style-type: none"><li>•An additional water pump had been set up and the concerned outlet have been sealed up with concrete</li></ul>	
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> <li>• Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal;</li> <li>• Proper storage and site practices to minimize the potential for damage and contamination of construction materials;</li> </ul>	 



• Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.



• Prepare Waste Management Plan and submit to the Engineer for approval

		Contract No. YL/2021/01 Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	
<b>CONTRACTOR'S SUBMISSION FORM</b>			
To :	AECOM		
Attention :	Mr. Roger Man (Project Manager's delegate)		
Submission Ref. No* :	CSF/HSE/000005D		
AECOM Ref. No. :	-		
Date of Submission :	15 August 2022		
Title of Submission :	Waste Management Plan (Rev.04)		
Proposed Location of Works :	-		
Specification/Drawing Reference :	PS Clause 25.20A(?)		
Description of Content :	In response to the comments in your letter ref. C3/YL2021/01/C15/310/38000199, we would like to re-submit the Waste Management Plan (Rev.04) for your approval.		
Attachments :	Waste Management Plan Rev.4		
Reply required by :	21 days		
Purpose of Submission :			
For Approval <input checked="" type="checkbox"/> For Comment <input type="checkbox"/> For Information <input type="checkbox"/> For Record <input type="checkbox"/> For Action <input type="checkbox"/>			
FROM :	Paul Y – Chun Wo - CRCC. Joint Venture		
	Prepared by:	Reviewed by:	Approved & submitted by:
Title	Environmental Officer (Lila Lui)	HSE Manager (Lei Wong)	Site Agent (Desmond Tang)
Signature			
Date	15 August 2022	15 August 2022	15 August 2022



		<ul style="list-style-type: none"><li>• Preferably enclosed and covered areas should be provided for general refuse collection and routine cleaning for these areas should also be implemented to keep areas clean.</li> <li>• If chemical wastes are produced at the construction site, the Contractors should register with EPD as chemical waste producers. Chemical wastes should be stored in appropriate containers and collected by a licensed chemical waste contractor. Chemical wastes (e.g. spent lubricant oil) should be recycled at an appropriate facility as far as possible, while the chemical waste that cannot be recycled should be disposed of at either the Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.</li></ul>	 
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**APPENDIX N**  
**TEMPORARY NOISE BARRIERS**



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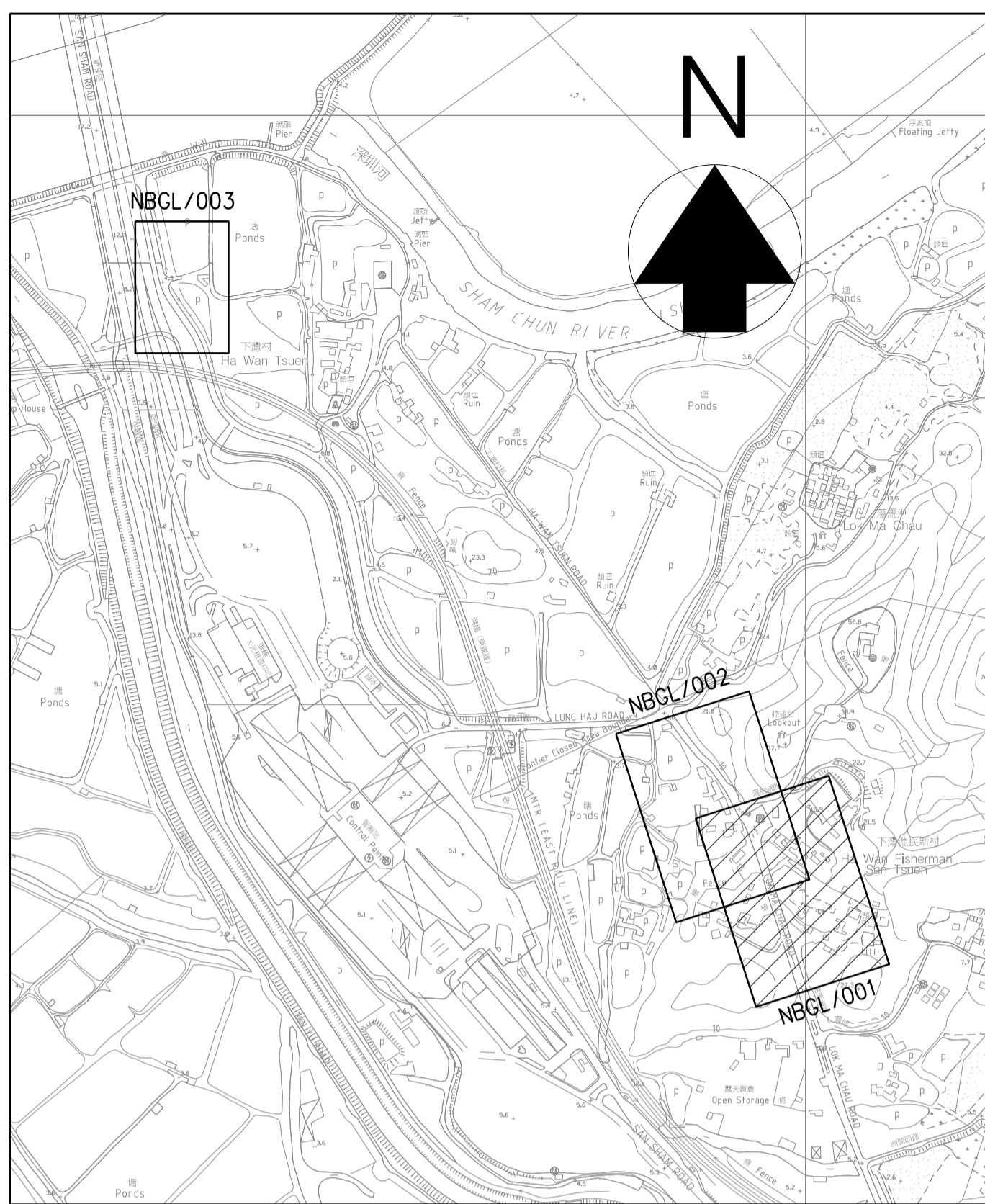
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**NOTES:**

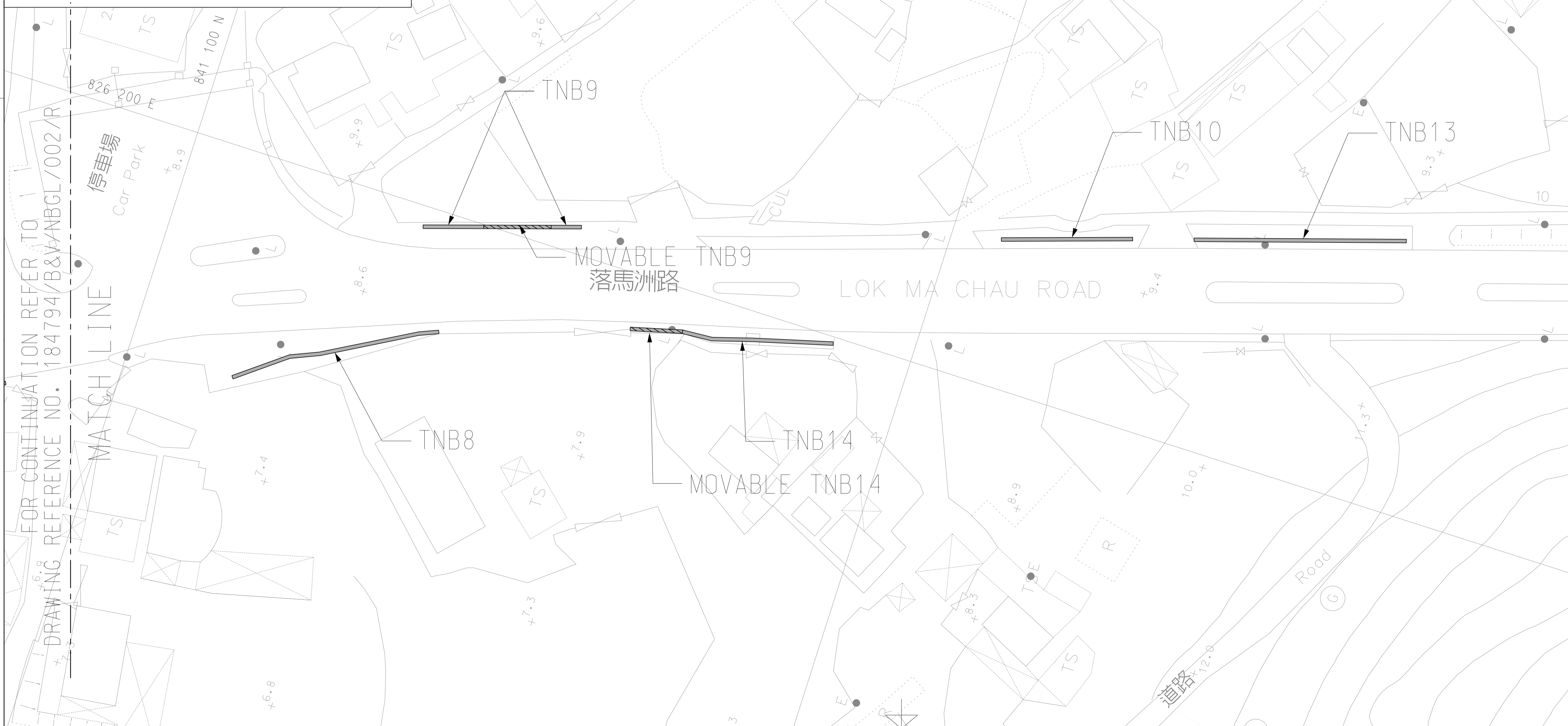
1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

**LEGEND:**

-  1.5m - HIGH TEMPORARY NOISE BARRIER
-  1.5m - HIGH MOVEABLE TEMPORARY NOISE BARRIER



LOCATION PLAN  
N.T.S.



FOR CONTINUATION REFER TO DRAWING REFERENCE NO. 184794/B&V/NBGL/002/R

MATCH LINE

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018

DATE OF COMPLETION :

核准  
Approved

合約編號  
Contract No. YL/2017/03

合約編號  
Agreement No. CE 5/2014 (CE)

合約名稱  
Contract title  
DEVELOPMENT OF LOK MA CHAU LOOP:  
LAND DECONTAMINATION AND  
ADVANCE ENGINEERING WORKS

圖則名稱  
Drawing title  
AS-CONSTRUCTED DRAWING  
NOISE BARRIER -  
GENERAL LAYOUT PLAN

(SHEET 1 OF 3)

圖則參考編號  
Drawing Reference No. 184794/NBGL/001/R

修訂  
Revision -

合約圖則編號  
Contract Drawing No.

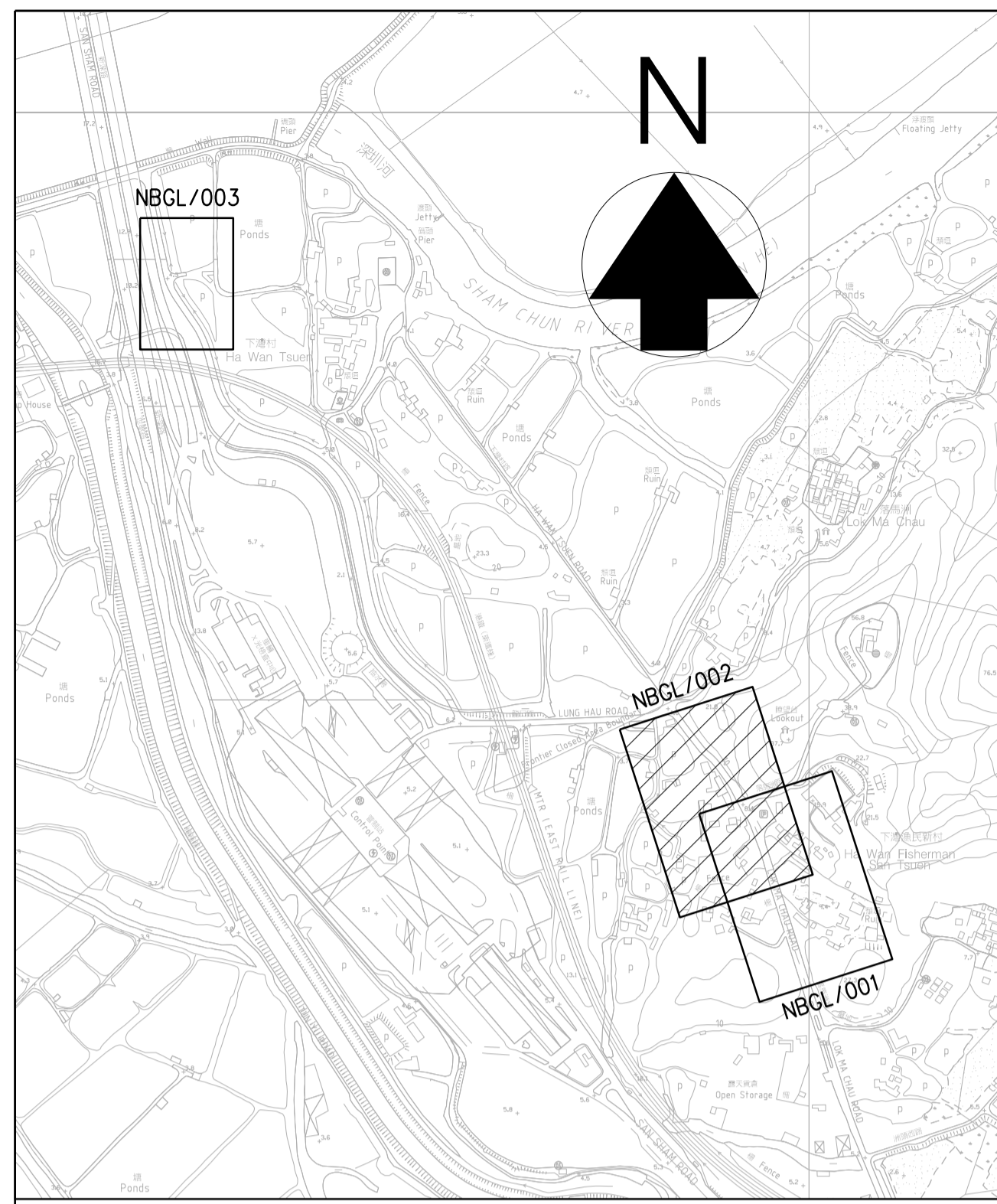
修訂  
Revision -

比例  
Scale A1 1 : 300  
A3 1 : 600

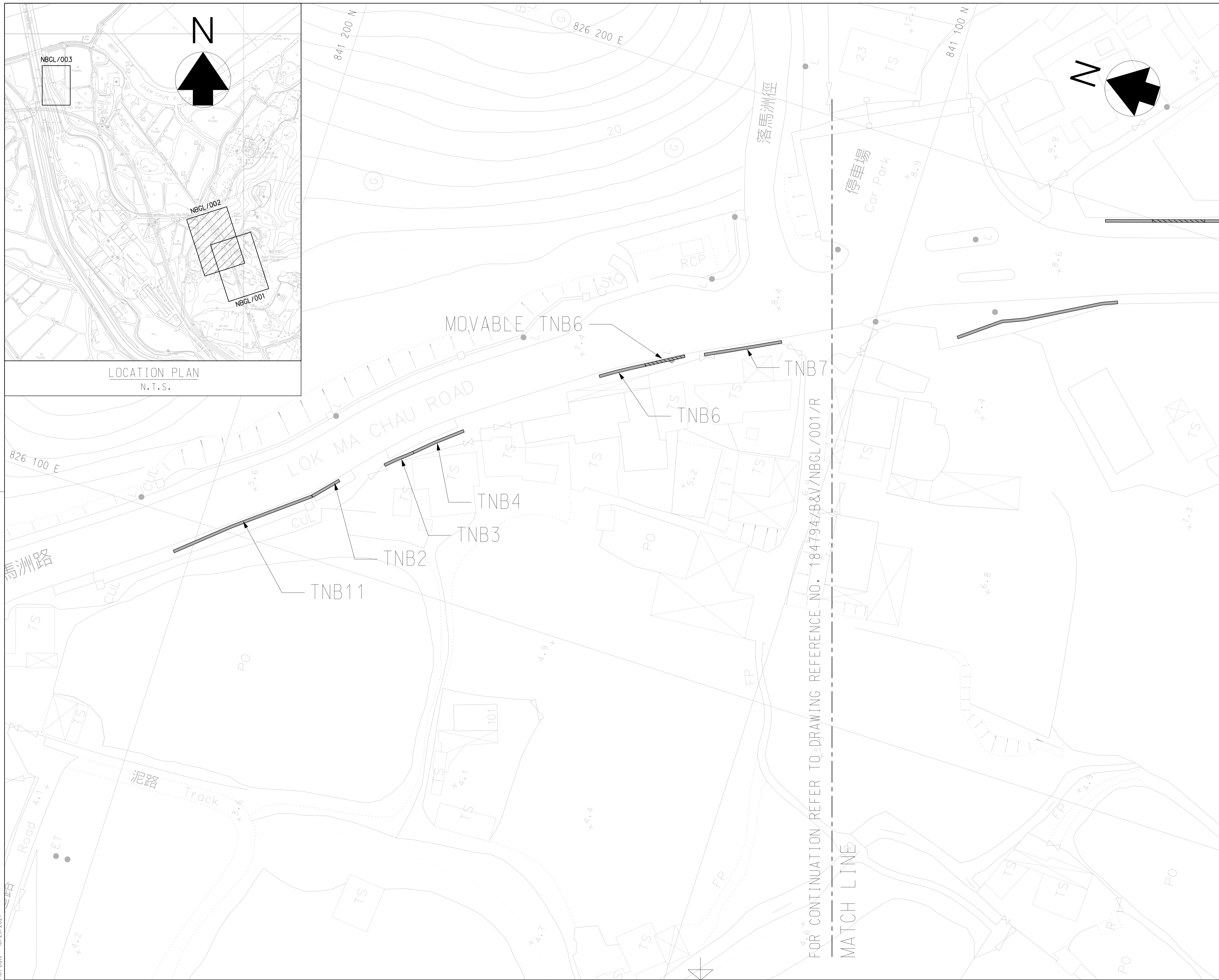
土木工程拓展署  
CEDD Civil Engineering and  
Development Department



BINNIES HONG KONG LIMITED  
賓尼士工程顧問有限公司



LOCATION PLAN  
N.T.S.



FOR CONTINUATION REFER TO DRAWING REFERENCE NO. 184794/B&V/NBGL/001/R

MATCH LINE

**NOTES:**  
1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

**LEGEND:**  
 1.5m - HIGH TEMPORARY NOISE BARRIER  
 1.5m - HIGH MOVEABLE TEMPORARY NOISE BARRIER

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018  
DATE OF COMPLETION :

核准  
Approved

合約編號  
Contract No. YL/2017/03

合約編號  
Agreement No. CE 5/2014 (CE)

合約名稱  
Contract title  
DEVELOPMENT OF LOK MA CHAU LOOP:  
LAND DECONTAMINATION AND  
ADVANCE ENGINEERING WORKS

圖則名稱  
Drawing title  
AS-CONSTRUCTED DRAWING  
NOISE BARRIER -  
GENERAL LAYOUT PLAN  
(SHEET 2 OF 3)

圖則參考編號  
Drawing Reference No. 184794/NBGL/002/R 修訂  
Revision -

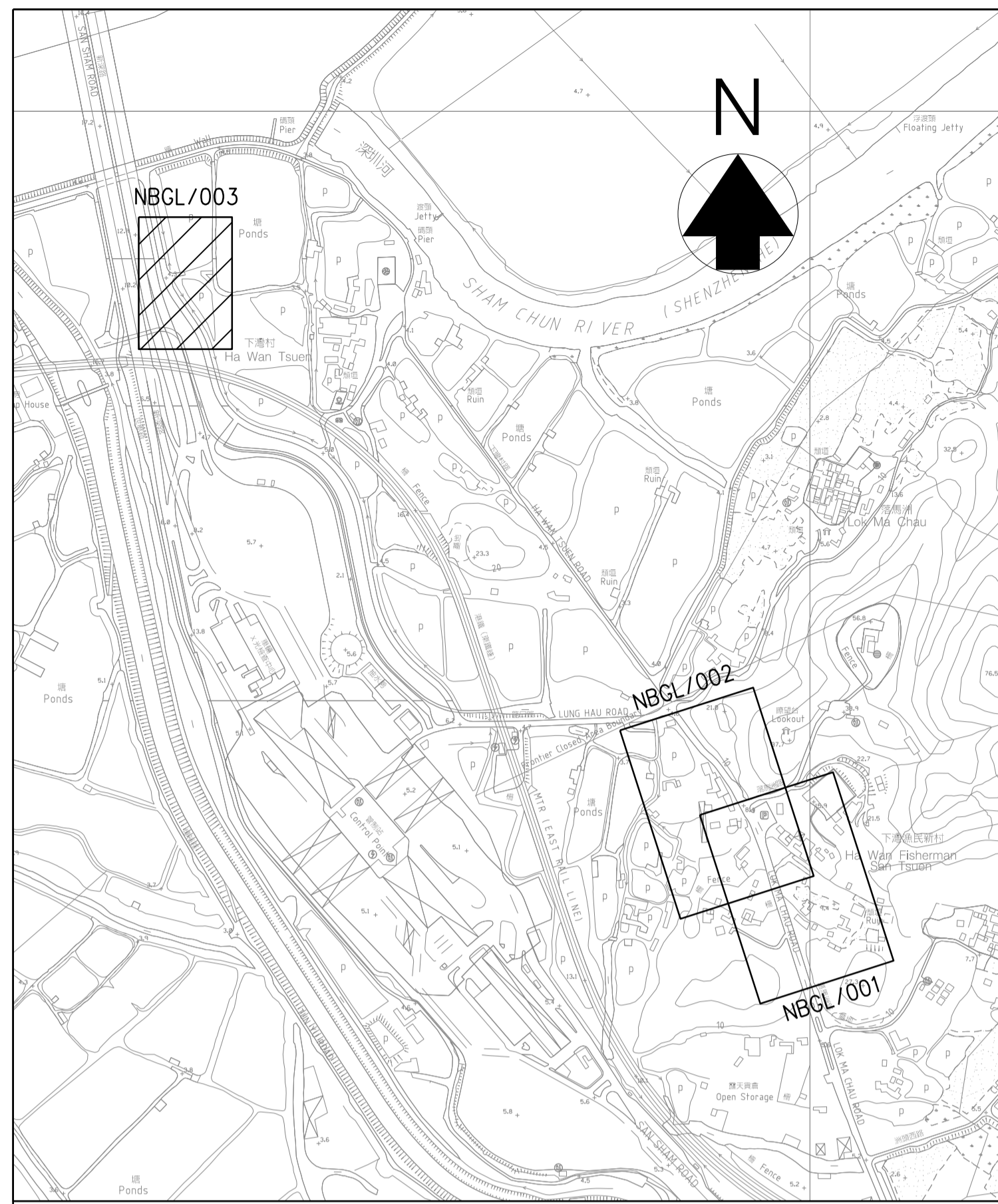
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Contract Drawing No. 修訂  
Revision -

比例  
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A3 1 : 600

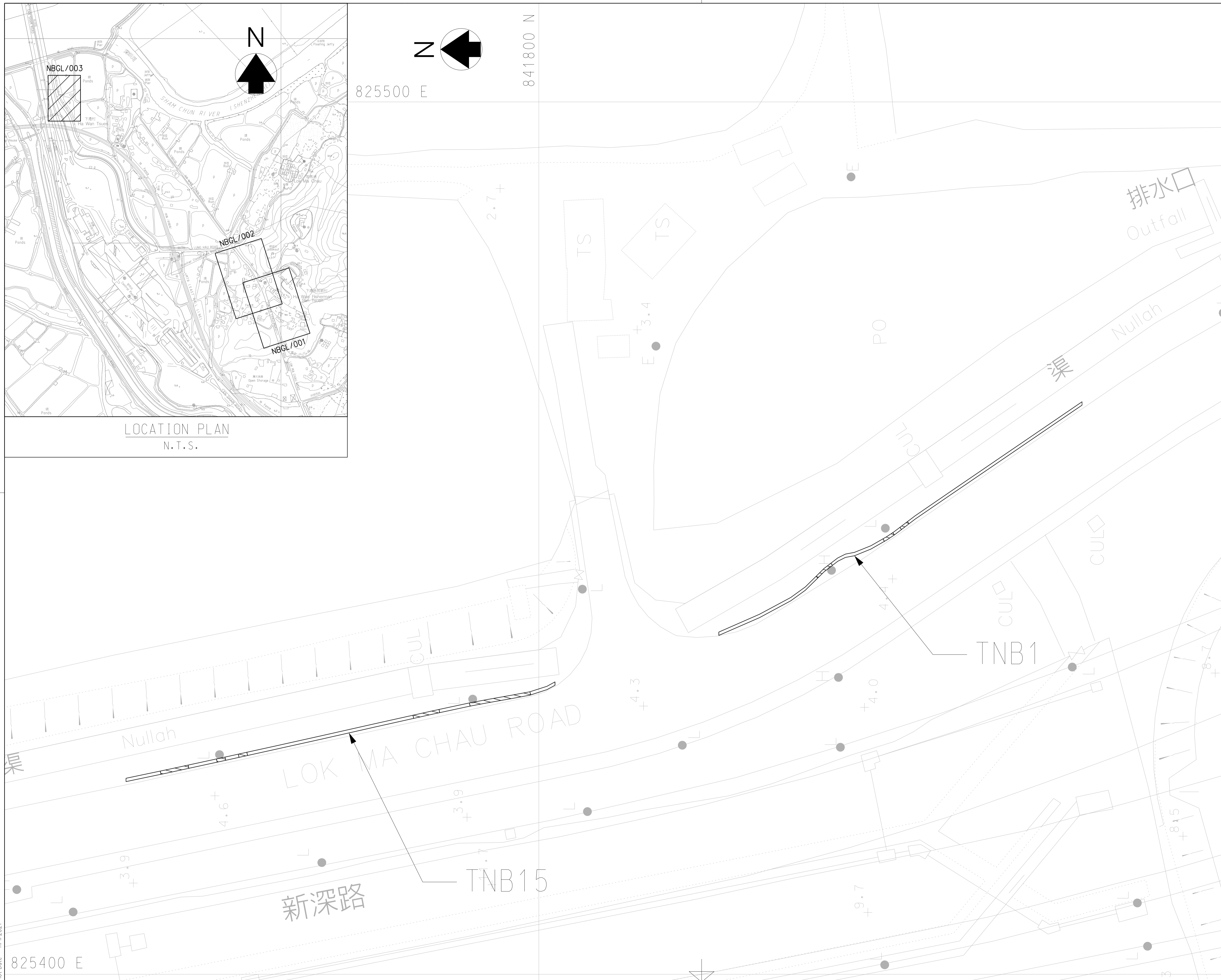
土木工程拓展署  
CEDD Civil Engineering and  
Development Department

  
BINNIES HONG KONG LIMITED  
賓尼士工程顧問有限公司





LOCATION PLAN  
N.T.S.



NOTE:

1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB08/001/R.

LEGEND:

- 0.8m - HIGH TEMPORARY NOISE BARRIER (TYPE A)
- 0.8m - HIGH TEMPORARY NOISE BARRIER (TYPE B)

WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018

DATE OF COMPLETION :

核准  
Approved

合約編號  
Contract No. YL/2017/03

合約編號  
Agreement No. CE 5/2014 (CE)

合約名稱  
Contract title  
DEVELOPMENT OF LOK MA CHAU LOOP:  
LAND DECONTAMINATION AND  
ADVANCE ENGINEERING WORKS

圖則名稱  
Drawing title  
AS-CONSTRUCTED DRAWING  
NOISE BARRIER -  
GENERAL LAYOUT PLAN  
(SHEET 3 OF 3)

圖則參考編號  
Drawing Reference No. 184794/NBGL/003/R 修訂  
Revision -

合約圖則編號  
Contract Drawing No. 修訂  
Revision -






比例  
Scale A1 1 : 200  
A3 1 : 400

土木工程拓展署  
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Development Department

binnies

BINNIES HONG KONG LIMITED  
賓尼士工程顧問有限公司




Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works  
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB1	
TNB2	
TNB11	
TNB3	
TNB4	



Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works  
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
TNB6	 A photograph showing a temporary noise barrier (TNB6) along a road. The barrier is a grey metal fence with a concrete base. In the background, there are buildings, including one with Chinese characters. A red line with the label 'TNB6' is drawn across the top of the barrier.
TNB7	 A photograph showing a temporary noise barrier (TNB7) along a road. The barrier is a grey metal fence with a concrete base. In the background, there are buildings, including a multi-story residential building with a red roof and palm trees. A red line with the label 'TNB7' is drawn across the top of the barrier.
TNB8	 A photograph showing a temporary noise barrier (TNB8) along a road. The barrier is a grey metal fence with a concrete base. In the background, there are trees and a building with a red roof. A red line with the label 'TNB8' is drawn across the top of the barrier. The date '29/07/2021' is visible in the bottom right corner of the photo.

Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works  
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road




TNB ID	Photo
TNB9	 A photograph showing a temporary noise barrier (TNB9) along a road. The barrier consists of grey concrete blocks topped with a chain-link fence. In the background, there are trees and a building. A red rectangular box highlights the barrier, with the label 'TNB9' in red text above it.
TNB10	 A photograph showing a temporary noise barrier (TNB10) along a road. The barrier consists of grey concrete blocks topped with a chain-link fence. The road is paved and has white lane markings. In the background, there are trees and a building. A red rectangular box highlights the barrier, with the label 'TNB10' in red text above it. The date '29/4/2021' is visible in the bottom right corner.
TNB13	 A photograph showing a temporary noise barrier (TNB13) along a road. The barrier consists of grey concrete blocks topped with a chain-link fence. In the background, there are trees and a building. A red rectangular box highlights the barrier, with the label 'TNB13' in red text above it. The date '29/4/2021' is visible in the bottom right corner.




Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works  
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road




TNB ID	Photo
TNB14	 A photograph showing a temporary noise barrier (TNB14) along a road. The barrier is a grey metal fence. In the background, there are buildings and trees. A red rectangle highlights the barrier, with the text 'TNB14' written above it.
TNB15	 A photograph showing a temporary noise barrier (TNB15) along a road. The barrier is a concrete wall. In the background, there are trees. A red rectangle highlights the barrier, with the text 'TNB15' written above it. A date stamp '27/06/2020' is visible in the bottom right corner of the photo.

YL/2020/02 – Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and Direct Road Link Phase 1




Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

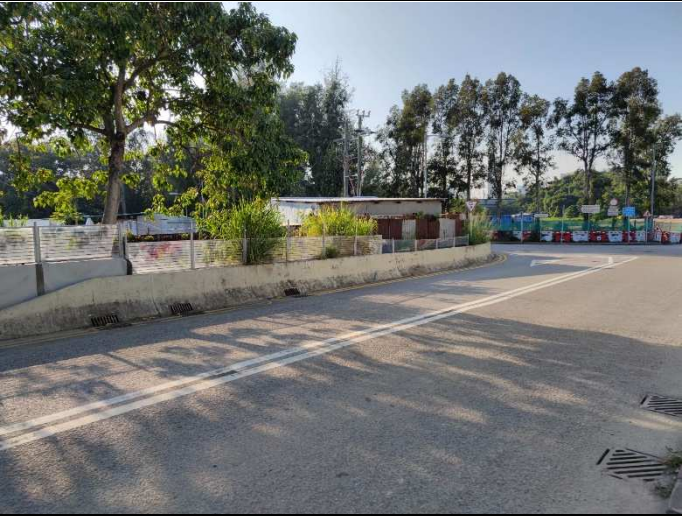
TNB ID	Photo
2	
3 4	
5	

TNB ID	Photo
6	
7	
8	

TNB ID	Photo
9	 A photograph of a construction site. In the foreground, there are several grey and orange plastic water-filled barriers. A sign with the CEED logo is attached to one of the barriers. To the right, a red and white triangular warning sign with a black border and a black symbol is placed on a red traffic cone. The background shows a road, some greenery, and a clear blue sky.
10	 A photograph of a roadside construction site. A blue pipe runs along the edge of the road. Behind it, there are white tarps covering some equipment or materials. A utility pole with wires is visible on the left. In the background, there are buildings, trees, and a clear blue sky.
11	 A photograph of a roadside construction site. A concrete wall runs along the edge of the road. Behind the wall, there are several large trees with green leaves. The road is paved and has white lane markings. The sky is clear and blue.



TNB ID	Photo
12	
13	
14	

TNB ID	Photo
17	

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**APPENDIX O  
WASTE GENERATION IN THE  
REPORTING MONTH**

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**Contract No. YL/2020/01 - Development of Lok Ma Chau  
Loop: Main Works Package 1 – Contract 1 Site Formation  
and Infrastructure Works inside Lok Ma Chau Loop and  
Western Connection Road Phase 1**

## Monthly Summary Waste Flow Table for 2023 (year)

Name of Person completing the record: Lila Lui (EO)

Development of Lok Ma Chau Loop : Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection

Contract No.: YL/2020/01

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated (a)= (b)+(c)+(d)+(e)	Hard Rock and Large Broken Concrete (b)	*Reused in the Contract (c)	Reused in other Projects (d)	Disposed as Public Fill (e)	Imported Fill	Metals	Paper/ cardboard packaging/	Plastics	Yard Waste	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan-23	0.491	0.000	0.000	0.000	0.491	0.919	0.000	0.067	0.000	0.000	0.000	0.018
Feb-23	0.715	0.000	0.000	0.000	0.715	0.000	0.000	0.150	0.000	1.100	0.000	0.027
Mar-23	1.129	0.000	0.000	0.000	1.129	0.000	0.012	0.132	0.016	0.000	0.000	0.032
Apr-23												
May-23												
Jun-23												
Sub-total	2.335	0.000	0.000	0.000	2.335	0.919	0.012	0.349	0.016	1.100	0.000	0.076
Jul-23												
Aug-23												
Sep-23												
Oct-23												
Nov-23												
Dec-23												
Total	2.335	0.000	0.000	0.000	2.335	0.919	0.012	0.349	0.016	1.100	0.000	0.076

### Remarks:

1. Assume the density of soil fill=2.0 tonnes/m<sup>3</sup>
2. Assume the density of rock and broken concrete=2.5 tonnes/m<sup>3</sup>
3. Assume the density of refuse = 1.5 tonnes/m<sup>3</sup>
4. The inert C&D material except slurry and bentonite are disposed at Tuen Mun 38
5. The slurry and bentonite are disposed at Tseung Kuwn O 137.
6. The non-inert C&D wastes, including general refuse are disposed at NENT

**Contract No. YL/2020/02 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 2 Western**

**Connection Road Phase 2, Connection Roads to Fanling /**

**San Tin Highway and Direct Road Link Phase 1**

## Monthly Summary Waste Flow Table for 2023 (year)

Name of Person completing the record: Calvin So (EO)

Project : Development of Lok Ma Chau Loop: Main Works Package 1– Contract 2, Western Connection Road Phase 2,  
Connection Roads in Fanling / San Tin Highway and Direct Road Link Phase 1

Contract No.: YL/2020/02

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m <sup>3</sup> )
Jan	0.432	0.000	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000	0.428
Feb	0.257	0.000	0.000	0.000	0.257	0.095	0.000	0.000	0.000	0.000	0.403
Mar	1.359	0.000	0.000	0.000	1.359	0.090	0.000	0.004	0.001	0.000	0.171
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-total	2.048	0.000	0.000	0.000	2.048	0.185	0.000	0.004	0.001	0.000	1.001
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.048	0.000	0.000	0.000	2.048	0.185	0.000	0.004	0.001	0.000	1.001

Note:

1. For non-inert portion of C&D material, assume the density of 1 m<sup>3</sup> general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m<sup>3</sup> per each full-filled dump truck.
3. All values are round off to the third decimal places.

**Contract No. YL/2021/01 – Development of Lok Ma Chau**

**Loop: Main Works Package 1 – Contract 3 Direct Road**

**Link Phase 2**



## Monthly Summary Waste Flow Table for 2023 (year)

Name of Person completing the record: Tino Law

Development of Lok Ma Chau Loop : Main Works Package 1 – Contract 3

Contract No.: YL/2021/01

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated (a)= (b)+(c)+(d)+(e)	Hard Rock and Large Broken Concrete (b)	*Reused in the Contract (c)	Reused in other Projects (d)	Disposed as Public Fill (e)	Imported Fill	Metals	Paper/ cardboard packaging/	Plastics  (see Note 3)	Yard Waste	Chemical Waste	Others, e.g. general refuse
	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000m <sup>3</sup> )	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m <sup>3</sup> )
Jan-23	0.597	0.000	0.000	0.000	0.597	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb-23	0.329	0.000	0.000	0.000	0.329	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar-23	0.707	0.000	0.000	0.000	0.707	0.000	0.011	0.000	0.005	0.000	0.000	0.001
Apr-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Jun-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-total	1.633	0.000	0.000	0.000	1.633	0.000	0.011	0.000	0.005	0.000	0.000	0.001
Jul-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	1.633	0.000	0.000	0.000	1.633	0.000	0.011	0.000	0.005	0.000	0.000	0.001

### Remarks:

1. Assume the density of soil fill=2.0 tonnes/m<sup>3</sup>
2. Assume the density of rock and broken concrete=2.5 tonnes/m<sup>3</sup>
3. Assume the density of refuse = 1.5 tonnes/m<sup>3</sup>
4. The inert C&D material except slurry and bentonite are disposed at Tuen Mun 38
5. The slurry and bentonite are disposed at Tseung Kuwn O 137.
6. The non-inert C&D wastes, including general refuse are disposed at NENT

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**APPENDIX P  
COMPLAINT LOGS**

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**Appendix P - Complaint Log**Contract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

<b>Log Ref.</b>	<b>Date of Complaint</b>	<b>Complaint Route</b>	<b>Reference No.</b>	<b>Complaint Nature</b>	<b>Investigation Finding</b>	<b>Status</b>
1	9-Sep-19	EPD	EPD Ref: 25222-19	Water quality and air quality	Non-project related	Interim report was submitted to EPD on 23 Sep 2019
2	11-Oct-19	EPD	EPD Ref: 28550-19	Air quality	Non-project related	Interim report was submitted to EPD on 6 Nov 2019
3	30-Oct-19	EPD	EPD Ref: 30478-19	Air quality	Non-project related	Interim report was submitted to EPD 14 Nov 2019
4	10-Dec-19	1823 (CEDD)	1823 Case no: 2-6145710343	Noise and air quality	Non-project related	Final reply to 1823 on 24 Dec 2019. IR prepared by Contractor was agreed by IEC and ET
5	5-Mar-21	1823	1823 Case no: 3-6641544979	Air quality	Non-project related	Final reply to 1823 on 11 Mar 2021. IR prepared by Contractor was agreed by IEC and ET

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 – Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 / Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1 / Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
COM-2021-10-01	11 October 2021	EPD	EPD File Ref.: N07/RN/00 024120-21	<p>EPD received a public complaint on 11 October 2021. The complainant alleged the following:</p> <p>(a) Discharge of muddy water from construction sites of “Development of Lok Ma Chau Loop” project to Shenzhen River in the morning of 8 October 2021; and,</p> <p>(b) Use of powered mechanical equipment (including excavators and dump trucks) in the construction sites of “Development of Lok Ma Chau Loop” project on Sunday.</p>	<p>(a) <u>Water Quality</u> Non-project related According to the interim report, wastewater treatment facilities and relevant mitigation measures were properly implemented and there is no direct evidence to demonstrate the muddy discharge was induced by the Contract. Further preventive measures, such as increasing the height of the temporary drainage by using sandbag and providing the earth bund with geo-textile along the site boundary, were implemented on 12 October 2021 in order to avoid muddy water from leaking into Shen Zhen River.</p> <p>(b) <u>Noise</u> Project related Typhoon No. 8 (Tropical cyclone: Lion Rock) was hoisted on 9 October 2021. Severe rainfall was recorded due to the adverse weather. To avoid leakage of the muddy water into the meander of the Shenzhen River, JV mobilized an excavator and dump truck to clear the blockage as an emergency measure. ET reminded the Contractor to update the site drainage</p>	Interim report was submitted to EPD on 29 Oct 2021

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					<p>plan according to the construction programme and closely check the effectiveness of the implemented mitigation measures on site so that the EP, EIA and EM&amp;A manual recommendation and requirements are complied with.</p> <p>In addition, the Contractor was also reminded to prepare a contingency plan for emergency environmental incidents.</p>	
COM-2021-11-01	15 November 2021	EPD	EPD File Ref.: N06/RN/00 027302-21	EPD received a public complaint on 15 November 2021. The complainant concerned about the dust nuisance in the construction sites of “Development of Lok Ma Chau Loop” project.	<p>According to the interim report, dust mitigation measures have been properly implemented on site:</p> <ul style="list-style-type: none"> <li>- Haul road of the main site have been paved with concrete and the speed of the vehicle has been restricted to below 8kmper hour within the construction area to minimize fugitive dust emission.</li> <li>- Wheel washing fallibilities have been established at the location where the vehicles into the haul road in order to keep clear of any loose surface material.</li> <li>- Mist spray and water trucks have been provided to water the paved haul road regularly and at least once per hour on exposed work site.</li> <li>- Water spray has been provided during the handling of the fill material at the site and all the dusty loads transported to, from and between site location have been covered.</li> <li>- Induction training and tool box talk have been provided to the site staff and workers regarding the dust suppression measure.</li> <li>- Temporary covers have been provided to stockpile of the dusty materials and the exposed slope.</li> </ul>	Interim report was submitted to EPD on 25 Nov 2021

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					Further preventive measures, establishment of the automatic water spray system along the haul road and increasing the amount of the mist spray machine to enhance the efficiency of the dust suppression measures will also be provided.	
COM-2022-01-01	2 January 2022	EPD	EPD File Ref.: N06/RN/00000184-22	EPD received a public complaint by phone in Jan 2022 regarding noise from general construction work associated with the Lok Ma Chau Loop Development Project being carried out on 2.1.2022 at around 15:30 hours (i.e. within the restricted hours on Sunday).	<p>According to the location under complaint, the work was likely carried out within the work site of “Direct Road Link to MTR Lok Ma Chau Station” and/or “Western Connection Road”. Therefore, interim reports were submitted by Contract No.: YL/2020/01 and YL/2020/02 respectively:-</p> <p><u>Contract No.: YL/2020/01</u></p> <p>According to the site diary, no construction work was carried out during restricted hours at the location under complaint for YL/2020/01 on 2 January 2022. For prevention measure, Permit –to –Work system has been implemented for all the construction works being conducted in the restricted hours to enhance site control. All the construction works need to inform JV at least one day in advance.</p> <p>In addition, all staff and workers involved in the site operation during the restricted hours have to obtain a valid site pass and display to the security guards when entering site area for the enhancement of the site security system.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the</p>	Interim report was submitted to EPD on 14 Feb 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					<p>construction works of the Contract YL/2020/01.</p> <p><u>Contract No.: YL/2020/02</u> According to the site diary, no construction work was carried out during restricted hours at the location under complaint on 2 January 2022 for YL/2020/02. Nevertheless, construction team was reminded to strictly follow the requirement stated in the issued construction noise permit when construction work is required during restricted hours.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract YL/2020/02.</p>	
COM-2022-04-01	4 April 2022	1823	1823 Case no: 3-7155426748	The complainant concerned about the muddy surface runoff arising from the construction works of “Development of Lok Ma Chau Loop” project. at Lok Ma Chau Road near Ha Wan Tsuen Road.	<p>According to the interim report, no construction works was carried out at the location of complaint which is outside the site boundary of the Project from 1st April to 4th April 2022. Appropriate water quality mitigation measures have been properly implemented on site and there is no direct evidence to demonstrate the muddy discharge was inducted by the Project.</p> <p>Further preventive measures, such as set up a monitoring point at the exit of the site to check the wheels of the vehicles are clean enough so that no mud and grit adhered to the wheels of the trucks when leaving the site. In addition, sprinkler truck will be only operated at appropriate location within the project site to avoid nuisance to the public road user.</p>	Final reply to 1823 on 12 April 2022. Interim report prepared by Contractor was agreed by IEC and ET

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
COM-2022-08-01	1 August 2022	EPD	EPD File Ref.: N06/RN/00 015561-22	The complainant concerned about the muddy water discharged by a piling contractor “德運建築鑽探有限公司” on 20 <sup>th</sup> July 2022	<u>Contract No.: YL/2020/01</u> 德運建築鑽探有限公司 is not related to the Contract No. YL/2020/01. After checking on site, the complaint was referred to other party.	Interim report was submitted to EPD on 18 Aug 2022
COM-2022-08-02	4 August 2022	EPD	EPD File Ref.: N06/RN/00 015953-22	The complainant concerned about the muddy water discharging to the public area from a construction site near Fu Tai Car Park.	<u>Contract No.: YL/2020/02</u> Joint site investigation with RSS was carried out on 5 Aug 2022 near Fu Tai Carpark. There were no construction works carried out near Fu Tai Carpark and no muddy water was noted. Preventive measures (sand bag bund) had been provided.	Interim report was submitted to EPD on 18 Aug 2022
COM-2022-10-01	14 October 2022	EPD	EPD File Ref.: N06/RN/00 022308-22	The complainant concerned about the noise arising from piling works carried out at 6am in the morning and around 11pm at night at the construction site adjacent to the existing Lok Ma Chau MTR Station.	<u>Contract No.: YL/2021/01</u> According to the interim report, the piling works were carried out with valid construction noise permit from 08:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site.  Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment to minimize the noise generated from works and the impact to the nearby resident.	Interim report was submitted to EPD on 17 Nov 2022
COM-2022-10-02	14 October 2022	EPD	EPD File Ref.: N06/RN/00 022342-22	The complainant concerned about the noise arising from piling works carried out before 7am and at around 11pm at the construction site adjacent to the existing Lok Ma Chau MTR Station.	<u>Contract No.: YL/2021/01</u>  According to the interim report, the piling works were carried out with valid construction noise permit from 08:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site.	Interim report was submitted to EPD on 17 Nov 2022



Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment to minimize the noise generated from works and the impact to the nearby resident.	
COM-2022-10-03	28 October 2022	EPD	EPD File Ref.: N06/RN/00 023772-22	The complainant concerned about the noise arising from percussive piling works carried out on 27 & 28 Oct 2022 in Lok Ma Chau Loop (at a work site near “落馬州河套區創科園地盤”)	<u>Contract No.: YL/2020/01</u> According to the interim report, no percussive piling works were carried out under Contract No. YL/2020/01 inside Lok Ma Chau Loop on 27 <sup>th</sup> and 28 <sup>th</sup> October 2022 according to per Condition 2.9 (d) of EP 477/2013/A.	Interim report was submitted to EPD on 22 Nov 2022
COM-2022-11-01	20 November 2022	EPD	EPD File Ref.: N07/RN/00 026174-22	The complainant concerned about the noise arising from piling works carried out at around 7am to around 10pm at the construction site adjacent to the Lok Ma Chau minibus station (落馬州關口小巴士站旁地盤).	<u>Contract No.: YL/2021/01</u> According to the interim report, the piling works were carried out with valid construction noise permit from 09:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site.  Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment and along the site boundary facing the resident of Shenzhen City to minimize the noise generated from works and the impact to the nearby resident.  In addition, the duration of potential noisy construction activities (e.g., core demouling and casing extraction)	Interim report was submitted to EPD on 5 Dec 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					were also minimized.	
COM-2022-12-01	4 December 2022	EPD	EPD File Ref.: N06/RN/00 027607-22)	The complainant alleged that: “... 打樁噪音造成困擾,情況已維持幾個星期,最初只係星期六下午,近兩星期日日朝早點前後就開始,到黃昏點幾6點先至停”. The complainant provided co-ordinate information (x=826305.0; y=842363.0) for reference.	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, no percussive piling works were carried out since the commencement of the Contract with reference to the site diary records.</p> <p>Refer to the coordinate information (x=826305.0; y=842363.0) provided by the complainant, the location of concerned is not within the works area under the Contract.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract.</p>	Interim report was submitted to EPD on 22 Dec 2022
COM-2022-12-01	8 December 2022	EPD	EPD File Ref.: N06/RN/00 028165-22)	The complainant alleged that there was percussive piling works carried out within the work site of Lok Ma Chau Loop, and commented that “落馬洲河套地盤打樁噪音問題,到目前仍然如是”. The complainant provided a video record of 7 Dec 2022 (taken at around 1500 hours) showing the suspected percussive piling work. The complainant provided co-ordinate information (x=826305.0; y=842363.0)	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, no percussive piling works were carried out since the commencement of the Contract with reference to the site diary records.</p> <p>Refer to the coordinate information (x=826305.0; y=842363.0) provided by the complainant, the location of concerned is not within the works area under the Contract.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract.</p>	Interim report was submitted to EPD on 22 Dec 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
				for reference, and did not indicate where he/she was affected by the construction noise.		
COM-2023-02-01	15 February 2023	EPD	EPD File Ref.: N06/RN/0004267-23)	The complaint was lodged by a resident of Shenzhen City ‘...'附上落马洲工程夜间持续到现在还在工作的视频，轰隆声非常影响我们住在对面深圳居民的休息！希望能得到改善！不要在夜间扰民！谢谢！". Two short videos were attached in EPD's email dated 15 February 2023.	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, piling works were carried out by the Contractor from 09:00 to 23:00 with valid construction noise permit under Contract YL/2021/01 of the Public Transport Interchange of Lok Ma Chau MTR Station.</p> <p>Noise monitoring was conducted for works during the restricted hours and no exceedance was recorded. The duration of working time for core demoulding and casting extraction were also minimized in order to reduce noise levels. Acoustic canvas sheets were installed to enclose the engine of used PME and deployed along the site boundary facing the resident of Shenzhen City to minimize the noise generated from works and the impact to the nearby resident.</p> <p>For enhancement, a 3m high noise barrier was installed next the rotary drilling rig on 15 February 2023. All night works were reviewed and suspended until 19 February 2023.</p>	Interim report was submitted to EPD on 24 Feb 2023
COM-2023-03-01	3 March 2023	EPD	EPD File Ref.: N06/RN/00	The complaint was lodged by a resident of Shenzhen City “附件有视频，拍不到做工	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, the piling works were</p>	Interim report was submitted to EPD on 17

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
			006284 23	<p>程，但机器的轰隆声从早到晚，即使现在 22:24 分还在热火朝天的工作中！孩子和老人都需要休息，特别是老人，这种声音让他们已经很久没能早点休息！！！望能解决！或者可否告知什么时候工程能结束？ A short video was attached in EPD's email on 8<sup>th</sup> March 2023.</p>	<p>carried out from 09:00 to 23:00 with valid construction noise permit under Contract YL/2021/01 at the Public Transport Interchange of Lok Ma Chau MTR Station. Other than the piling works, there were no construction works undertaken by Contract YL/2021/01 on that night. Noise source was recorded in the short video provided by the complaint. However, the noise source had yet to be ascertained.</p> <p>Since the commencement of the contract, Permit to Work (PTW) System for construction works undertaking during restricted hours has been implemented. PMEs used were followed the granted CNP as well as the condition(s ) stipulated in CNP were fulfilled.</p> <p>In addition, noise monitoring was conducted for works during the restricted hours, and no exceedance was recorded.</p> <p>Acoustic canvas sheets were installed to enclose the engine of used powered mechanical equipment. A 3m high noise barrier was installed next to the rotary drilling rig. For enhancement, another 3m high noise barrier was erected facing the residential blocks of Shenzhen City on 7 March 2023. The piling works at the site area near Lok Ma Chau MTR Station are tentatively scheduled to be completed in the first quarter of 2024.</p>	Mar 2023

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**APPENDIX Q  
SUMMARY OF SUCCESSFUL  
PROSECUTION**

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**Appendix Q - Summary of Successful Prosecution**

<b>Date of Successful Prosecution</b>	<b>Details of the Successful Prosecution</b>	<b>Status</b>	<b>Follow Up</b>
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**APPENDIX R**  
**ECOLOGICAL MONITORING RESULTS**

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## Appendix R1 – Avifauna Monitoring Results (Pond 12)

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	1 <sup>st</sup> March 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv			2
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		3	6
Black Drongo	<i>Dicrurus macrocercus</i>	黑卷尾	Sv			1
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV			3
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R		2	2
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	1	
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		2	4
Great Cormorant	<i>Phalacrocorax carbo</i>	普通鸕鷀	CWV	PRC	5	5
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)		1
Grey Heron	<i>Ardea cinerea</i>	蒼鷺	WV	PRC		1
Japanese White-eye	<i>Zosterops japonicus</i>	暗綠繡眼鳥	R		1	
Jungle Crow	<i>Corvus macrorhynchus</i>	大嘴烏鴉	R			1
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)		1
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鵲鴝	R		1	1



Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	1 <sup>st</sup> March 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R		1	
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		1	2
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	白胸翡翠	R		1	1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R			4
<b>Total No. of Species</b>					<b>10</b>	<b>15</b>
<b>No. of Birds Recorded</b>					<b>18</b>	<b>35</b>

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	6 <sup>th</sup> March 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		1	2
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		9	18
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV			2
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R		6	3
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	1	
Common Myna	<i>Acridotheres tristis</i>	家八哥	UR			2
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R			2
Great Cormorant	<i>Phalacrocorax carbo</i>	普通鸕鷀	CWV	PRC	6	6
Grey Heron	<i>Ardea cinerea</i>	蒼鷺	WV	PRC		2
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R			1
Purple Heron	<i>Ardea purpurea</i>	草鷺	R	RC		2
Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	紅咀藍鶇	R			1
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		3	3
Stejneger's Stonechat	<i>Saxicola stejnegeri</i>	黑喉石鶇	WV		2	
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		1	6
<b>Total No. of Species</b>					<b>8</b>	<b>13</b>

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	6 <sup>th</sup> March 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
<b>No. of Birds Recorded</b>					<b>29</b>	<b>50</b>

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	15 <sup>th</sup> March 2023
					Weather Condition	Foggy & Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R			2
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV			2
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	3	3
Cinereous Tit	<i>Parus cinereus</i>	蒼背山雀	R			1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		3	10
Great Cormorant	<i>Phalacrocorax carbo</i>	普通鸕鶿	CWV	PRC	2	
Grey Wagtail	<i>Motacilla cinerea</i>	灰鶺鴒	WV			1
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鶺鴒	R			2
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R			1
Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	紅咀藍鶺鴒	R			1
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶺鴒	R		6	2
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R		1	1
Stejneger's Stonechat	<i>Saxicola stejnegeri</i>	黑喉石鶺鴒	WV			1
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	白胸苦惡鳥	R			1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		2	3

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	15 <sup>th</sup> March 2023
					Weather Condition	Foggy & Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
<b>Total No. of Species</b>					<b>6</b>	<b>14</b>
<b>No. of Birds Recorded</b>					<b>17</b>	<b>31</b>

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	22 <sup>nd</sup> March 2023
					Weather Condition	Fine
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		1	1
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		1	3
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV		1	2
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R			1
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	1	1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		4	5
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鶻鶻	R		1	1
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R			1
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		5	7
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R		1	2
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	白胸翡翠	R		1	1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		5	6
<b>Total No. of Species</b>					<b>10</b>	<b>12</b>
<b>No. of Birds Recorded</b>					<b>21</b>	<b>31</b>

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	29 <sup>th</sup> March 2023
					Weather Condition	Drizzle
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		2	5
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		3	2
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV		2	3
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R			2
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	1	
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		2	3
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC		3
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鷯	R		5	4
<b>Total No. of Species</b>					<b>6</b>	<b>7</b>
<b>No. of Birds Recorded</b>					<b>15</b>	<b>22</b>

## Note:

R – Resident; WV – Winter visitor; PM – Passage migrant; CPM - Common Passage Migrant; UPM – Uncommon passage migrant; CaM - Common autumn migrant; USV - Uncommon Summer visitor; SpM – Spring migrant; Sv – Summer Visitor; UR – Uncommon resident; SWV – Scarce winter visitor; CWV - Common Winter Visitor; M - Spring and Autumn Migrant; OV - Occasional visitor

Status was decided according to AFCD biodiversity website ([www.hkbiodiversity.net](http://www.hkbiodiversity.net))

Cap. 170: All bird species are under protection of Wild Animals Protection Ordinance

Cap.586 : Endangered Species of Animals and Plants Ordinance (Cap.586)

CR: Rare in China Red Data Book Status

VU: Vulnerable in IUCN Red List Status

(VU): Vulnerable in China Red Data Book Status

EN: Endangered in IUCN Red List Status

(EN): Endangered in China Red Data Book Status

NT: Near Threatened in IUCN Red List Status

CR: Critically Endangered in IUCN Red List Status

RC=Regional Concern; LC=Local Concern; PRC=Potential Regional Concern; GC=Global Concern; PGC=Potential Global Concern. Letters in parentheses indicate that the assessment is on the basis of restrictedness in breeding and/or roosting sites rather than in general occurrence (Fellowes et al. (2002))



**Appendix R2 – Herptofauna (Chinese Bullfrog) Survey Results**

Common Name	Species Name	Chinese Name	Date: 3 <sup>rd</sup> March 2023					
			Weather Condition: Sunny					
			Counts					
			Transect Walk					
			Day Transect			Night Transect		
			WAL	AFP	Others	WAL	AFP	Others
Chinese Bullfrog	<i>Hoplobatrachus rugulosus</i>	虎紋蛙	0	0	0	0	0	0
<u>Remarks:</u> It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population.								

Note:

WAL – Wet Agricultural Land, AFP – Abandoned Fishpond

**Appendix R3 – Aquatic Fauna (Rose Bitterling) Survey Results**

Common Name	Species Name	Chinese Name	Date: 27 <sup>th</sup> March 2023							
			Weather Condition: Overcast							
			Counts							
			Location(s)							
			S1	S2	S3	S4	A1	A2	B1	B2
Rose Bitterling	<i>Rhodeus ocellatus</i>	高體鯉鰍	Direct Observation:							
			0	0	0	0	0	0	0	0
			Sweep Netting:							
			0	0	0	0	0	0	0	0

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**Water Quality Monitoring Results on 08-Mar-23**

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	14:03	23.5	23.6	7.8	7.8	0.1	0.1	85.1	84.9	7.2	7.2	5.4	5.4
			23.6		7.8		0.1		84.7		7.2			
A2	Sunny	13:47	23.3	23.3	8.4	8.4	0.1	0.1	83.5	83.5	7.1	7.1	5.1	5.1
			23.2		8.4		0.1		83.4		7.1			
B1	Sunny	13:41	24.8	24.8	10.1	10.1	0.1	0.1	223.5	223.6	18.5	18.5	30.8	31.0
			24.8		10.1		0.1		223.7		18.5			
B2	Sunny	13:34	25.5	25.4	10.1	10.1	0.1	0.1	230.8	231.2	18.9	19.0	33.1	33.2
			25.3		10.1		0.1		231.5		19.0			
S1	Sunny	14:10	22.7	22.7	7.6	7.6	0.2	0.2	38.8	38.6	3.4	3.4	65.3	63.7
			22.6		7.6		0.2		38.3		3.3			
S2	Sunny	13:56	22.0	22.0	8.2	8.2	0.1	0.1	87.2	86.8	7.6	7.6	6.4	6.4
			22.0		8.1		0.1		86.4		7.6			
S3	Sunny	13:20	22.5	22.5	8.4	8.4	0.2	0.2	84.4	84.4	7.3	7.3	8.7	8.8
			22.5		8.3		0.2		84.3		7.3			
S4	Sunny	13:28	23.3	23.3	7.7	7.7	0.1	0.1	73.4	73.3	6.3	6.3	11.4	11.5
			23.3		7.7		0.1		73.2		6.3			

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**Water Quality Monitoring Results on 17-Mar-23**

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	11:33	23.0	23.0	7.6	7.6	0.1	0.1	62.6	62.5	5.4	5.4	7.2	7.2
			23.0		7.6		0.1		62.4		5.4		7.2	
A2	Sunny	11:18	23.7	23.7	7.9	7.9	0.1	0.1	70.0	69.9	5.9	5.9	5.8	5.9
			23.7		7.9		0.1		69.8		5.9		5.9	
B1	Sunny	11:11	24.9	24.9	9.0	9.0	0.1	0.1	130.0	130.2	10.8	10.8	32.7	32.6
			24.9		9.0		0.1		130.4		10.8		32.4	
B2	Sunny	11:04	24.9	24.9	8.5	8.6	0.1	0.1	129.6	130.0	10.7	10.8	25.9	25.8
			24.9		8.6		0.1		130.4		10.8		25.7	
S1	Sunny	11:41	22.1	22.1	7.2	7.2	0.2	0.2	11.7	11.6	1.0	1.0	31.3	31.4
			22.1		7.2		0.2		11.5		1.0		31.4	
S2	Sunny	11:26	22.4	22.4	8.0	8.0	0.1	0.1	85.2	85.1	7.4	7.4	6.4	6.5
			22.4		7.9		0.1		85.0		7.4		6.5	
S3	Sunny	10:50	22.4	22.4	7.8	7.8	0.1	0.1	68.9	69.2	6.0	6.0	5.7	5.7
			22.4		7.8		0.1		69.4		6.0		5.6	
S4	Sunny	10:57	22.7	22.7	7.5	7.5	0.1	0.1	64.1	63.8	5.5	5.5	25.3	26.5
			22.7		7.5		0.1		63.5		5.5		27.6	

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**Water Quality Monitoring Results on 20-Mar-23**

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	10:11	23.1	23.1	7.4	7.4	0.1	0.1	48.6	48.5	4.2	4.2	6.0	6.0
			23.1		7.4		0.1		48.4		4.1			
A2	Sunny	09:56	23.1	23.1	7.7	7.7	0.1	0.1	58.2	58.0	5.0	5.0	6.5	6.4
			23.1		7.7		0.1		57.7		4.9			
B1	Sunny	09:48	23.0	23.0	8.3	8.3	0.1	0.1	105.9	106.1	9.1	9.1	40.9	39.8
			23.0		8.3		0.1		106.2		9.1			
B2	Sunny	09:42	22.9	23.0	8.3	8.3	0.1	0.1	107.4	107.5	9.2	9.2	32.8	32.9
			23.0		8.3		0.1		107.6		9.2			
S1	Sunny	10:18	22.4	22.4	7.0	7.0	0.1	0.1	9.3	9.1	0.8	0.8	29.0	29.0
			22.4		7.0		0.1		8.9		0.8			
S2	Sunny	10:04	22.4	22.4	7.6	7.6	0.1	0.1	77.7	77.6	6.7	6.7	4.8	4.9
			22.4		7.6		0.1		77.5		6.7			
S3	Sunny	09:27	22.3	22.3	7.9	7.9	0.1	0.1	66.3	66.1	5.8	5.8	5.2	5.2
			22.3		7.9		0.1		65.8		5.7			
S4	Sunny	09:34	22.2	22.2	7.4	7.4	0.1	0.1	57.2	57.1	5.0	5.0	15.9	15.9
			22.2		7.4		0.1		57.0		5.0			

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**Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team**  
**Water Quality Monitoring Results on 27-Mar-23**

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Rainy	09:30	22.0	22.0	7.5	7.5	0.1	0.1	21.5	20.9	1.9	1.9	4.9	4.8
			22.0		7.4		0.1		20.3		1.8		4.7	
A2	Rainy	09:06	21.9	21.9	7.2	7.2	0.1	0.1	32.3	31.9	2.8	2.8	5.2	5.2
			21.9		7.2		0.1		31.5		2.8		5.2	
B1	Rainy	08:59	21.4	21.4	7.2	7.2	0.1	0.1	27.2	26.5	2.4	2.4	26.7	26.6
			21.4		7.2		0.1		25.8		2.3		26.5	
B2	Rainy	08:52	21.6	21.6	7.2	7.2	0.1	0.1	21.5	21.4	1.9	1.9	24.6	24.4
			21.6		7.2		0.1		21.2		1.9		24.2	
S1	Rainy	09:39	21.4	21.4	7.2	7.2	0.1	0.2	30.6	30.6	2.7	2.7	25.3	25.7
			21.4		7.2		0.2		30.6		2.7		26.0	
S2	Rainy	09:24	21.9	21.9	7.6	7.6	0.1	0.1	69.3	69.2	6.1	6.1	7.0	6.7
			21.9		7.6		0.1		69.0		6.0		6.4	
S3	Rainy	08:38	21.6	21.6	7.3	7.3	0.1	0.1	51.6	51.4	4.5	4.5	5.3	5.4
			21.6		7.3		0.1		51.2		4.5		5.4	
S4	Rainy	08:46	21.4	21.4	7.2	7.2	0.1	0.1	37.4	37.4	3.3	3.3	5.5	5.5
			21.4		7.2		0.1		37.3		3.3		5.4	