

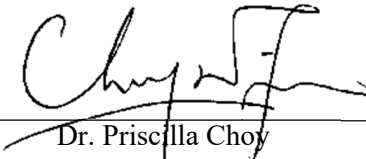
Civil Engineering and Development Department

**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 June 2022**

(Version 1.0)

Certified By	 _____ Dr. Priscilla Choy (Environmental Team Leader)
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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/L071
Date : 15 July 2022

By Post & Email

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

Attn: Ms. JIM Wing Yan, Eva

Dear Ms. JIM,

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

Verification of Monthly EM&A Report (June 2022)

Reference is made to the Monthly Environmental Monitoring and Audit (EM&A) Report of certified by the Environmental Team Leader in July 2022. 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
Mr. Terrant Cheung
Dr. Priscilla Choy

By Email

By Email

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EXECUTIVE SUMMARY

Introduction

1. This is the 42nd 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 1st to 30th June 2022 (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	2 nd , 8 th , 14 th , 20 th , 24 th and 30 th June 2022
		24-hr TSP Monitoring	1 st , 7 th , 13 th , 17 th , 23 rd and 29 th June 2022
Construction Noise		L _{eq30mins}	2 nd , 8 th , 14 th , 24 th and 30 th June 2022
Water Quality		<ul style="list-style-type: none"> • Temperature • pH • Turbidity • Water depth • Salinity • Dissolved Oxygen (DO) • Suspended Solids (SS) 	1 st , 4 th , 6 th , 8 th , 10 th , 13 th , 15 th , 17 th , 20 th , 22 nd , 24 th , 27 th and 29 th June 2022
Ecological	Lok Ma Chau (LMC) Loop	Avifauna flight line survey	17 th June 2022
		Mammal monitoring (by infra-red flash cameras)	Temporary suspended as the connectivity between the existing reed marsh and the EA Zone has been fenced off due to other project’s land occupier (i.e. emergency hospital)
	Western Connection Road	Avifauna flight line survey	17 th June 2022
		Avifauna survey at Pond 12	1 st , 8 th , 15 th , 22 nd and 29 th June 2022

Environmental Aspect		Monitoring Parameter	Date
	(WCR)	Herpetofauna survey	9 th June 2022
		Aquatic Fauna survey	15 th June 2022
		Water Quality Monitoring for Aquatic Fauna	LMC Meander 1 st , 4 th , 6 th , 8 th , 10 th , 13 th , 15 th , 17 th , 20 th , 22 nd , 24 th , 27 th and 29 th June 2022 <u>Stream and associated ponds south of Lung Hau Road</u> 10 th , 15 th , 22 nd and 27 th June 2022
Site Environmental Audit	Environmental protection and pollution control measures	Contract 1 and Contract 2 1 st , 8 th , 15 th , 22 nd and 29 th June 2022 Contract 3 6 th , 13 th , 20 th and 27 th June 2022	

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 Project	Corrective Action
Air Quality	1-hr TSP	0	0	--	0	--
	24-hr TSP	0	0	--	0	--
Construction Noise	<u>Daytime</u> Leq(30min)	0	0	--	0	--
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.

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. No Action/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. Most birds avoided using the flight line over the centre of LMC Loop which is considered due to the construction activities from other project's land occupier.

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 existing reed marsh and the EA. In view of current site condition of Loop, the connectivity between the existing reed marsh 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. So, the mammals monitoring in the Loop has been temporary 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. Most birds avoided using the flight line over the centre of LMC Loop which is considered due to the construction activities from other project's land occupier.

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.

Herptofauna

14. Herptofauna survey was conducted as scheduled in the reporting month. No significant impact of construction activities on the numbers of 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

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 st , 8 th , 15 th , 22 nd and 29 th June 2022
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 st , 8 th , 15 th , 22 nd and 29 th June 2022
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	6 th , 13 th , 20 th and 27 th June 2022

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

Complaint Log

20. No environmental complaint 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) Western Connection Road (WCR) Stage 1 Construction: Demolition of Existing Structures, Excavation, DCM and Retaining Wall.
- (b) Wetland Compensation Establishment Works and Ecological Monitoring.
- (c) Pre-drilling for Boc Culvert C and A1.
- (d) Meander Bridge Pre-drilling and Site Formation for Piling Platform.
- (e) Advance Work for Alternative Road along EV Zone (PMI).
- (f) PM Office (MIC) and Contractor Office (subject to release date of Closed-loop Area at Portion 7)

(Note that as the Emergency Hospital and Mobile Cabin Facility has been occupying the site, potential remaining works under Contract 1 is still under discussion. The activities above are tentative.)

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 / Tree Transplant.
- (b) Pre-construction Condition Survey inside MTRC tunnel.
- (c) Erection of Contractor's Site Office.
- (d) Pre-drilling and Trial Pits for Bridge ST01, CTFB and DRL.
- (e) Site clearance and GI works for Cut Slopes CS1, CS2 and Retaining wall BPW1, and associated temporary working platform.
- (f) Construction of concrete block piling platform for piling works of Retaining Wall BPW1.
- (g) Erection of Temporary Noise Barrier along the Lok Ma Chau Road.
- (h) Box Culvert Modification at Lok Ma Chau Road (Stage 1).
- (i) Demolition of Existing Structures along Lok Ma Chau Road. Structure Ref. R41, R42 & R50.
- (j) Existing Cycle Track Subway Modification.
- (k) Construction of Pai Lau.
- (l) Bored pile and socketed H-Pile for Bridge CTFB, ST01 & DRL.

- (m) Construction of Retaining walls RW 8 and RW 9.
- (n) Operation of TAR1 and TAR2.

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

- (a) Elevated PTI Hoarding erection.
- (b) Elevated PTI UU Diversion.
- (c) Demolition of Existing Structure.
- (d) Paving Works for Stage 2.
- (e) Pre-drilling.

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 42nd EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in the period from 1st to 30th June 2022.

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 12th 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 30th 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 No. YL/2020/01 –	a) Site formation of 70ha for the Loop;	Figure 1b

Contract(s)	Scope of Works	Site Layout Plan
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	<ul style="list-style-type: none"> b) Ground treatment by either surcharge and installation of vertical band drains or deep cement mixing method, and associated slopeworks, retaining wall, landscaping works; c) Construction of internal roads (Road D1 and Road L1), Public Transport Interchange (PTI) and associated drainage and sewerage works, waterworks, street lighting, utilities (including interim water main), street furniture and traffic aids, etc. within the Loop; d) Construction of bridge structure across old Shenzhen River meander; e) Temporary haul road linking Sai Kwo Road to the Loop; f) Ecological and environmental mitigation measures within the Loop including retention of reedbeds; g) Ecological and environmental mitigation measures outside the Loop including fishpond, off-site wetland and woodland compensation; and h) Construction of Western Connection Road (WCR) Phase 1 (section along existing Ha Wan Tsuen East Road) <ul style="list-style-type: none"> - Widening of Ha Wan Tsuen East Road; - Provision of cycle track and footpath; - Associated site formation and ground treatment works; - Utilities; and - Associated noise mitigation measures. 	
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	<ul style="list-style-type: none"> a) Remainder of Western Connection Road (WCR) comprising the following (excluding the first section WCR which is included in Contract 1) <ul style="list-style-type: none"> - Improvement of Lok Ma Chau (LMC) Road; - Provision of cycle track and footpath; - Construction of elevated cycle track cum footpath connecting Lok Ma Chau Road and Castle Peak Road – Chau Tau; - Associated noise mitigation measures; - Associated slope works, retaining wall and natural terrain mitigation works; and - Associated box culverts, drainage works and water works, street furniture and traffic aids, utilities and landscape works. b) LMC Road and San Tin Highway Connection <ul style="list-style-type: none"> - Construction of bridge structure connecting LMC Road and San Tin Highway; and - Junction Improvement works at Castle Peak Road and LMC Road. 	Figure 1b

Contract(s)	Scope of Works	Site Layout Plan
	c) Construction of Direct Road Link (DRL) Phase 1 comprising a vehicular bridge structure with provision of covered pedestrian walkway linking LMC Station PT1 and Ha Wan Tsuen East Road.	
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 exiting 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
Contract No. YL/2020/01				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
CRCC-Kwan Lee-Paul Y. JV	Contractor	Site Agent – Mr. Jeremy Luk	9013 7913	2774 0197
		JV Representative – Mr. Alvin Chan	9105 6863	2774 0197
		Team Leader – Mr. Jack Chu	9775 3008	2774 0197
		Team Leader – Mr. Desmond Tang	5188 0815	2774 0197
		Section Agent – Mr. S M Ma	6628 6221	2774 0197

Organization	Project Role	Contact Person	Tel No.	Fax No.
		Superintendent – Mr. Y K Poon	9177 8196	2774 0197
		Superintendent – Mr. Ray Wong	9171 0919	2774 0197
		Environmental Officer – Ms. Lila Lui	5261 0378	27740197
		Environmental Supervisor- Mr. Ray Wong	9171 0919	27740197
Contract No. YL/2020/02				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
China Road and Bridge Corporation	Contractor	Site Agent – Mr. Raymond Suen	9779 8871	3996 9202
		Team Leader – Mr. Jackson Chan	9254 1635	3996 9202
		Team Leader –Mr. Billy Leung	9777 0799	3996 9202
		Deputy Team Leader –Mr. Roger Poon	9503 2488	3996 9202
		Senior Foreman – Mr. Po Hang Lam	9345 6134	3996 9202
		Senior Foreman – Mr. Ka Kit Chan	6088 7741	3996 9202
		Foreman – Mr. Philip Tse	5128 1232	3996 9202
		Environmental Officer – Mr. Calvin So	9724 6254	3996 9202
		Environmental Supervisor- Mr. Leo Choi	9664 7880	3996 9202
Contract No. YL/2021/01				
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
		General Foreman – Mr. Yau Shueng Kee	9710 1663	3015 7861
		Environmental Officer – Ms. Lila Lui	5261 0378	3015 7861
		Environmental Supervisor – Mr. Terence Lai	9829 8605	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) Area 9 and Area 7 Area 2 Planting works.
- (b) Portion 6 - WCR Site Clearance, Demolition of Existing Structures.
- (c) Pre-drilling for Boc Culvert C and A1.

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 and transplantation works.
- (b) Box culvert modification, trial pits excavation and identification of existing utilities.
- (c) Pre-drilling works at ST01, CTFB and DRL.
- (d) Temporary Noise Barrier.
- (e) Monthly monitoring of the polishing function of Reedbed Cell no. 3A.
- (f) Retaining Wall BPW1 / CS1 / CS2. GI works completed.
- (g) CTFB, socketed H-pile for the staircase.
- (h) Demolition of Existing Structures.
- (i) Modified the existing boundary fencing at DRL-P09 for pre-drilling works.

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

- (a) Dismantle of MTR EEAA fencing.
- (b) Predrill.
- (c) UU detection.
- (d) Trial Pit Excavation.

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	
Environmental Permit (EP)				
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				
Construction Noise Permit (CNP)				
Contract No. YL/2020/01	GW-RN0246-22	26/03/2022	25/06/2022	Valid
Contract No. YL/2020/02	GW-RN0510-22	27/06/2022	19/12/2022	Valid
Contract No. YL/2020/02	GW-RN0534-22	30/06/2022	29/09/2022	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
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
Billing Account for Disposal of Construction Waste				
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
Registration of Chemical Waste Producer				
Contract No. YL/2020/01	WPN 5213-620-C4632-01	20/08/2021	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
Effluent Discharge License under Water Pollution Control Ordinance				
Contract No. YL/2020/01	WT00039466-2021	22/12/2021	31/12/2026	Valid
Contract No. YL/2020/02	--	--	--	Pending approval (Ref. no. 473875)
Contract No. YL/2021/01	--	--	--	Pending approval (Ref. no. 477720)

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-3	Village House along Old Border Road
DMS-4A (see Note 3)	Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill

Notes:

- 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.
- 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.
- 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-2A	HVS Sampler for 24-hour TSP monitoring	TISCH Model: TE-5170	3
DMS-3	1-hour TSP Dust Meter	Met One Instruments: AEROCET-831	4
DMS-4A		Calibrator	TISCH Model: TE-5025A
⁽¹⁾ DMS-1a	Dust Meter for 1-	Met One Instruments:	3

Monitoring Station(s)	Equipment	Model and Make	Quantity
	hour and 24-hour TSP monitoring	AEROCET-831	
DMS-4A	Wind Anemometer	DAVIS Model: Vantage PRO2 6152CUK	1

Remark: (1) 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 is proposed to ensure the monitoring data collection.

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 ± 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 m³/min. and 1.4 m³/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 ± 3 °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	58.8	18.4 – 101.6	353	500
DMS – 2A	57.9	35.0 – 86.1	370	
DMS – 3	49.3	25.1 – 72.3	351	
DMS – 4A	53.5	28.7 – 95.6	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	44.5	25.3 – 61.3	184	260
DMS – 2A	43.8	29.1 – 60.2	166	
DMS – 3	14.1	11.7 – 16.9	166	
DMS – 4A	28.4	20.9 – 41.2	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 (mainly due to other project)
DMS-2A	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	3
Calibrator	SVANTEK SV 30A	2

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	L10(30 min.) dB(A) L90(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	63.2	54.1 – 69.0	When one documented complaint is received.	75 dB(A)
NMS-2	68.9	65.2 – 71.9		
NMS-3	60.4	54.1 – 63.7		
NMS-4A	57.3	54.2 – 60.7		

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. No Action and 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 (mainly due to other project)
NMS-2	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 7th April 2021 which was confirmed by Engineer Representative under Contract No. YL/2017/03 via email dated 15th June 2021. The additional monitoring station, BS1 was therefore proposed to be deleted from the water quality monitoring programme starting from 28th 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 22nd 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
⁽¹⁾ BS1	Impact Station at Old Shenzhen River Meander	Additional impact station for temporary vehicular bridge

Note:

1. Terminated starting from 28th June 2021 according to Proposal for Update of Water Quality Monitoring Stations (approved by EPD on 22nd 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	3

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

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**.

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
Total	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0

5.35 No water quality monitoring was conducted at IS6 in the reporting month since the channel was dry.



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

Event and Action Plan

5.37 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 17th June 2022. Sunrise time at 5:39 am and the survey started at 5:09 am and lasted for 2 hours. The weather was fine throughout the survey.

Monitoring Result

- 6.14 Total number of birds observed was 159. Six species were included in the record of the flight line survey, including Little Egret, Great Egret, Chinese Pond Heron, Grey Heron, Black Kite and Collared Crow. **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	127	2	55	70
Great Egret 大白鷺	25	0	1	24
Chinese Pond Heron 池鷺	2	2	0	0
Grey Heron 蒼鷺	3	0	1	2
Black Kite 黑鳶	1	0	0	1
Collared Crow 白頸鴉	1	0	0	1
Total	159	4	57	98

- 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 1,445. **Table 6.2** shows the number of bird-flights for the six species respectively.

Table 6.2 Number of Bird-flights

Species	Total number of Bird-Flights
Little Egret 小白鷺	1095
Great Egret 大白鷺	262
Chinese Pond Heron 池鷺	16
Grey Heron 蒼鷺	30
Black Kite 黑鳶	9
Collared Crow 白頸鴉	33
Total	1,445

- 6.16 The distribution of flight line usage in this survey is shown in **Figure 6**.
- 6.17 Flight lines were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area (EA) Zone and along Shenzhen River. Most birds avoided using the flight line over the centre of LMC Loop which is considered due to the construction activities from other project's land occupier.

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 existing reed marsh 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 existing reed marsh 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 So, the mammals monitoring in the Loop was temporary 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: 1st, 8th, 15th, 22nd and 29th June 2022

- 6.32 In total, 231 individuals from 21 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 st June 2022	6	11	13	24
8 th June 2022	6	11	16	28
15 th June 2022	8	16	15	39
22 nd June 2022	8	11	22	25
29 th June 2022	4	9	9	40

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

Herpetofauna

Monitoring Requirements

- 6.14 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.

- 6.15 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

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

Monitoring Location

- 6.17 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

- 6.18 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

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

Date of Herpetofauna survey: 9th June 2022 (both day-time and night-time survey)

- 6.20 No potential impact due to the construction activities of Western Connection Road was identified during the survey of Chinese Bullfrog in the reporting month. The detailed results are shown in **Appendix R2**.

Aquatic Fauna

Monitoring Requirements

- 6.21 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.

- 6.22 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

- 6.23 Monitoring of Rose Bitterling population was conducted monthly during the construction period of WCR to identify potential impacts.
- 6.24 *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.
- 6.25 *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

- 6.26 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**.
- 6.27 *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

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

Monitoring Result

- 6.31 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: 15th June 2022

Date of Water Quality Monitoring for
Aquatic Fauna LMC Meander
1st, 4th, 6th, 8th, 10th, 13th, 15th, 17th, 20th,
22nd, 24th, 27th and 29th June 2022

Stream and associated ponds south of
Lung Hau Road

10th, 15th, 22nd and 27th June 2022

- 6.32 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.
- 6.33 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 **Appendix R3** and **R4** respectively.
- 6.34 *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 ²)	Estimated Volume of Contaminated Soil (m ³)
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 6th January 2020
 - (b) IRR for hot spot LD-003 endorsed by EPD on 18th March 2020
 - (c) IRR for hot spot LD-002 commented by EPD on 3rd September 2020 and resubmitted by Contractor on 16th September 2020
 - (d) IRR for hot spot LD-005 endorsed by EPD on 23rd October 2020
 - (e) Final Remediation Report including the result of hotspot LD-004 was submitted to EPD on 28th 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 ³)	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m ³)	0	N/A
		Disposal as Public Fill (Inert) (in '000 m ³)	0.004	N/A
Contract No. YL/2020/02		Reused in this Contract (Inert) (in '000 m ³)	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m ³)	0	N/A
		Disposal as Public Fill (Inert) (in '000 m ³)	0.167	N/A
Contract No. YL/2021/01		Reused in this Contract (Inert) (in '000 m ³)	0	N/A
		Reused in other Contracts/ Projects (Inert) (in '000 m ³)	0	N/A
		Disposal as Public Fill (Inert) (in '000 m ³)	0	N/A
Contract No. YL/2020/01	Non-inert	Recycled Metal ('000kg)	0.008	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0.194	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m ³)	0.023	NENT Landfill
Contract No. YL/2020/02		Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m ³)	0.576	NENT Landfill
Contract No. YL/2021/01		Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0	N/A
		Chemical Wastes ('000kg)	0	N/A
	General Refuses ('000m ³)	0	NENT Landfill	

8.3 The amount of wastes 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 1st, 6th, 8th, 13th, 15th, 20th, 22nd, 27th and 29th June 2022 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 st , 8 th , 15 th , 22 nd and 29 th June 2022
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 st , 8 th , 15 th , 22 nd and 29 th June 2022
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	6 th , 13 th , 20 th and 27 th June 2022

- 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
Contract No. YL/2020/01			
<i>Water Quality</i>	01/06/2022	The site exit at the TAR3 should be paved.	Follow-up action was needed during the audit session on 8 th June 2022.
<i>Water Quality</i>	08/06/2022	The site exit at TAR3 should be paved and the sand bag bund should be placed at the site boundary facing EA zone.	Improvement/ Rectification was observed during follow-up audit session on 15 th June 2022.
<i>Water Quality</i>	15/06/2022	Clear the muddy surface runoff & mud trails at the site exits at Ha Wan Tsuen Road and provide mitigation measures to avoid the recurrence of the aforesaid issue.	Improvement/ Rectification was observed during follow-up audit session on 22 nd June 2022.
<i>Water Quality</i>	22/06/2022	The exposed soil surface at WCR should be covered with tarpaulin sheet to avoid muddy surface runoff.	Improvement/ Rectification was observed during follow-up audit session on 29 th June 2022.
Contract No. YL/2020/02			
<i>Landscape and Visual</i>	01/06/2022	Clear the construction materials within the tree protection zone and provide the fencing surrounding the retain trees	Improvement/ Rectification was observed during follow-up audit session on 8 th June 2022.

Parameters	Date	Observations and Recommendations	Follow-up
		at LCS.	
<i>Water Quality</i>	01/06/2022	Provide proper management of dredged muck arising from the bored piling work to avoid spreading out to the nearby drain (LCS)	Improvement/ Rectification was observed during follow-up audit session on 8 th June 2022.
<i>Water Quality</i>	08/06/2022	Muddy water was observed overflow to the drain at LCS. The Contractor was reminded to enhance the sand bag bund to avoid the muddy water discharging out directly.	Improvement/ Rectification was observed during follow-up audit session on 15 th June 2022.
<i>Air Quality</i>	22/06/2022	Provide wheel washing facilities at the site exit of CS1.	Follow-up action was needed during the audit session on 29 th June 2022.
Contract No. YL/2021/01			
<i>Air Quality</i>	20/06/2022	Faded NRMM label should be replaced.	Improvement/ Rectification was observed during follow-up audit session on 27 th June 2022.
<i>Water Quality</i>	20/06/2022	To enhance water mitigation measures next to water outlet to ensure untreated waste water does not exit through water outlet	Improvement/ Rectification was observed during follow-up audit session on 27 th June 2022.

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 Ecological and Noise Mitigation Measures related to the Project according to EP Conditions 2.7 and 2.9 respectively are summarised in **Table 10.1**.

**Table 10.1 Compliance Status of Ecological and Noise Mitigation Measures
(EP Conditions 2.7 and 2.9)**

EP Requirements	Compliance Status	Remarks
Submission and Measures to Mitigate Ecological Impact		
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><u>Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works</u></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><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></p> <p>The pre-construction search has been carried out at Area, 2, 7 & 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,	Yes	The EA design has implemented these measures.

EP Requirements	Compliance Status	Remarks
including re-vegetation upon completion of the works 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	<u>Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works</u>

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.		The HCMP has been submitted and approved under the EP condition 2.7. <u>Development of Lok Ma Chau Loop Main Works Package 1 – Design and Construction</u> The HCMP has been submitted under the EP condition 2.7 and approved in December 2021.
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	The temporary noise barriers (TNBs) along LMC Road were completed under the Contract in October 2021. (Appendix N) The TNB5 and TNB 12 to be built under the Contract 2. 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.
(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	-

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.

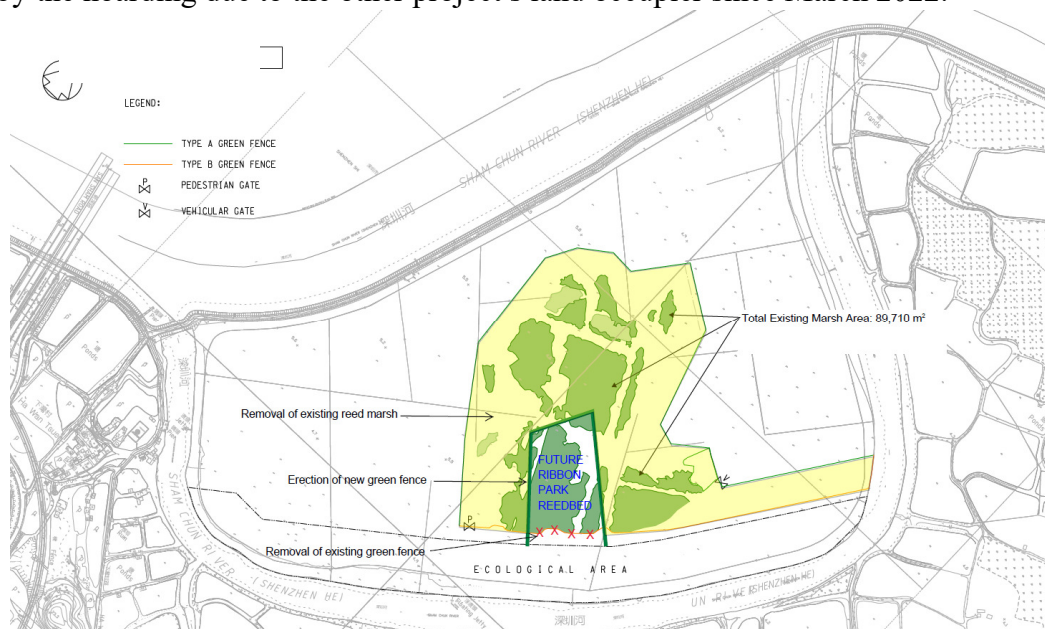
10.4 These Areas are located within a Priority Site for Enhanced Conservation, namely "Deep Bay wetlands outside the Ramsar site". Many of these fishponds are currently participating in the Nature Conservation Management Agreement Scheme in the Northwest New Territories, which has the objective of restoring 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 OWCAs according to Section 12.7.9 of EIA report.

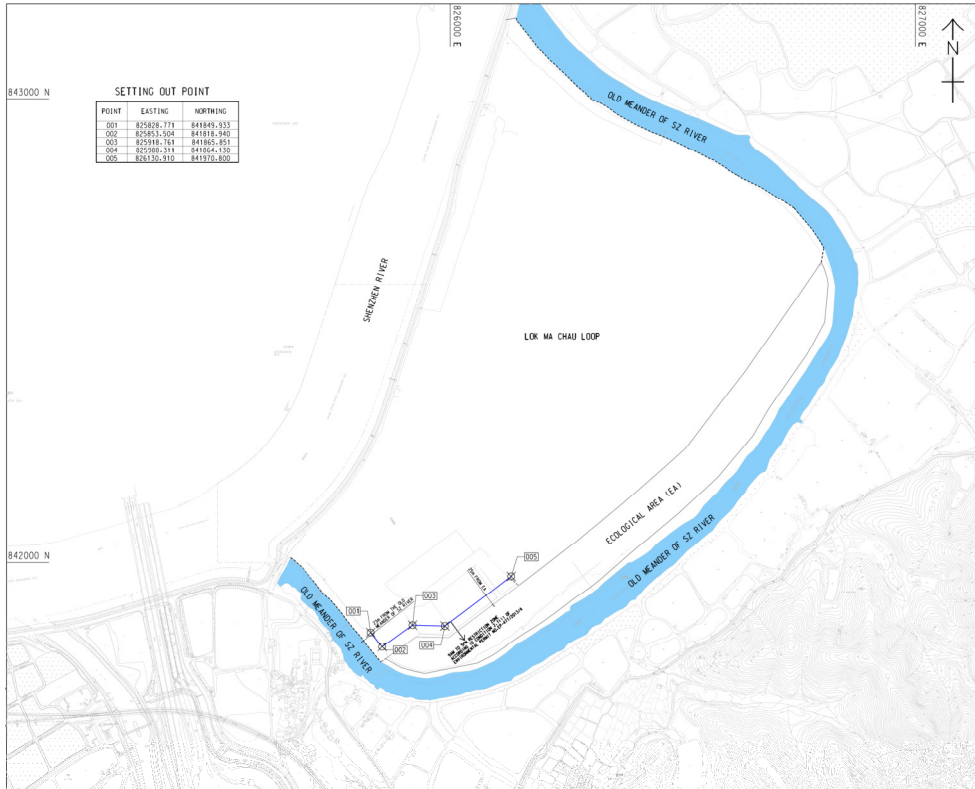
- 10.5 Under Environmental Permit (EP) number EP-477/2013/A, an Ecological Mitigation/Habitat Creation and Management Plan (HCMP) is required for all habitat compensation measures required by the Project EIA. The OWCAs are established according to the HCMP which provides a framework and specifications for development and management of the OWCAs.
- 10.6 The OWCAs (Areas 2, 7 and 9) has been substantial completed and defect rectification works were conducted in the reporting month.

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

- 10.7 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.



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



10.9 The Contractor was reminded to maintain the green fence around construction areas and ensure no disturbance to the exiting 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, construction noise and water quality monitoring.

Summary of Environmental Complaint

- 11.3 There was no environmental complaint received during the report month. The statistical summary table of the environmental complaints is presented in **Table 11.1**. The Complaint Log is attached in **Appendix P**.

Table 11.1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – May 2022	9	9	1
Jun 2022	0		0

Summary of Notification of Summons and Successful Prosecutions

- 11.4 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 **Table 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 complaint
Jan 2019 – May 2022	0	0	0
Jun 2022	0		0

Table 11.3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – May 2022	0	0	0
Jun 2022	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) Western Connection Road (WCR) Stage 1 Construction: Demolition of Existing Structures, Excavation, DCM and Retaining Wall.
- (b) Wetland Compensation Establishment Works and Ecological Monitoring.
- (c) Pre-drilling for Boc Culvert C and A1.
- (d) Meander Bridge Pre-drilling and Site Formation for Piling Platform.
- (e) Advance Work for Alternative Road along EV Zone (PMI).
- (f) PM Office (MIC) and Contractor Office (subject to release date of Closed-loop Area at Portion 7)

(Note that as the Emergency Hospital and Mobile Cabin Facility has been occupying the site, potential remaining works under Contract 1 is still under discussion. The activities above are tentative.)

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 / Tree Transplant.
- (b) Pre-construction Condition Survey inside MTRC tunnel.
- (c) Erection of Contractor's Site Office.
- (d) Pre-drilling and Trial Pits for Bridge ST01, CTFB and DRL.
- (e) Site clearance and GI works for Cut Slopes CS1, CS2 and Retaining wall BPW1, and associated temporary working platform.
- (f) Construction of concrete block piling platform for piling works of Retaining Wall BPW1.
- (g) Erection of Temporary Noise Barrier along the Lok Ma Chau Road.
- (h) Box Culvert Modification at Lok Ma Chau Road (Stage 1).
- (i) Demolition of Existing Structures along Lok Ma Chau Road. Structure Ref. R41, R42 & R50.
- (j) Existing Cycle Track Subway Modification.
- (k) Construction of Pai Lau.
- (l) Bored pile and socketed H-Pile for Bridge CTFB, ST01 & DRL.

- (m) Construction of Retaining walls RW 8 and RW 9.
- (n) Operation of TAR1 and TAR2.

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

- (a) Elevated PTI Hoarding erection.
- (b) Elevated PTI UU Diversion.
- (c) Demolition of Existing Structure.
- (d) Paving Works for Stage 2.
- (e) Pre-drilling.

12.2 Dust can be generated during construction works and exposed site area during the summer months. To prevent high dust concentrations during the summer months, 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.

12.3 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. In addition, the Contractor was reminded to frequently check and maintain 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. 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.

12.4 The Contractor is also recommended to arrange and maintain water quality mitigation measures during wet season (i.e. April to September). 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 relevant WPCO licences. The site drainage plan shall also be updated based on the site conditions and latest construction programmes.

12.5 Due to the site area in the Loop has been handed over for the construction of emergency hospital on 21st February 2021, potential environmental impacts arising from the above

construction activities are mainly associated with construction dust, noise, water quality, ecology and waste management. ET and IEC will closely review the environmental monitoring results and review the environmental situations outside the works area during the site inspection to check if significant environmental problems are identified.

Monitoring Schedule for the Next Month

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

Construction Programme for the Next Month

- 12.7 A 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 June 2022 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. No Action/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. Most birds avoided using the flight line over the centre of LMC Loop and it is considered due to the construction activities from other project's land occupier.

Mammals

- 13.7 According to Clause 11.4.1.2 of the EM&A Manual, the connectivity between the existing reed marsh 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 EA Zone and along Shenzhen River. Most birds avoided using the flight line over the centre of LMC Loop and it is considered due to the construction activities from other project's land occupier.

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.

Herptofauna

- 13.11 Herptofauna survey was conducted as scheduled in the reporting month. No significant impact of construction activities on the numbers of 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 1st, 6th, 8th, 13th, 15th, 20th, 22nd, 27th and 29th June 2022 by ET in the reporting month.

Environmental Complaints, Summons and Prosecutions

- 13.16 There was no environmental complaint, notification of summons or successful prosecution received in the reporting month.
- 13.17 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

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

Air Quality Impact

- To enhance the dust suppression measures such as water spraying on all haul roads and exposed work site area;
- To maintain the impervious material to cover the stockpile of dusty materials;
- To provide wheel washing facilities at the site exits; 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;
- To provide temporary noise barriers or other appropriate sound reduction measures for operations of noisy equipment near the noise sensitive receivers, if necessary.

Water Impact

- To 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 remove the sand, floating rubbish or dusty material away from the EA zone, old Shenzhen River meander or stream;
- To divert all the water generated from construction site to de-silting facilities with enough handling capacity before discharge;
- To review the capacity of de-silting facilities for discharge;
- To ensure the drainage facilities would not be clogged with sediment to avoid overflow during rainy season;
- To cover 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
- To implement the effective water quality mitigation measures according to the site drainage plan.

Ecology Impact

- To maintain the 3m high olive green fence around the construction site;
- 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

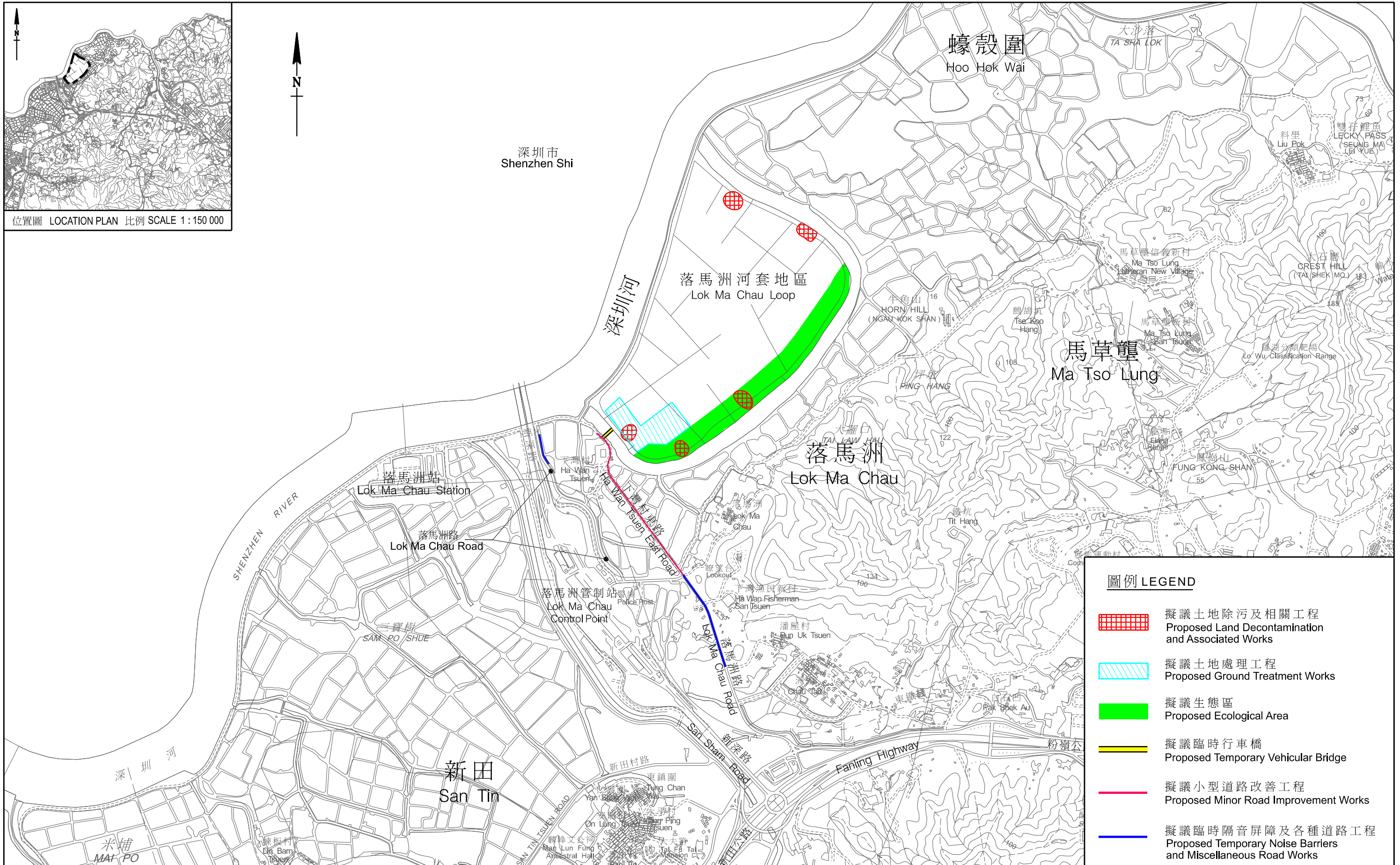
- To check for any accumulation of waste materials or rubbish on site;
- To carry out inspection of dump trucks at site exit to ensure inert and non-inert C&D materials are properly segregated before delivering off site;

- To avoid any discharge or accidental spillage of chemical waste or oil directly from the site;
- To maintain the drip tray well to prevent oil and chemical leakage; and
- 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 clear the construction materials within the tree protection zone.

FIGURE(S)



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

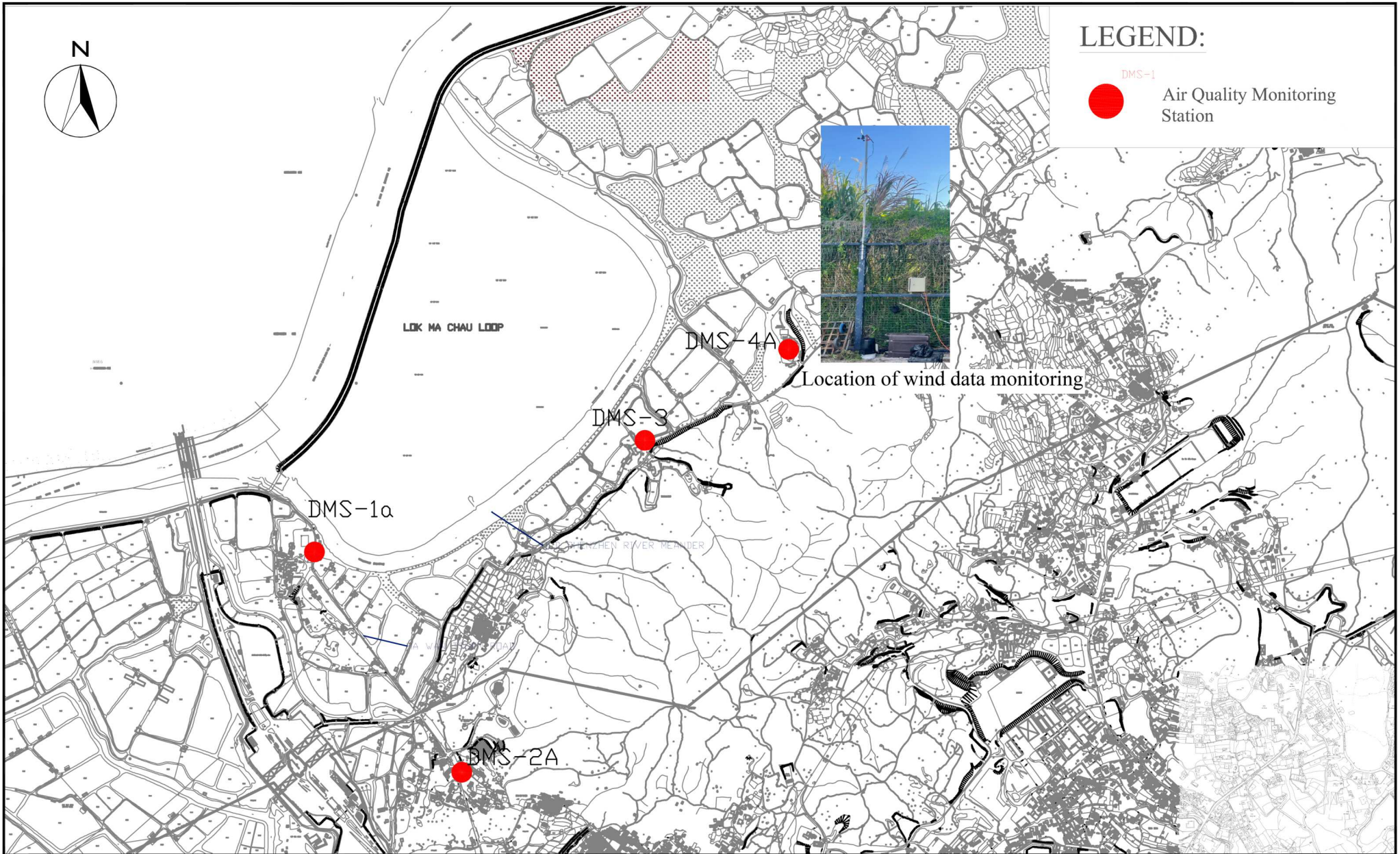


LEGEND:

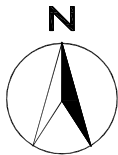
- DMS-1
Air Quality Monitoring Station



Location of wind data monitoring

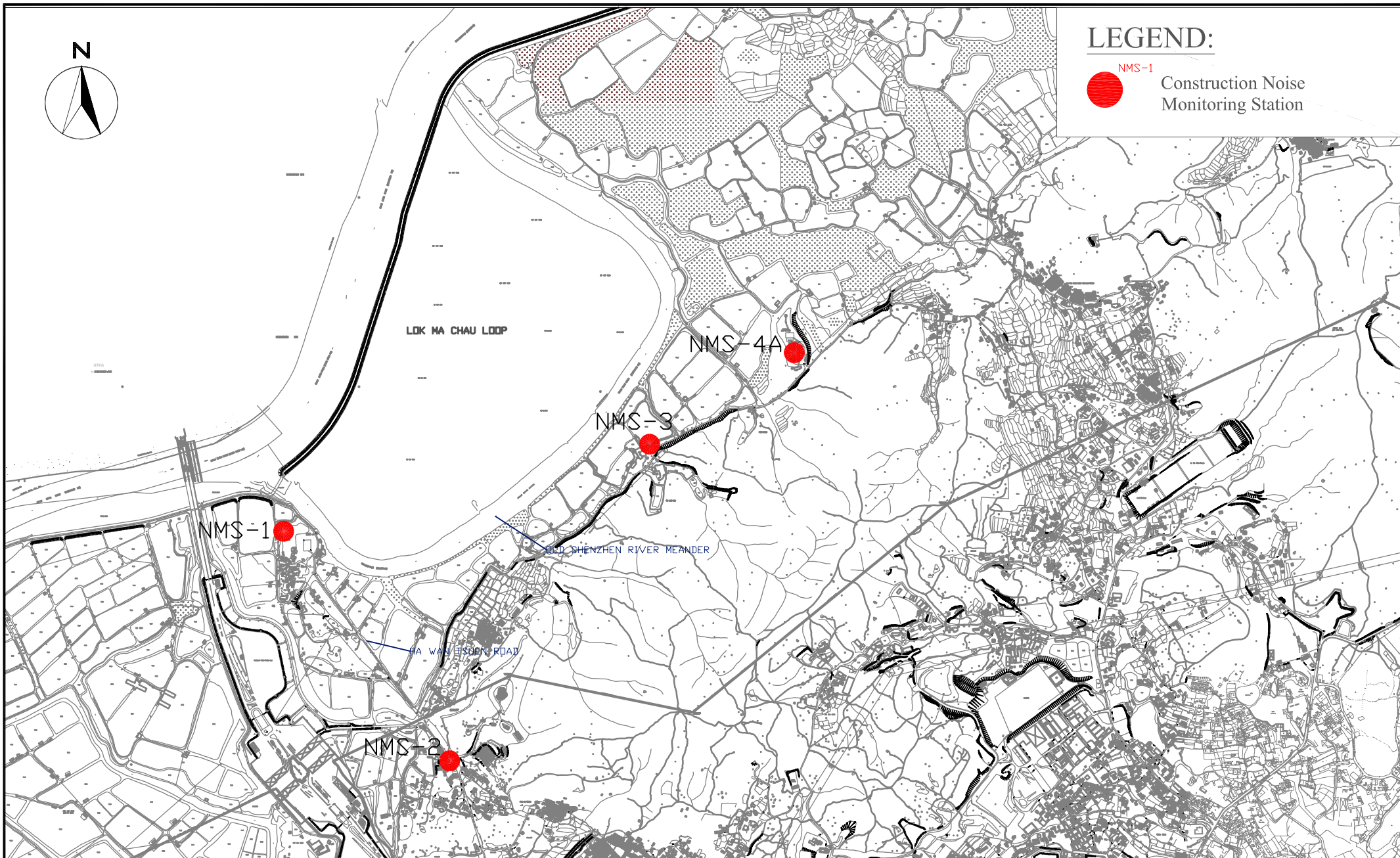


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JOB No.	WMA21009	FIGURE NO.	Fig 2
		REV	-

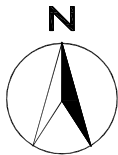


LEGEND:

NMS-1
 Construction Noise Monitoring Station

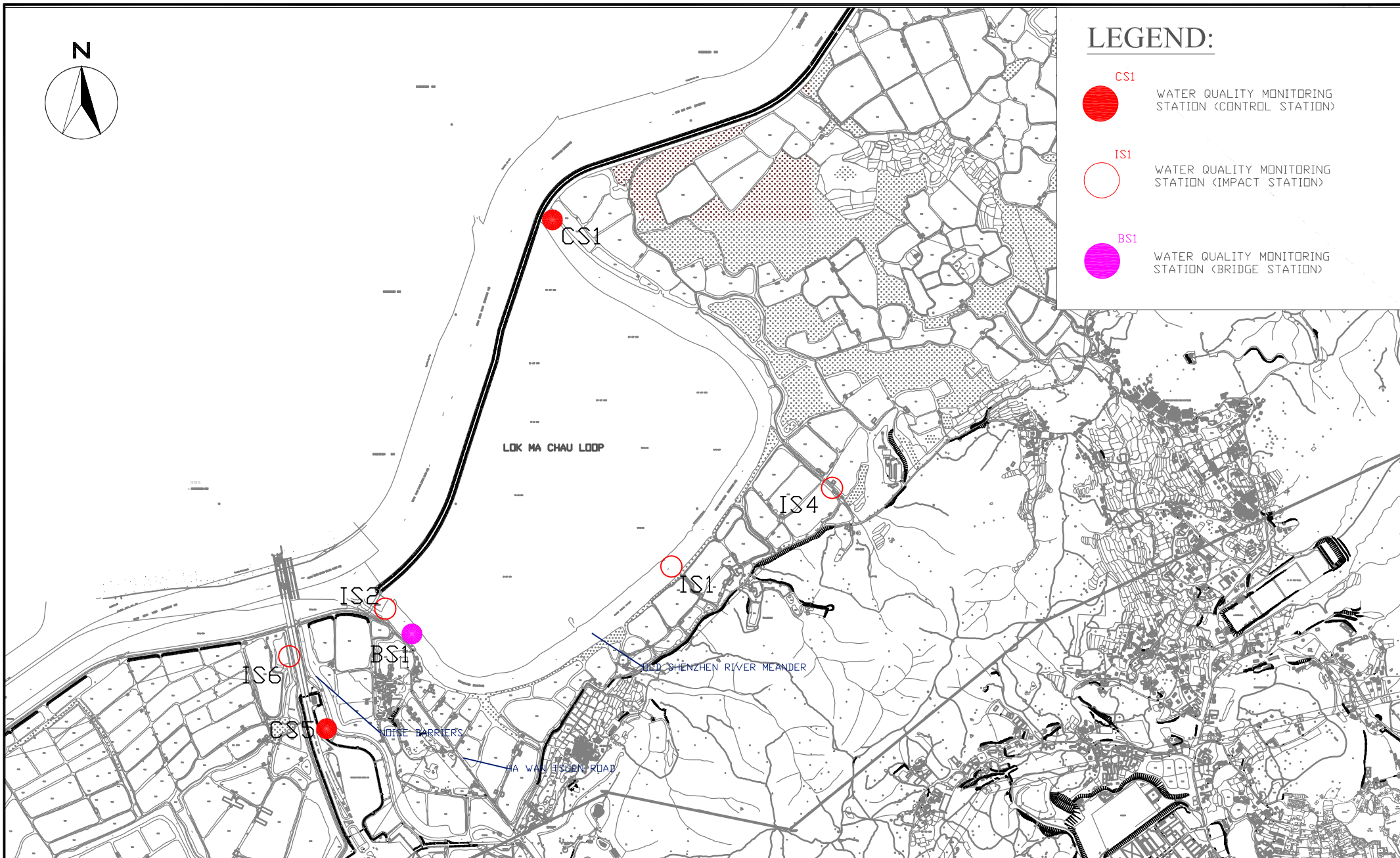


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JOB No.	WMA 21009	FIGURE NO.	Fig 3
		REV	-

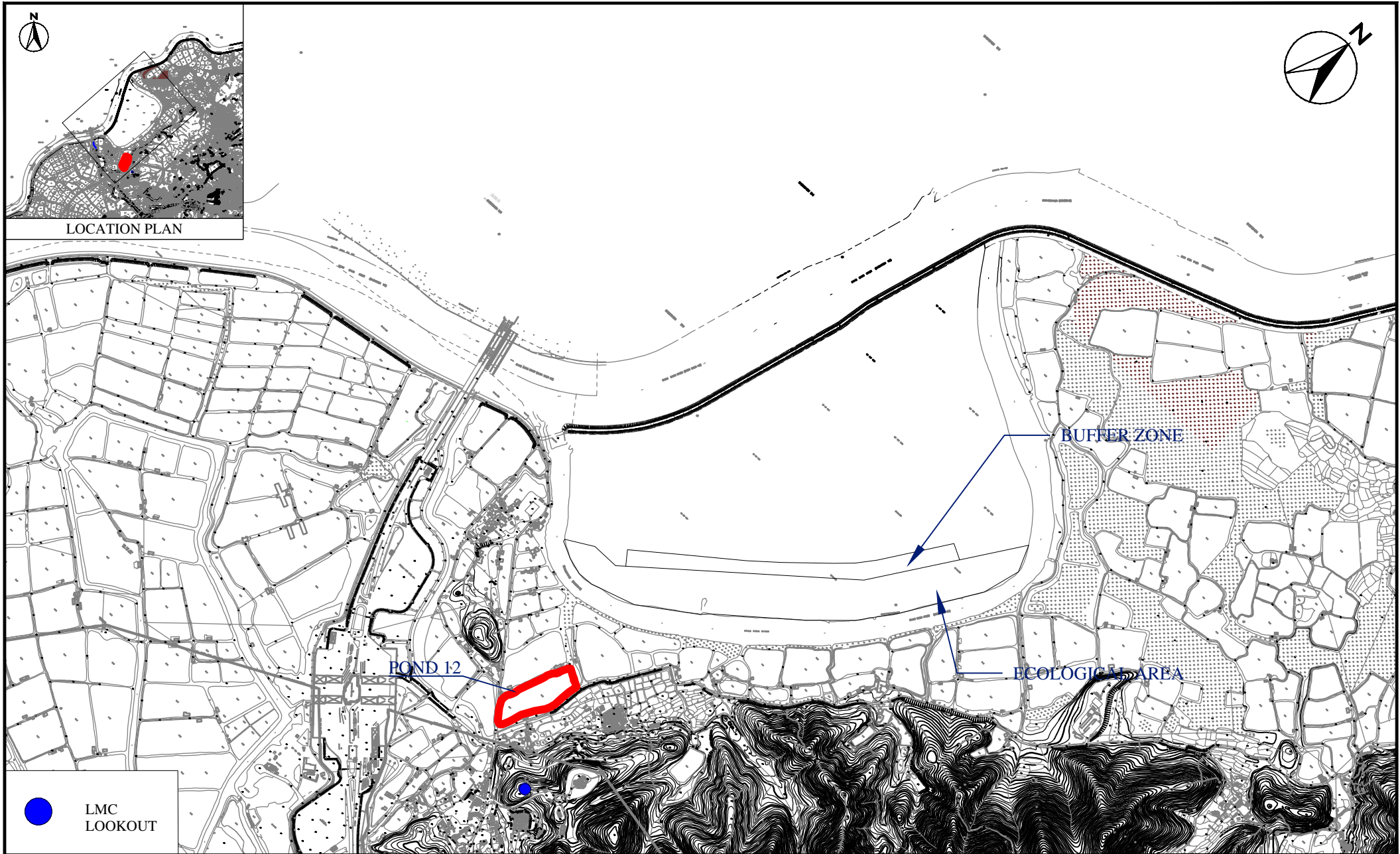


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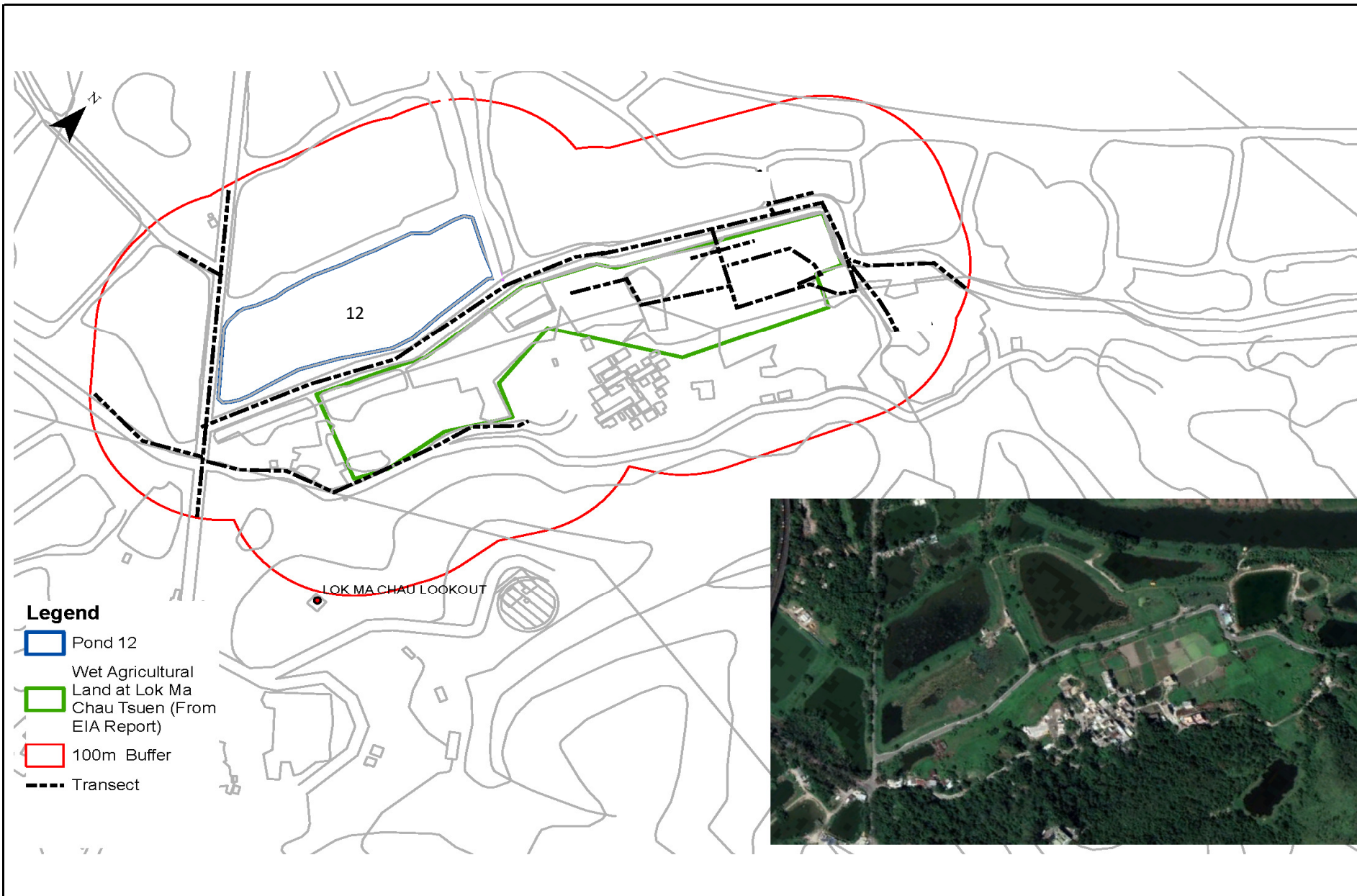
- CS1 WATER QUALITY MONITORING STATION (CONTROL STATION)
- IS1 WATER QUALITY MONITORING STATION (IMPACT STATION)
- BS1 WATER QUALITY MONITORING STATION (BRIDGE STATION)



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JOB No.	WMA 21009	FIGURE NO.	Fig 4
		REV	-



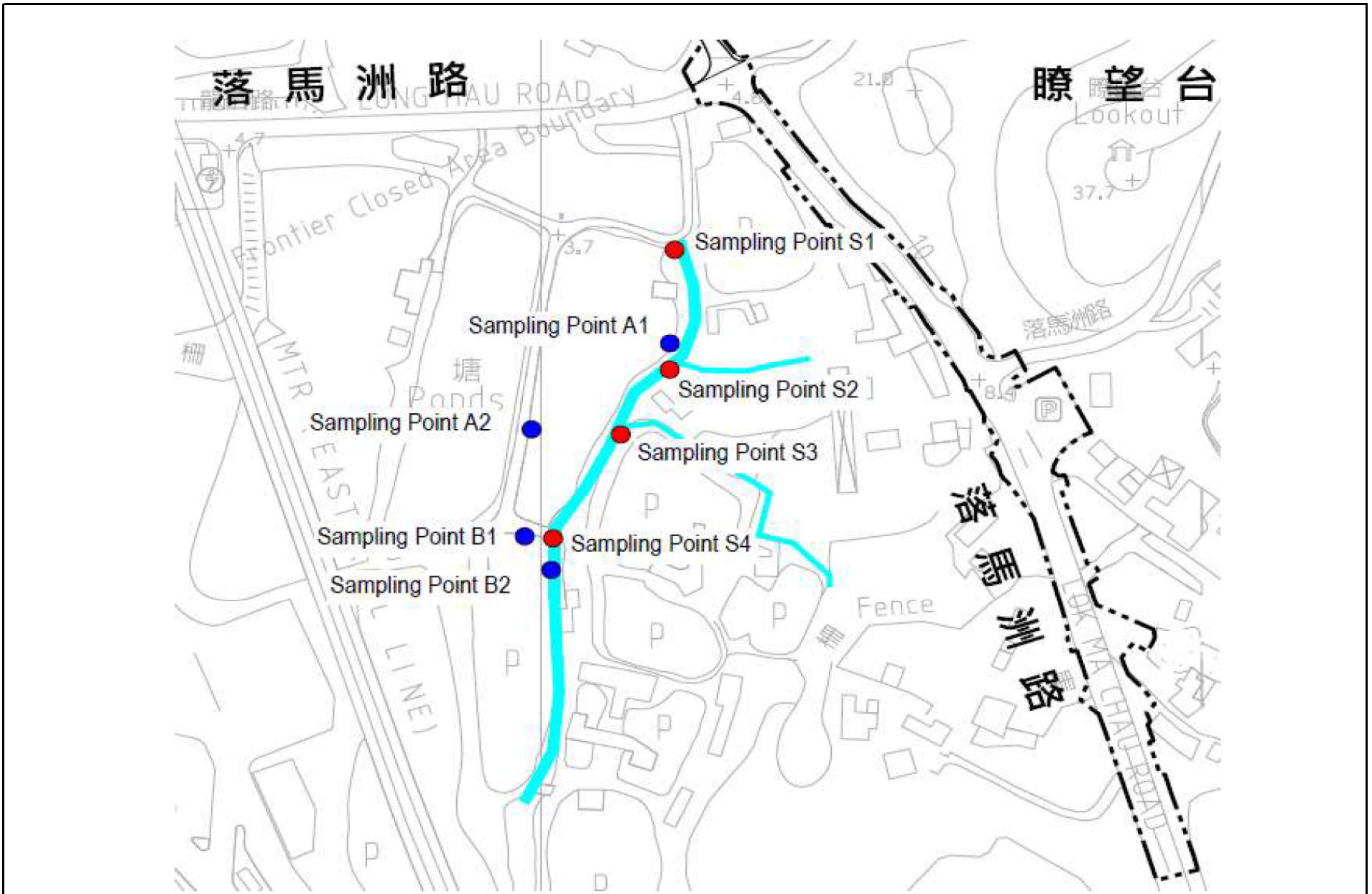
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		REV	-



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	N.T.S	Project No.	WMA21009
Date	Mar-22	Figure	5b

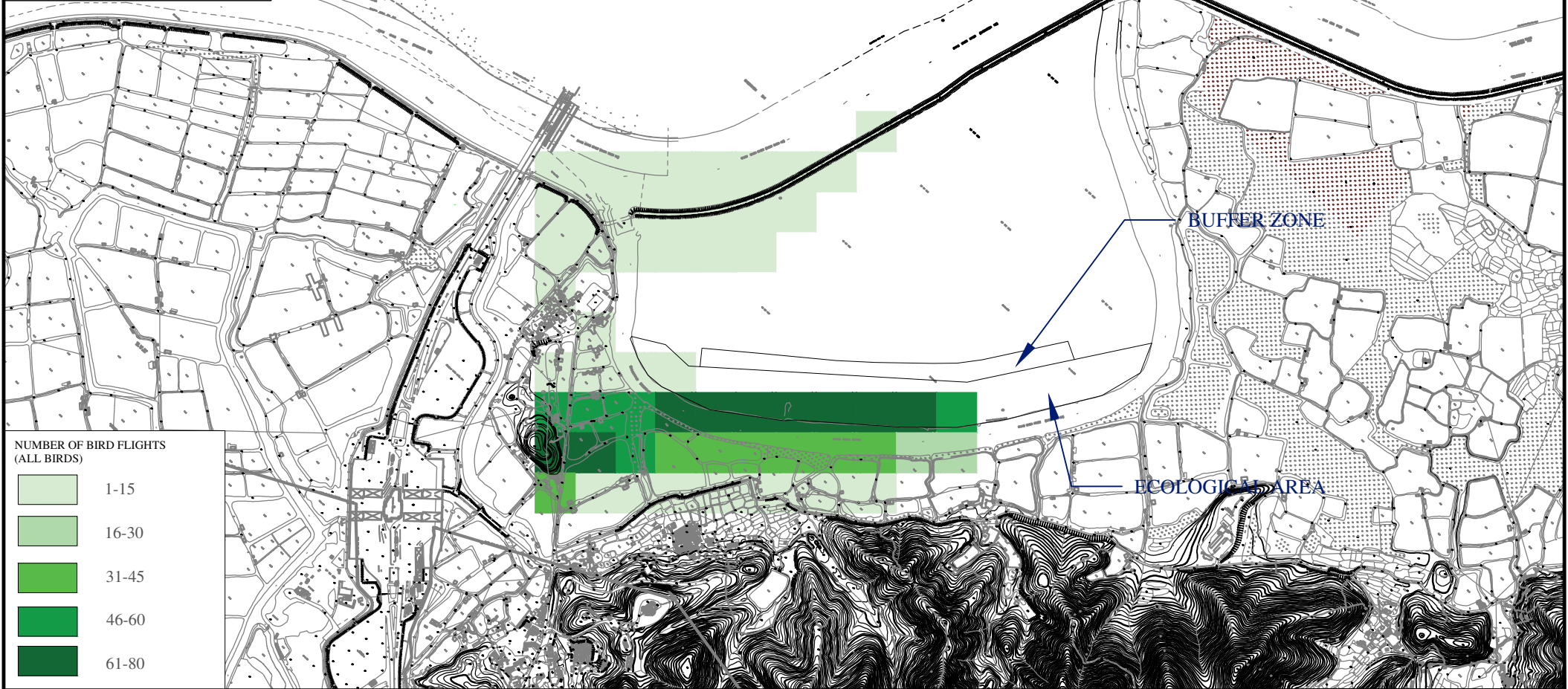
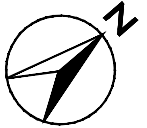
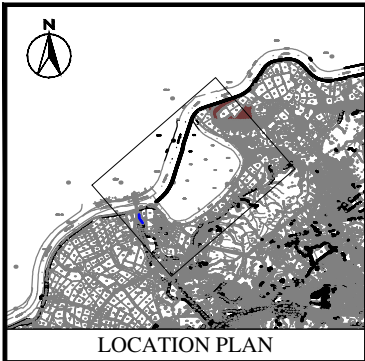
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Service Contract No. WD/04/2020
 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team

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)

- 1-15
- 16-30
- 31-45
- 46-60
- 61-80

SCALE	1:14000 @ A4	DATE	JUNE 2022	
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JOB No.	WMA 21009	FIGURE NO.	Fig 6	REV
				-

**APPENDIX A
CONSTRUCTION PROGRAMME**

**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	Suspend Date	2021												2022												2023												2024												2025												2026												2027																																																					
									Jul			A			S			O			N			D			J			F			M			A			M			J			J			A			S			O			N			D			J			F			M			A			M			J			J			A			S			O			N			D			J			F			M			A			M			J			J			A			S			O			N			D		
									9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83																																																			
KD7 - CLP Transformer Delivery Enabling Works																																																																																																																																						
KD7-1005	CLP Power Cable Drawpit and Cross Road Ducts	280	25-Apr-23	05-Apr-24	13-Jan-23	22-Dec-23	-79		CLP Power Cable Drawpit and Cross Road Ducts																																																																																																																													
KD7-2015	Meander Bridge - Tranformer Delivery Enabling Works	35	02-Feb-24	18-Mar-24	13-Nov-23	22-Dec-23	-67		Meander Bridge - Tranformer Delivery Enabling Works																																																																																																																													
Key Date KD8 - Sewage Treatment Works (STW) Buildings																																																																																																																																						
KD8-PC	Contract Key Date 8 (sd+1050) - Complete Civil and Structural Works of STW to allow E&M Installation	0		02-Sep-24		30-May-24	-95		Contract Key Date 8 (sd+1050) - Complete Civil and Structural Works of STW to allow E&M Installation																																																																																																																													
KD8 - Submissions																																																																																																																																						
KD8-1000	STW - Sublet Designer and ICE	53	31-Aug-21 A	29-Apr-24	22-Feb-22	03-Feb-24	-65		STW - Sublet Designer and ICE																																																																																																																													
KD8-1005	STW - Subletting of Works	47	30-Dec-21 A	09-Jun-22	08-Jun-22	15-Jun-22	5	22-Feb-22	STW - Subletting of Works																																																																																																																													
KD8-1010	STW - Procurement of Materials	47	30-Dec-21 A	09-Jun-22	08-Jun-22	15-Jun-22	5	22-Feb-22	STW - Procurement of Materials																																																																																																																													
KD8 - Design																																																																																																																																						
KD8-1015	STW - Design IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	06-Jul-22	24-May-22	27-Jun-22	-7	22-Feb-22	STW - Design IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1020	STW - Design Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	06-Jul-22	22-Feb-22	26-Mar-22	-79	22-Feb-22	STW - Design Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1025	STW - Design Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	05-Nov-21 A	06-Jul-22	03-Mar-22	06-Apr-22	-71	22-Feb-22	STW - Design Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1030	STW - Design Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-Jun-22	16-Aug-22	28-Mar-22	10-Jun-22	-56		STW - Design Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1035	STW - Design Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	09-Jun-22	17-Oct-22	20-Apr-22	27-Aug-22	-40		STW - Design Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1040	STW - Design DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	09-Jun-22	17-Oct-22	11-Jun-22	19-Oct-22	2		STW - Design DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1045	STW - Design Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	18-Oct-22	28-Feb-23	20-Oct-22	02-Mar-23	2		STW - Design Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1050	STW - Design Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	18-Oct-22	28-Feb-23	31-Dec-22	17-May-23	62		STW - Design Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1055	STW - Design Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	01-Mar-23	13-Jul-23	18-May-23	23-Sep-23	62		STW - Design Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1060	STW - Design EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	01-Mar-23	13-Jul-23	20-Mar-23	01-Aug-23	16		STW - Design EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1065	STW - Design EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	01-Mar-23	13-Jul-23	20-Mar-23	01-Aug-23	16		STW - Design EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1070	STW - Design EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	27-Apr-23	04-Sep-23	17-May-23	22-Sep-23	16		STW - Design EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1075	STW - Design Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	18-Oct-22	28-Feb-23	20-Oct-22	02-Mar-23	2		STW - Design Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8 - Shop Drawings																																																																																																																																						
KD8-3330	STW - Shop Drawings for IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Jul-22	13-Sep-22	28-Jun-22	03-Sep-22	-7		STW - Shop Drawings for IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-3335	STW - Shop Drawings for Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Jul-22	13-Sep-22	28-Mar-22	10-Jun-22	-79		STW - Shop Drawings for Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-3340	STW - Shop Drawings for Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Jul-22	13-Sep-22	07-Apr-22	20-Jun-22	-71		STW - Shop Drawings for Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-3345	STW - Shop Drawings for Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	14-Sep-22	22-Nov-22	11-Jun-22	18-Aug-22	-79		STW - Shop Drawings for Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-3350	STW - SD for Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	14-Sep-22	27-Jan-23	11-Jun-22	19-Oct-22	-79		STW - SD for Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3355	STW - SD for DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	28-Jan-23	09-Jun-23	20-Oct-22	02-Mar-23	-79		STW - SD for DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3360	STW - SD for Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	10-Jun-23	18-Oct-23	03-Mar-23	15-Jul-23	-79		STW - SD for Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3365	STW - SD for Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	04-Aug-23	11-Dec-23	18-May-23	23-Sep-23	-64		STW - SD for Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3370	STW - SD for Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	12-Dec-23	27-Apr-24	25-Sep-23	03-Feb-24	-64		STW - SD for Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3375	STW - SD for EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	19-Oct-23	01-Mar-24	17-Jul-23	22-Nov-23	-79		STW - SD for EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3380	STW - SD for EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	19-Oct-23	01-Mar-24	17-Jul-23	22-Nov-23	-79		STW - SD for EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3385	STW - SD for EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	109	12-Dec-23	29-Apr-24	23-Sep-23	03-Feb-24	-65		STW - SD for EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-3390	STW - SD for Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	18-Oct-22	28-Feb-23	20-Oct-22	02-Mar-23	2		STW - SD for Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8 - Method Statement																																																																																																																																						
KD8-1330	STW - MS IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-Jun-22	16-Aug-22	28-Jun-22	03-Sep-22	16		STW - MS IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1335	STW - MS Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	09-Jun-22	16-Aug-22	28-Mar-22	10-Jun-22	-56		STW - MS Bio-Reactor (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1340	STW - MS Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	07-Jul-22	13-Sep-22	07-Apr-22	20-Jun-22	-71		STW - MS Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1345	STW - MS Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	58	17-Aug-22	26-Oct-22	11-Jun-22	18-Aug-22	-56		STW - MS Sludge Treatment Bldg (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																																																																																																																													
KD8-1350	STW - MS Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	03-Sep-22	13-Jan-23	11-Jun-22	19-Oct-22	-71		STW - MS Chem. Storage & FH Pump Room Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1355	STW - MS DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	14-Jan-23	31-May-23	20-Oct-22	02-Mar-23	-71		STW - MS DOU No. 3 (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1360	STW - MS Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	01-Jun-23	09-Oct-23	03-Mar-23	15-Jul-23	-71		STW - MS Admin Bldg (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1365	STW - MS Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	26-Jul-23	01-Dec-23	18-May-23	23-Sep-23	-56		STW - MS Admin Bldg (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1370	STW - MS Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	02-Dec-23	18-Apr-24	25-Sep-23	03-Feb-24	-56		STW - MS Admin Bldg (MIC) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1375	STW - MS EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	10-Oct-23	21-Feb-24	17-Jul-23	22-Nov-23	-71		STW - MS EB Plant Room (Foundation) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1380	STW - MS EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	10-Oct-23	21-Feb-24	17-Jul-23	22-Nov-23	-71		STW - MS EB Plant Room (Foundation TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1385	STW - MS EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	109	02-Dec-23	19-Apr-24	23-Sep-23	03-Feb-24	-57		STW - MS EB Plant Room (Superstructure) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8-1390	STW - MS Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)	108	18-Oct-22	28-Feb-23	20-Oct-22	02-Mar-23	2		STW - MS Fence Wall (Substructure TW) Prep & Submit (45d), PM Review (21d), Resubmit (21d), Approval (21d)																																																																																																																													
KD8 - Construction																																																																																																																																						
S8-4240	Portion 8 - Surcharge Complete (9 months)	0		28-Feb-23		21-Nov-22	-99		Portion 8 - Surcharge Complete (9 months)																																																																																																																													
S8-4250	Portion 8 - Removal of Surcharge Complete (9 months)	0		21-Mar-23		14-Jun-23	67		Portion 8 - Removal of Surcharge Complete (9 months)																																																																																																																													
S8-4255	Portion 7 - Surcharge Complete (9 months)	0		15-Apr-23		19-Jun-23	65		Portion 7 - Surcharge Complete (9 months)																																																																																																																													
S8-4256	Portion 7 - Removal of Surcharge Complete (9 months)	0		08-May-23		07-Jul-23	49		Portion 7 - Removal of Surcharge Complete (9 months)																																																																																																																													
KD8 - Inlet Works and Primary Treatment Building (IWPTB)																																																																																																																																						
KD8-2014	STW - IWPTB Foundation Pre-drilling (approx. 109 nrs)	796	06-Dec-21 A	20-Aug-24	08-Jun-22	30-May-24	-68		STW - IWPTB Foundation Pre-drilling (approx. 109 nrs)																																																																																																																													
KD8-2015	STW - IWPTB Foundation Socketed H-piles for IWPTB (109 nrs @ 3d pile rig, 4 rigs)	55	06-Dec-21 A	21-Jun-22	08-Jun-22	27-Jun-22	5	22-Feb-22	STW - IWPTB Foundation Socketed H-piles for IWPTB (109 nrs @ 3d pile rig, 4 rigs)																																																																																																																													
KD8-2016	STW - IWPTB Removal of Surcharge	18	01-Mar-23	21-Mar-23	22-Nov-22	12-Dec-22	-78		STW - IWPTB Removal of Surcharge																																																																																																																													
KD8-2020	STW - IWPTB Foundation Socketed H-piles for IWPTB (272 nrs @ 1.5d pile rig, 5 rigs)	163	22-Mar-23	09-Oct-23	13-Dec-22	07-Jul-23	-78		STW - IWPTB Foundation Socketed H-piles for IWPTB (272 nrs @ 1.5d pile rig, 5 rigs)																																																																																																																													
KD8-2030	STW - IWPTB Foundation Excavation Works / Open Cut (to -5.2mPD)	60	19-Aug-23	31-Oct-23	30-May-23	09-Aug-23	-68		STW - IWPTB Foundation Excavation Works / Open Cut (to -5.2mPD)																																																																																																																													
KD8-2040	STW - IWPTB Substructure Base Slab Formwork, Reinforcement and Concreting	54	23-Sep-23	28-Nov-23	06-Jul-23	06-Sep-23	-68		STW - IWPTB Substructure Base Slab Formwork, Reinforcement and Concreting																																																																																																																													
KD8-2050	STW - IWPTB Substructure Basement Wall and Column Formwork, Reinforcement and Concreting	21	29-Nov-23	22-Dec-23	07-Sep-23	03-Oct-23	-68		STW - IWPTB Substructure Basement Wall and Column Formwork, Reinforcement and Concreting																																																																																																																													
KD8-2060	STW - IWPTB Substructure Basement Roof Slab Erection of Falsework	14	23-Dec-23	11-Jan-24	04-Oct-23	19-Oct-23	-68		STW - IWPTB Substructure Basement Roof Slab Erection of Falsework																																																																																																																													
KD8-2070	STW - IWPTB Substructure Basement Roof Slab Formwork, Reinforcement and Concreting	21	12-Jan-24	05-Feb-24	20-Oct-23	14-Nov-23	-68		STW - IWPTB Substructure Basement Roof Slab Formwork, Reinforcement and Concreting																																																																																																																													
KD8-2080	STW - IWPTB Substructure Waterproofing works + Backfill and remove ELS	21	06-Feb-24	05-Mar-24	15-Nov-23	08-Dec-23	-68		STW - IWPTB Substructure Waterproofing works + Backfill and remove ELS																																																																																																																													
KD8-2090	STW - IWPTB Superstructure Wall and Column Formwork, Reinforcement and Concreting	54	06-Mar-24	13-May-24	09-Dec-23	17-Feb-24	-68		STW - IWPTB Superstructure Wall and Column Formwork, Reinforcement and Concreting																																																																																																																													
KD8-2100	STW - IWPTB Superstructure Wall and Column Removal of Formwork and Falsework	14	14-May-24	30-May-24	19-Feb-24	05-Mar-24	-68		STW - IWPTB Superstructure Wall and Column Removal of Formwork and Falsework																																																																																																																													
KD8-2110	STW - IWPTB Superstructure Roof Slab & Skywalk Formwork, Falsework, Reinforcement and Concreting	54	31-May-24	03-Aug-24	06-Mar-24	13-May-24	-68		STW - IWPTB Superstructure Roof Slab & Skywalk Formwork, Falsework, Reinforcement and Concreting																																																																																																																													
KD8-2120	STW - IWPTB Superstructure Roof Slab & Skywalk Removal of Formwork and Falsework	14	05-Aug-24	20-Aug-24	14-May-24	30-May-24	-68		STW - IWPTB Superstructure Roof Slab & Skywalk Removal of Formwork and Falsework																																																																																																																													
KD8-2130	STW - IWPTB Wettrade and Builders Works Prior to E&M Installation	12	07-Aug-24	20-Aug-24	17-May-24	30-May-24	-68		STW - IWPTB Wettrade and Builders Works Prior to E&M Installation																																																																																																																													
KD8 - Membrane Facility Building (MFB)																																																																																																																																						
KD8-2004	STW - MFB Foundation Pre-drilling (approx. 81 nrs)	42	03-Jan-22 A	21-Jun-22	14-Sep-22	05-Oct-22	87	22-Feb-22	STW - MFB Foundation Pre-drilling (approx. 81 nrs)																																																																																																																													
KD8-2005	STW - MFB Socketed H-piles for Membrane Facility Building (MFB) (52 nrs @ 3d pile rig, 4 rigs)	40	14-Oct-22	29-Nov-22	06-Oct-22	21-Nov-22	-7		STW - MFB Socketed H-piles for Membrane Facility Building (MFB) (52 nrs @ 3d pile rig, 4 rigs)																																																																																																																													
KD8-2010	STW - MFB Socketed H-piles for Membrane Facility Building																																																																																																																																					

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	Planned	Actual	Remaining
Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and DRL Phase 1								
Key Date and Section of the Works								
		0	0	28-Jul-22	28-Jul-22	20		
Planned Achievement of Key Dates								
KDD1070	KD 4 - Complete the construction of temporary noise barrier in Portion 1,2A,2B,5,7,8,9 and 10	0	0	28-Jul-22	28-Jul-22	20		
General Submission,Preliminaries, Contractor's Design,Method Statement Submission and Approval								
General Submission								
GSS1010	Prepare and submit construction impact assessment (PS1.121)	202	30	15-Sep-21	11-Jun-22	43		
GSS1150	Prepare and submit risk management plan	202	20	15-Sep-21	31-May-22	97		
Particular Submission of Key People and Specially Required Staff								
KEY1120	Particular of Public Relation Officer (PS 1.31C)	235	30	15-Sep-21	06-Jun-22	74		
Contractor's Design Submission and Approval								
Major Permanent Works Design								
MPW1010	Design for noise barriers at Western Connection Road	164	171	29-Oct-21	23-Nov-22	53		
MPW1015	Design for security fences	125	32	14-Dec-21	14-Jun-22	140		
MPW1020	Design for covered walkways at Cycle Track cum Footbridge with staircases	94	26	19-Jan-22	07-Jun-22	62		
MPW1025	Design for irrigation system	9	111	28-Apr-22	14-Sep-22	53		
MPW1030	Aesthetic design of Pai Lau	30	65	04-Apr-22	23-Jul-22	0		
MPW1035	Design for road lighting system	0	120	07-Jul-22	23-Nov-22	53		
Major Temporary Works Design								
MTW1030	ELS design for construction of noise barrier along Lok Ma Chau Road	142	8	24-Nov-21	17-May-22	106		
MTW1055	Steel mould design for precast segments	107	11	04-Jun-22	20-May-22	191		
MTW1080	ELS design for construction of pilecap for bridge DRL-ST-01 and CTFB	113	8	28-Dec-21	17-May-22	27		
MTW1100	ELS design for modification of existing subways	73	10	12-Feb-22	19-May-22	27		
Subcontracting								
MTW3220	Fabrication and transportation of precast segments	125	25	14-Dec-21	06-Jun-22	116		
MTW3240	R.C structure for pilecap, pier and in-situ deck	111	5	30-Dec-21	13-May-22	69		
MTW3280	Waterwork	60	23	28-Feb-22	03-Jun-22	170		
MTW3300	Erection of precast segment	76	10	09-Feb-22	19-May-22	50		
MTW3320	Predressing, bearing and movement joints	16	44	20-Apr-22	28-Jun-22	50		
MTW3340	Design, supply and installation of glass balustrades	0	30	29-Jun-22	02-Aug-22	50		
Method Statement Submission and Approval for Major Construction Works								
MSS1040	Method statement submission and approval for installation of bored piles	202	80	15-Sep-21	09-Aug-22	225		
MSS1050	Method statement submission and approval for construction of pile caps	142	16	24-Nov-21	28-May-22	139		
MSS1055	Method statement submission and approval for fabrication of precast segments	112	21	29-Dec-21	01-Jun-22	181		
MSS1070	Method statement submission and approval for construction of piers	122	11	17-Dec-21	20-May-22	294		
MSS1090	Method statement submission and approval for modification of existing subways	32	10	01-Apr-22	19-May-22	27		
MSS2010	Method statement submission and approval for erection of precast segments for ST01	0	70	20-May-22	09-Aug-22	47		
Preliminaries								
PRE1000	Initial survey and topographic survey (Zone 4, 5, 7)	181	1	24-Sep-21	10-May-22	0		
PRE1004	Initial survey and topographic survey (Zone 11, 12, 13)	180	4	09-Nov-21	13-May-22	19		
PRE1006	Initial survey and topographic survey (Zone 8, 9, 10)	180	4	09-Nov-21	13-May-22	82		
PRE1010	Tree survey and tree assessment (Zone 1 to 7)	179	1	27-Sep-21	10-May-22	36		
PRE1012	Tree survey and tree assessment (Zone 8 to 12)	202	2	18-Oct-21	09-May-22	21		
PRE1020	Preparation and approval of TTA scheme and traffic impact assessment	186	25	03-Nov-21	01-Jun-22	149		
PRE1040	Installation of instrumentation and monitoring points	103	35	29-Dec-21	20-Jun-22	163		
PRE1050	Establishment of wheel washing system	0	28	10-May-22	11-Jun-22	12		
PRE1060	Erection of contractor's site accommodation	149	19	03-Nov-21	31-May-22	41		
Interface Management Plan								
PRE1070	Submission and approval of interface management plan(PS1.114)	188	25	15-Sep-21	08-Jun-22	35		
Prefabrication of Precast Units								
FPS1000	Setting up precast yard for precast segments	0	60	08-Jun-22	16-Aug-22	116		
Section 1 of the Works- Completion of the Works within Portion 1,2A,2B,3,5,7,8,9&10 of the Site								
Taxi Holding Area								
S010300	Implementation of TTA and modification of temporary taxi holding area	61	19	21-Feb-22	01-Jun-22	17		
Staircase for CTFB								
S011005	Installation of socketed H-Pile for staircase (6 nos)	3	21	05-May-22	03-Dec-24	104		
Existing Cycle Track Subway Modification								
S011035	Preparation and Implementation of TTA	87	77	18-Jan-22	09-Aug-22	0		
S011035-1	Implementation of TTA	0	2	16-May-22	17-May-22	0		
S011035-2	Demolition of cover of existing cycle track ramp (BayST12 to BayST14)	0	14	18-May-22	02-Jun-22	0		
S011035-3	Installation of ELS part 1	0	14	04-Jun-22	20-Jun-22	0		
S011040	Installation of ELS part 2	0	14	21-Jun-22	07-Jul-22	0		
S011040-1	Excavation	0	14	08-Jul-22	23-Jul-22	0		
S011040-2	Formwork and rebar fixing (Base slab)	0	14	25-Jul-22	09-Aug-22	0		
Retaining Walls								
S011060	Preparation and implementation of TTA	36	3	22-Mar-22	12-May-22	6		
S011060-1	UU detection and trial pit	0	3	13-May-22	16-May-22	6		
S011060-2	Installation of sheetpile part 1	0	10	17-May-22	27-May-22	6		
S011060-3	Installation of sheetpile part 2	0	10	28-May-22	09-Jun-22	6		
S011060-4	Excavation	0	10	10-Jun-22	21-Jun-22	6		
S011060-5	Construction of Retaining Wall RW9(bay 1 of 16 bays)	0	10	22-Jun-22	04-Jul-22	6		
S011060-6	Construction of Retaining Wall RW9(bay 2 of 16 bays)	0	10	05-Jul-22	15-Jul-22	6		
S011060-7	Construction of Retaining Wall RW9(bay 3 of 16 bays)	0	10	16-Jul-22	27-Jul-22	6		
S011060-8	Construction of Retaining Wall RW9(bay 4 of 16 bays)	0	10	28-Jul-22	08-Aug-22	6		
Section 2A of the Works-Completion of the Works at Lok Ma Chau Road within Portion 1,5 and 8								
Demolition of Existing Structure								
		121	19	06-Dec-21	31-May-22	0		

█ Actual Work
█ Remaining Work
█ Critical Remaining Work
◆ Milestone



Three Month Rolling Programme (Data Date : 08-May-22)
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Date	Revision	Checked	Approved
14-May-22	0	LDS	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	Start	Finish	Planned	Actual	Remaining	Critical	Notes
S02A100	Demolition of pillar box, shelter, domestic structure, etc (26nos)	121	19	06-Dec-21 A	31-May-22	0		Demolition of pillar box, shelter, domestic structure, etc (26nos)
Retaining Walls								
Retaining Wall BP1								
S02A720	Temporary cutting of the slope and preparation of the working platform (Additional GI)	71	12	09-Feb-22 A	23-May-22	0		Temporary cutting of the slope and preparation of the working platform (Additional GI)
S02A725	Preparation works for installation of bored piles	0	14	24-May-22	09-Jun-22	0		Preparation works for installation of bored piles
S02A725-1	Plant mobilization and set up (2 sets of rigs)	0	14	10-Jun-22	25-Jun-22	0		Plant mobilization and set up (2 sets of rigs)
S02A725-2	Installation of bored piles (2 nos)	0	14	27-Jun-22	13-Jul-22	0		Installation of bored piles (2 nos)
S02A725-3	Installation of bored piles (2 nos)	0	14	14-Jul-22	29-Jul-22	0		Installation of bored piles (2 nos)
S02A725-4	Installation of bored piles (2 nos)	0	14	30-Jul-22	15-Aug-22	0		Installation of bored piles (2 nos)
Noise Barriers								
Temporary Noise Barrier								
S02A680-1	Installation of temporary noise barrier along the Lok Ma Chau Road (60m)	0	11	10-May-22	28-Jul-22	17		Installation of temporary noise barrier along the Lok Ma Chau Road (60m)
S02A680-2	Installation of temporary noise barrier along the Lok Ma Chau Road (60m)	0	14	23-May-22	06-Jun-22	17		Installation of temporary noise barrier along the Lok Ma Chau Road (60m)
S02A680-3	Installation of temporary noise barrier along the Lok Ma Chau Road (60m)	0	14	09-Jun-22	24-Jun-22	17		Installation of temporary noise barrier along the Lok Ma Chau Road (60m)
S02A680-4	Installation of temporary noise barrier along the Lok Ma Chau Road (60m)	0	14	25-Jun-22	12-Jul-22	17		Installation of temporary noise barrier along the Lok Ma Chau Road (60m)
S02A680-5	Installation of temporary noise barrier along the Lok Ma Chau Road (60m)	0	14	13-Jul-22	28-Jul-22	17		Installation of temporary noise barrier along the Lok Ma Chau Road (60m)
S02A680	Planned completion Key Date KD4 of the works	0	0		28-Jul-22	17		Planned completion Key Date KD4 of the works
Section 2B of the Works- Completion of the Works at Junction of Castle Peak Road and Lok Ma Chau Road								
Box Culvert Modification Works within Portion 10								
S02B110-1	Installation of ELS part 1	0	14	11-May-22	28-May-22	3		Installation of ELS part 1
S02B110-2	Installation of ELS part 2	0	14	27-May-22	13-Jun-22	3		Installation of ELS part 2
S02B110-3	Excavation	0	14	14-Jun-22	29-Jun-22	3		Excavation
S02B110-4	Rebar fixing and formwork installation (base slab)	0	14	30-Jun-22	16-Jul-22	3		Rebar fixing and formwork installation (base slab)
S02B110-5	Construction of box culvert from CHA 0 to CHA26 base slab	0	14	18-Jul-22	02-Aug-22	3		Construction of box culvert from CHA 0 to CHA26 base slab
S02B110-6	Rebar fixing and formwork installation (side wall and top slab)	0	14	03-Aug-22	18-Aug-22	3		Rebar fixing and formwork installation (side wall and top slab)
Section 2C of the Works- Completion of Substructure and Piling Works of ST01 and CTFB								
Substructure and Piling Works for Bridge ST01								
Preparation Works								
S02C100	Site clearance and tree felling works (outside MTR protection Zone)	133	12	22-Nov-21 A	24-May-22	81		Site clearance and tree felling works (outside MTR protection Zone)
S02C105	Site clearance and tree felling works (inside MTR protection Zone)	77	16	29-Jan-22 A	27-May-22	17		Site clearance and tree felling works (inside MTR protection Zone)
S02C115	Modification of existing channel to facilitate ST01-B01 piling works	0	16	10-May-22	27-May-22	21		Modification of existing channel to facilitate ST01-B01 piling works
G.I and Pre-drilling								
S02C107	Ground investigation and pre-drilling works for Abutment ST01-B01(4nos), Pier DK-01(2nos) (MTR)	0	15	16-May-22	01-Jun-22	17		Ground investigation and pre-drilling works for Abutment ST01-B01(4nos), Pier DK-01(2nos) (MTR)
S02C120	Ground investigation and pre-drilling works for Pier ST01-P01 to ST01-P04 (4nos)	131	20	24-Nov-21 A	01-Jun-22	17		Ground investigation and pre-drilling works for Pier ST01-P01 to ST01-P04 (4nos)
Piling Works								
S02C140	Preparation of erection of temporary working platform at Pier ST01-P01 and Abutment ST01-B01	0	7	02-Jun-22	10-Jun-22	17		Preparation of erection of temporary working platform at Pier ST01-P01 and Abutment ST01-B01
S02C140-1	Erection of temporary working platform at Pier ST01-P01	0	14	11-Jun-22	27-Jun-22	17		Erection of temporary working platform at Pier ST01-P01
S02C140-2	Erection of temporary working platform at Abutment ST01-B01	0	14	28-Jun-22	14-Jul-22	17		Erection of temporary working platform at Abutment ST01-B01
S02C160	Installation of bored piles for Abutment ST01-B01 (1 Nos, Total 4nos)	0	12	15-Jul-22	28-Jul-22	17		Installation of bored piles for Abutment ST01-B01 (1 Nos, Total 4nos)
S02C160-1	Installation of bored piles for Abutment ST01-B01 (1 Nos, Total 4nos)	0	11	29-Jul-22	10-Aug-22	17		Installation of bored piles for Abutment ST01-B01 (1 Nos, Total 4nos)
Substructure and Piling Works for CTFB								
G.I and Pre-drilling								
S02C640	Site clearance and tree felling works	133	40	22-Nov-21 A	27-Jun-22	81		Site clearance and tree felling works
S02C645	Ground investigation and pre-drilling works (4nos) (Pier FBA02, FBP05, FBP06)	131	10	24-Nov-21 A	20-May-22	112		Ground investigation and pre-drilling works (4nos) (Pier FBA02, FBP05, FBP06)
S02C650	Ground investigation and pre-drilling works (7nos) (MTR)	79	75	27-Jan-22 A	24-Sep-22	81		Ground investigation and pre-drilling works (7nos) (MTR)
Section 3 of the Works- Completion of the Works of Direct Road Link within Portion 1,2A,2B, 5 and 9								
Preparation Works								
S033102	Tree felling works (outside MTR Protection Zone)	167	10	22-Nov-21 A	17-May-22	3		Tree felling works (outside MTR Protection Zone)
G.I and Pre-drilling								
S033130	Ground investigation and pre-drilling works for Pier DRL-P06 to DRL-P04 (8nos) (early start of P06)	131	7	24-Nov-21 A	17-May-22	3		Ground investigation and pre-drilling works for Pier DRL-P06 to DRL-P04 (8nos) (early start of P06)
S033150	Ground investigation and pre-drilling works for Pier DRL-P7 to DRL-P10(in MTR protection zone)upon implementation of TTA	0	30	18-May-22	22-Jun-22	3		Ground investigation and pre-drilling works for Pier DRL-P7 to DRL-P10(in MTR protection zone)upon implementation of TTA
S033160	Ground investigation and pre-drilling works for Pier DRL-P02 to DRL-P03 in Portion 9 (MTR)	0	28	10-May-22	11-Jun-22	306		Ground investigation and pre-drilling works for Pier DRL-P02 to DRL-P03 in Portion 9 (MTR)
S033180	Ground investigation and pre-drilling works for Abutment DRL-A01 and Approach ramp AP04 in Portion 2A	96	40	07-Jan-22 A	14-Jun-23	0		Ground investigation and pre-drilling works for Abutment DRL-A01 and Approach ramp AP04 in Portion 2A
Piling Works								
S033200	Plant mobilization and setup for piling works	0	30	23-Jun-22	28-Jul-22	3		Plant mobilization and setup for piling works
S033220	Installation of bored piles for Pier DRL-P13(1nos, total 2nos)	0	10	29-Jul-22	09-Aug-22	3		Installation of bored piles for Pier DRL-P13(1nos, total 2nos)
Section 5 of the Works- Completion of the works within Portion 6 of the Site								
S050100	Construction of Pai Lau	0	185	23-Jul-22	06-Mar-23	0		Construction of Pai Lau

█ Actual Work
█ Remaining Work
█ Critical Remaining Work
◆ Milestone



Three Month Rolling Programme (Data Date : 08-May-22)
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Date	Revision	Checked	Approved
14-May-22	0	LDS	RS

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

Loop: Main Works Package 1 – Contract 3 Direct Road

Link Phase 2

**APPENDIX B
ACTION AND LIMIT LEVELS**

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

Parameter (unit)	Water Depth	Action Level	Limit Level
DO (mg/L)	Depth average	IS1: <u>7.0 / NA</u> ⁽⁴⁾ IS2: <u>5.3 / NA</u> ⁽⁴⁾ IS4: <u>4.1 / NA</u> ⁽⁴⁾ IS6: <u>5.9</u> BS1: <u>3.9 / NA</u> ⁽⁴⁾	IS1: <u>6.8 or 4</u> ⁽⁴⁾ IS2: <u>5.2 or 4</u> ⁽⁴⁾ IS4: <u>3.8 or 4</u> ⁽⁴⁾ IS6: <u>5.8</u> BS1: <u>3.7 or 4</u> ⁽⁴⁾
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.

**APPENDIX C
COPIES OF CALIBRATION
CERTIFICATES**

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

Station DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill
 Date: 17-May-22
 Equipment No.: WA-12-07

File No. WMA21009/07/0007
 Operator: CH
 Next Due Date: 16-Jul-22
 Serial No. 1801

Ambient Condition			
Temperature, Ta (K)	299.3	Pressure, Pa (mmHg)	762.6

Orifice Transfer Standard Information					
Serial No.	2896	Slope, mc	0.0588	Intercept, bc	-0.01030
Last Calibration Date:	20-Jan-22	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	20-Jan-23	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	ΔH (orifice), in. of water	$[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (CFM) X-axis	ΔW (HVS), in. of water	$[\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$ Y-axis
1	12.2	3.49	59.60	7.9	2.81
2	10.3	3.21	54.78	6.2	2.49
3	8.9	2.98	50.93	5.6	2.37
4	6.4	2.53	43.21	4.1	2.02
5	3.2	1.79	30.61	2.1	1.45

By Linear Regression of Y on X

Slope, mw = 0.0456 Intercept, bw : 0.0466
 Correlation coefficient* = 0.9976

*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; $W = (mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.03

Remarks: _____

Conducted by: Wong Lee Chun Signature: _____

Date: 17/5/2022

Checked by: BBB MAND HEZ Signature: _____

Date: 17/5/2022



Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 20, 2022	Rootsmeter S/N: 438320	Ta: 293	°K
Operator: Jim Tisch		Pa: 759.7	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 2896		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4610	3.2	2.00
2	3	4	1	1.0360	6.4	4.00
3	5	6	1	0.9190	7.9	5.00
4	7	8	1	0.8780	8.8	5.50
5	9	10	1	0.7250	12.7	8.00

Data Tabulation					
Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H \left(\frac{Pa}{Pstd} \right) \left(\frac{Tstd}{Ta} \right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H (Ta/Pa)}$ (y-axis)
1.0124	0.6929	1.4260	0.9958	0.6816	0.8783
1.0081	0.9731	2.0166	0.9916	0.9571	1.2420
1.0061	1.0948	2.2546	0.9896	1.0768	1.3887
1.0049	1.1445	2.3647	0.9884	1.1258	1.4564
0.9997	1.3789	2.8519	0.9833	1.3563	1.7565
QSTD	m=	2.07510	QA	m=	1.29939
	b=	-0.01030		b=	-0.00634
	r=	0.99995		r=	0.99995

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

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.:	36645B
Date of Issue:	2022-05-10
Date Received:	2022-05-06
Date Tested:	2022-05-06
Date Completed:	2022-05-10
Next Due Date:	2022-07-09

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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. : 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)	1.091
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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.:	36645C
Date of Issue:	2022-05-10
Date Received:	2022-05-06
Date Tested:	2022-05-06
Date Completed:	2022-05-10
Next Due Date:	2022-07-09

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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.	: 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)	1.056
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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.:	36644A
Date of Issue:	2022-04-25
Date Received:	2022-04-23
Date Tested:	2022-04-23
Date Completed:	2022-04-25
Next Due Date:	2022-06-24

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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.	: 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)	1.134
-------------------------	-------

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.:	36644D
Date of Issue:	2022-04-25
Date Received:	2022-04-23
Date Tested:	2022-04-23
Date Completed:	2022-04-25
Next Due Date:	2022-06-24

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. : 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)	1.145
-------------------------	-------

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.:	36841D
Date of Issue:	2022-06-27
Date Received:	2022-06-24
Date Tested:	2022-06-25
Date Completed:	2022-06-27
Next Due Date:	2022-08-26

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.	: 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)	1.071
-------------------------	-------

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.:	36405E
Date of Issue:	2022-03-07
Date Received:	2022-03-04
Date Tested:	2022-03-04
Date Completed:	2022-03-07
Next Due Date:	2023-03-06

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.	: 580008
Equipment No.	: WN-01-06

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.:	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.:	36481B
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.	: 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 1808, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	35658A
Date of Issue:	2021-08-23
Date Received:	2021-08-20
Date Tested:	2021-08-20
Date Completed:	2021-08-23
Next Due Date:	2022-08-22

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration**Item for calibration:**

Description : Acoustical Calibrator
Manufacturer : SVANTEK
Model No. : SV30A
Serial No. : 24791
Equipment No. : N-09-04

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 1701, Technology Park,
18 On Lai Street,
Shatin, NT, Hong Kong

Test Report No.:	35909A
Date of Issue:	2021-10-04
Date Received:	2021-10-02
Date Tested:	2021-10-02
Date Completed:	2021-10-04
Next Due Date:	2022-10-03

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:

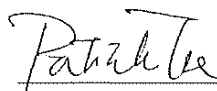
The Sound Level Calibrator has been calibrated in accordance with the documented procedures and using standard(s) and instrument(s) which are recommended by the manufacturer, or equivalent.

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.:	36235
Date of Issue:	2022-02-28
Date Received:	2022-02-25
Date Tested:	2022-02-25
Date Completed:	2022-02-28
Next Due Date:	2022-08-27

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.:	36235
Date of Issue:	2022-02-28
Date Received:	2022-02-25
Date Tested:	2022-02-25
Date Completed:	2022-02-28
Next Due Date:	2022-08-27

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	90	0
135.1	135	0.1
180	180	0
225	225	0
270.3	270	0.3
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.:	36607A
Date of Issue:	2022-03-25
Date Received:	2022-03-24
Date Tested:	2022-03-24 to 2022-03-25
Date Completed:	2022-03-25

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-31	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J100892
- EXO Optical DO Sensor, Ti	599100-01	16J100950
- EXO conductivity/Temperature Sensor, Ti	599870	16H100185
- EXO Turbidity Sensor, Ti	599101-01	18C102865
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J100708

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
General Manager

TEST REPORT

Test Report No.:	36607A
Date of Issue:	2022-03-25
Date Received:	2022-03-24
Date Tested:	2022-03-24 to 2022-03-25
Date Completed:	2022-03-25

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 $\mu\text{S}/\text{cm}$)	13000	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	20.002	-0.002	N/A

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.01	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.89	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.16	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.07	$<0.1\text{mg}/\text{L}$	Pass

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Winkler Titration value (mg/L)			
8.02	8.10	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	10.06	9.0-11.0	Pass
50 NTU	50.13	45.0-55.0	Pass
100 NTU	99.7	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*****

TEST REPORT

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

Test Report No.:	36607B
Date of Issue:	2022-03-25
Date Received:	2022-03-24
Date Tested:	2022-03-24 to 2022-03-25
Date Completed:	2022-03-25

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.:	SW-08-41
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J102313
- EXO Optical DO Sensor, Ti	599100-01	16J100945
- EXO conductivity/Temperature Sensor, Ti	599870	16G102305
- EXO Turbidity Sensor, Ti	599101-01	17A104090
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B103619

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 20c 4500-O C

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



PATRICK TSE
General Manager

TEST REPORT

Test Report No.:	36607B
Date of Issue:	2022-03-25
Date Received:	2022-03-24
Date Tested:	2022-03-24 to 2022-03-25
Date Completed:	2022-03-25
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 $\mu\text{S}/\text{cm}$)	12900	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	20.000	0.000	N/A

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.00	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.86	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.16	9.18 ± 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
8.02	7.93	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	10.01	9.0-11.0	Pass
50 NTU	50.33	45.0-55.0	Pass
100 NTU	101.2	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.:	36871A
Date of Issue:	2022-06-25
Date Received:	2022-06-23
Date Tested:	2022-06-23 to 2022-06-25
Date Completed:	2022-06-25

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-83	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17A104735
- EXO Optical DO Sensor, Ti	599100-01	17B102220
- EXO conductivity/Temperature Sensor, Ti	599870	17B100808
- EXO Turbidity Sensor, Ti	599101-01	18C101823
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B103644

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
General Manager

TEST REPORT

Test Report No.:	36871A
Date of Issue:	2022-06-25
Date Received:	2022-06-23
Date Tested:	2022-06-23 to 2022-06-25
Date Completed:	2022-06-25
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 $\mu\text{S}/\text{cm}$)	12900	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	19.999	+0.001	N/A

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	3.98	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.88	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.17	9.18 ± 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

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Winkler Titration value (mg/L)			
8.10	8.05	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	9.98	9.0-11.0	Pass
50 NTU	49.83	45.0-55.0	Pass
100 NTU	96.4	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*****

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

**Service Contract No. WD/04/2020
Impact Monitoring Schedule (June 2022)**

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

Air Quality Monitoring Station

DMS-1a - Village House along Ha Wan Tsuen East Road
DMS-2A - Village house along Lok Ma Chau Road
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 (July 2022)

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

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

* Water quality monitoring scheduled on 2 July 2022 was cancelled due to Typhoon Signal no. 8

Air Quality Monitoring Station

DMS-1a - Village House along Ha Wan Tsuen East Road
DMS-2A - Village house along Lok Ma Chau Road
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)

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

Appendix E - 1-hour TSP Monitoring Results

Location DMS-1a - Village House along Ha Wan Tsuen East Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jun-22	8:30	Fine	43.1
2-Jun-22	9:30	Fine	57.0
2-Jun-22	10:30	Fine	50.7
8-Jun-22	8:30	Cloudy	95.4
8-Jun-22	9:30	Cloudy	88.6
8-Jun-22	10:30	Cloudy	101.6
14-Jun-22	8:00	Cloudy	69.5
14-Jun-22	9:00	Cloudy	72.2
14-Jun-22	10:00	Cloudy	71.1
20-Jun-22	13:00	Sunny	56.8
20-Jun-22	14:00	Sunny	64.0
20-Jun-22	15:00	Sunny	63.2
24-Jun-22	8:00	Sunny	18.4
24-Jun-22	9:00	Sunny	27.9
24-Jun-22	10:00	Sunny	26.0
30-Jun-22	8:15	Cloudy	50.6
30-Jun-22	9:15	Cloudy	53.2
30-Jun-22	10:15	Cloudy	48.8
		Minimum	18.4
		Maximum	101.6
		Average	58.8

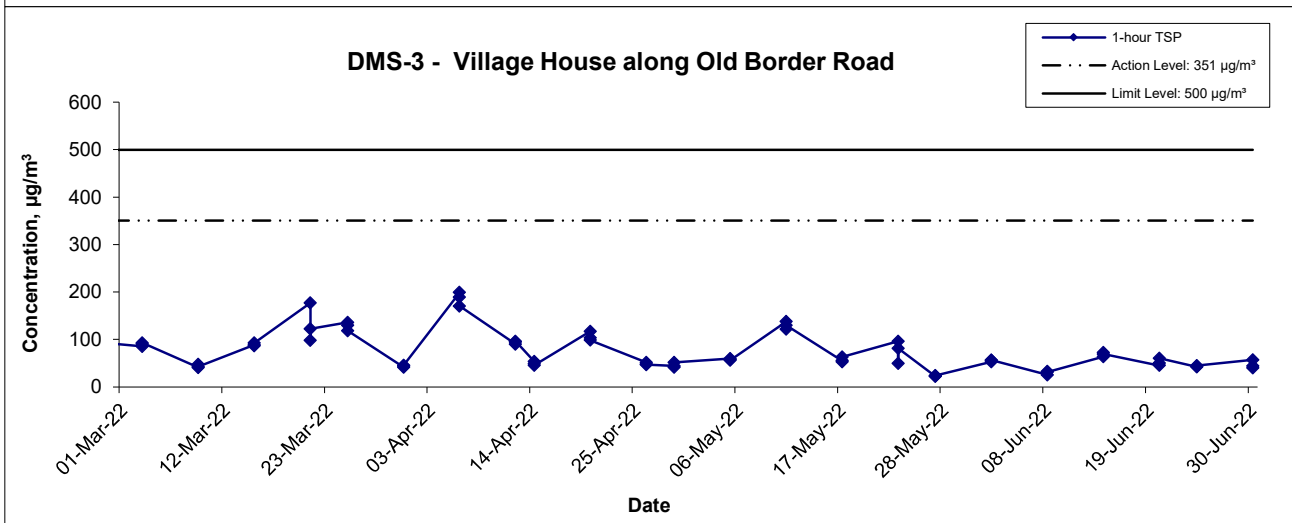
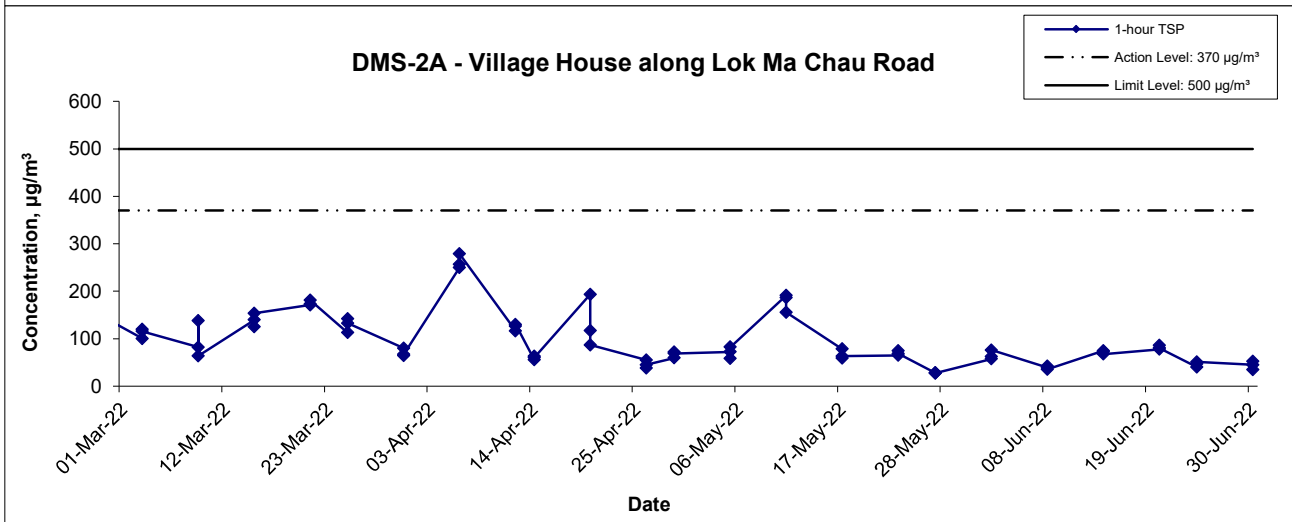
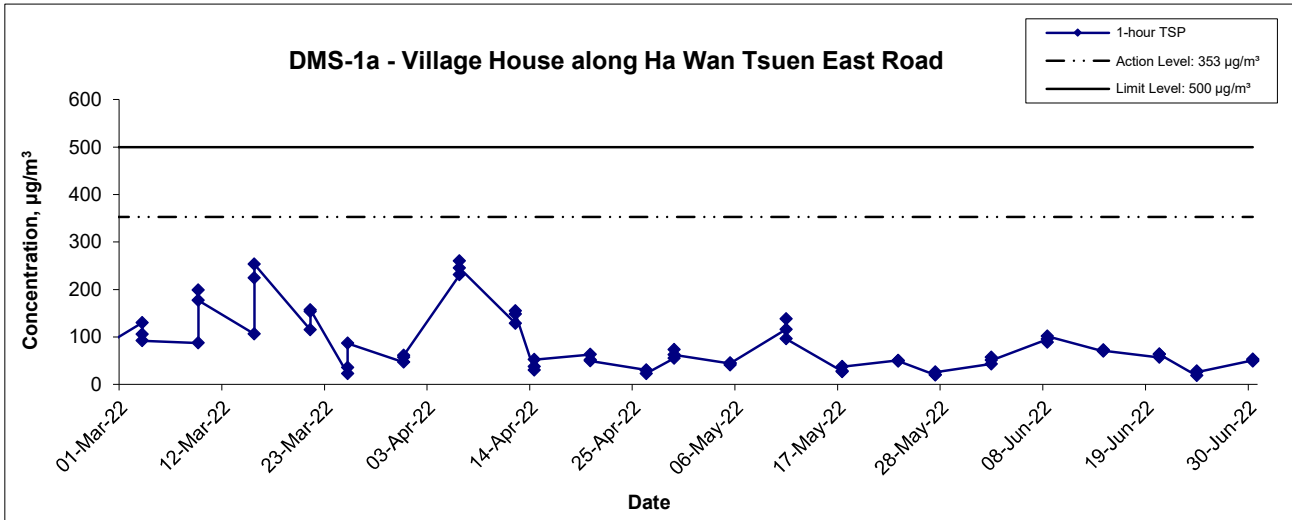
Location DMS-2A - Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jun-22	13:10	Fine	57.6
2-Jun-22	14:10	Fine	62.7
2-Jun-22	15:10	Fine	76.0
8-Jun-22	13:00	Rainy	39.0
8-Jun-22	14:00	Rainy	42.1
8-Jun-22	15:00	Rainy	35.5
14-Jun-22	8:30	Cloudy	74.5
14-Jun-22	9:30	Cloudy	72.6
14-Jun-22	10:30	Cloudy	67.5
20-Jun-22	13:00	Cloudy	77.8
20-Jun-22	14:00	Cloudy	86.1
20-Jun-22	15:00	Cloudy	80.4
24-Jun-22	13:00	Sunny	40.4
24-Jun-22	14:00	Sunny	46.6
24-Jun-22	15:00	Sunny	50.9
30-Jun-22	8:30	Cloudy	45.1
30-Jun-22	9:30	Cloudy	52.6
30-Jun-22	10:30	Cloudy	35.0
		Minimum	35.0
		Maximum	86.1
		Average	57.9


Appendix E - 1-hour TSP Monitoring Results

Location DMS-3 - Village House along Old Border Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jun-22	8:30	Fine	53.2
2-Jun-22	9:30	Fine	56.5
2-Jun-22	10:30	Fine	56.4
8-Jun-22	9:00	Rainy	25.1
8-Jun-22	10:00	Rainy	32.6
8-Jun-22	10:00	Rainy	31.3
14-Jun-22	13:00	Cloudy	63.7
14-Jun-22	14:00	Cloudy	72.3
14-Jun-22	15:00	Cloudy	69.4
20-Jun-22	8:30	Sunny	45.2
20-Jun-22	9:30	Sunny	50.0
20-Jun-22	10:30	Sunny	60.3
24-Jun-22	13:10	Sunny	41.9
24-Jun-22	14:10	Sunny	43.3
24-Jun-22	15:10	Sunny	44.8
30-Jun-22	9:00	Cloudy	57.1
30-Jun-22	10:00	Cloudy	40.3
30-Jun-22	11:00	Cloudy	44.3
		Minimum	25.1
		Maximum	72.3
		Average	49.3

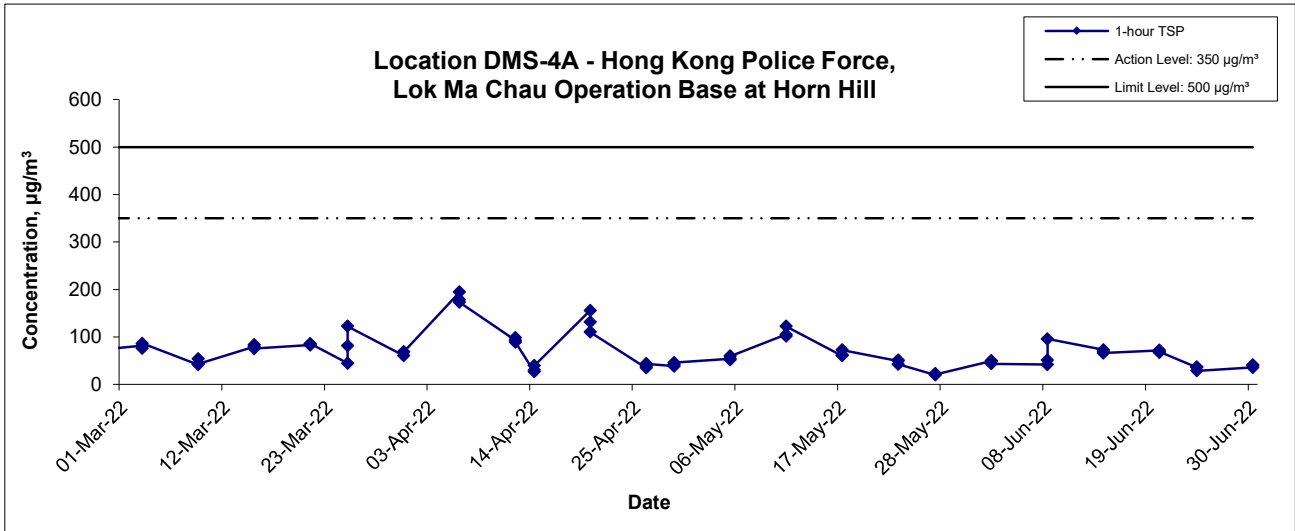
Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
2-Jun-22	9:00	Fine	49.4
2-Jun-22	10:00	Fine	48.7
2-Jun-22	11:00	Fine	43.5
8-Jun-22	9:00	Cloudy	41.8
8-Jun-22	10:00	Cloudy	50.6
8-Jun-22	11:00	Cloudy	95.6
14-Jun-22	13:00	Cloudy	72.6
14-Jun-22	14:00	Cloudy	69.7
14-Jun-22	15:00	Cloudy	66.0
20-Jun-22	9:00	Fine	71.8
20-Jun-22	10:00	Fine	66.8
20-Jun-22	11:00	Fine	68.7
24-Jun-22	9:00	Sunny	36.0
24-Jun-22	10:00	Sunny	36.4
24-Jun-22	11:00	Sunny	28.7
30-Jun-22	13:05	Cloudy	35.5
30-Jun-22	14:05	Cloudy	40.9
30-Jun-22	15:05	Cloudy	39.5
		Minimum	28.7
		Maximum	95.6
		Average	53.5


1-hour TSP Concentration Levels



Title	Service Contract No. WD/04/2020		Scale	Project No.	WMA21009	 consulting . testing . research
	Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team					
Graphical Presentation of 1-hour TSP Monitoring Results	Date		Date	Appendix	E	
	Jun 22					

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	 consulting . testing . research
	Date Jun 22	Appendix E	

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

Appendix F - 24-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-Jun-22	8:30	Fine	54.4
7-Jun-22	8:30	Cloudy	56.4
13-Jun-22	8:00	Cloudy	61.3
17-Jun-22	9:15	Fine	41.7
23-Jun-22	8:00	Sunny	25.3
29-Jun-22	9:15	Cloudy	27.6
		Minimum	25.3
		Maximum	61.3
		Average	44.5

Appendix F - 24-hour TSP Monitoring Results

Location DMS-2A - Village House along Lok Ma Chau 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 ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Jun-22	Cloudy	300.4	757.7	3.2575	3.3401	0.0826	1551.2	1575.2	24.0	1.201	1.198	1.199	1727.0	47.8
7-Jun-22	Cloudy	298.8	756.1	3.4179	3.4903	0.0724	1575.2	1599.2	24.0	1.198	1.205	1.201	1729.8	41.9
13-Jun-22	Cloudy	301.3	757.4	3.2964	3.4001	0.1037	1605.7	1629.7	24.0	1.198	1.197	1.197	1724.0	60.2
17-Jun-22	Cloudy	301.1	758.2	3.2935	3.3752	0.0817	1629.7	1653.7	24.0	1.199	1.198	1.198	1725.7	47.3
23-Jun-22	Sunny	300.2	760.4	3.2408	3.3040	0.0632	1653.7	1677.7	24.0	1.202	1.202	1.202	1730.7	36.5
29-Jun-22	Cloudy	301.5	755.0	3.4112	3.4612	0.0500	1677.7	1701.7	24.0	1.196	1.194	1.195	1720.7	29.1
													Min	29.1
													Max	60.2
													Average	43.8

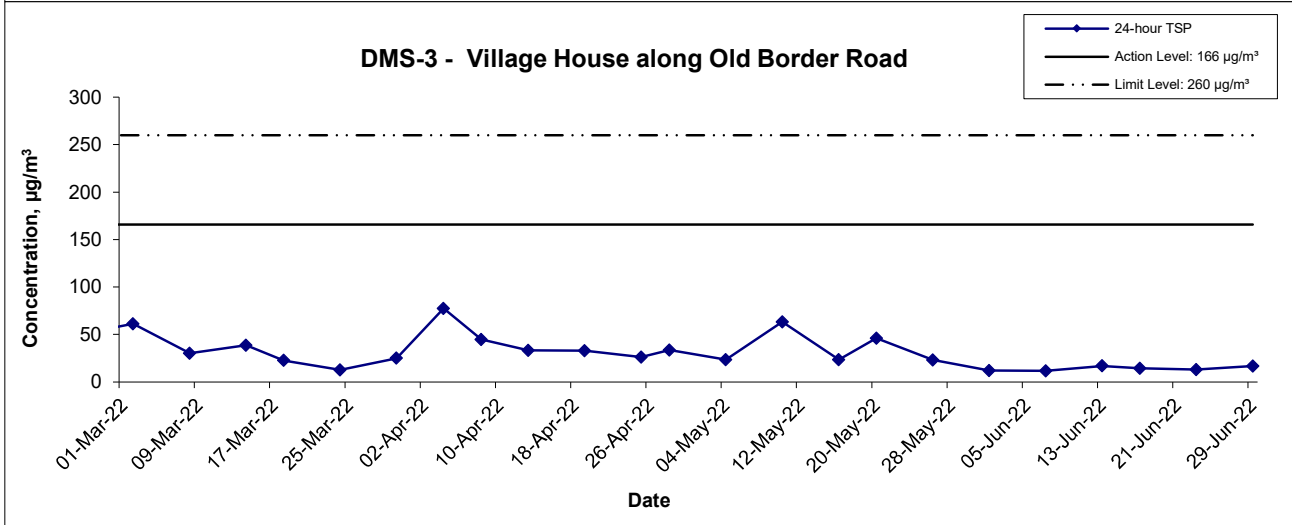
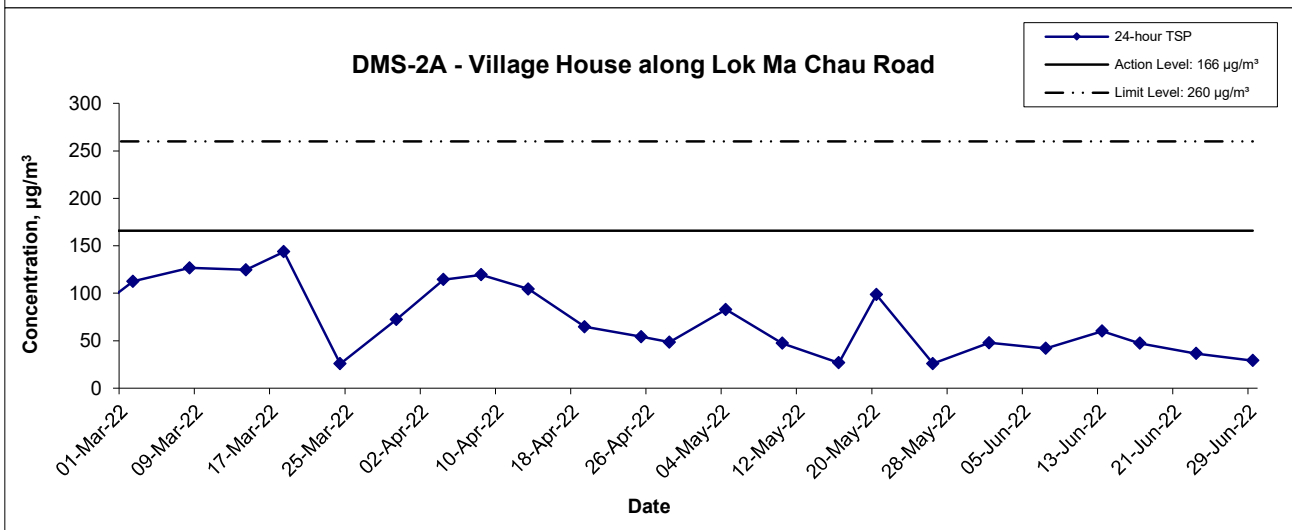
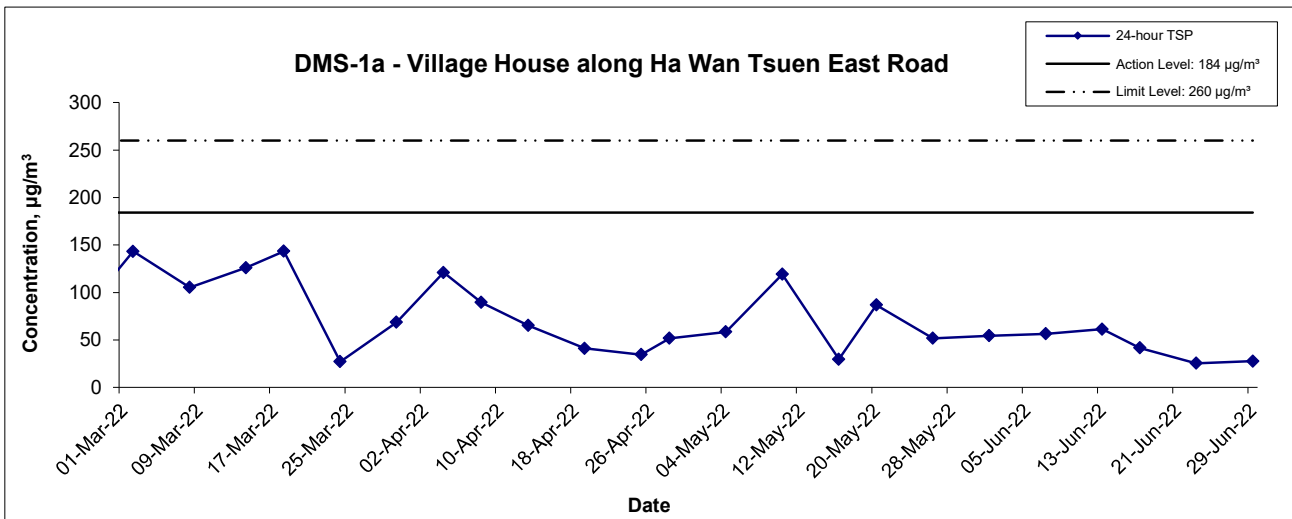
Location DMS-3 - Village House along Old Border Road

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 ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Jun-22	Cloudy	300.4	757.7	3.2761	3.2969	0.0208	2480.5	2504.5	24.0	1.202	1.199	1.201	1728.8	12.0
7-Jun-22	Cloudy	298.8	756.1	3.4072	3.4274	0.0202	2504.5	2528.5	24.0	1.199	1.206	1.202	1731.6	11.7
13-Jun-22	Cloudy	301.3	757.4	3.4424	3.4715	0.0291	2528.5	2552.5	24.0	1.199	1.198	1.198	1725.7	16.9
17-Jun-22	Cloudy	301.1	758.2	3.2967	3.3215	0.0248	2552.5	2576.5	24.0	1.200	1.199	1.200	1727.4	14.4
23-Jun-22	Sunny	300.2	760.4	3.4157	3.4383	0.0226	2576.6	2600.6	24.0	1.203	1.203	1.203	1732.5	13.0
29-Jun-22	Cloudy	301.5	755.0	3.4042	3.4331	0.0289	2600.6	2624.6	24.0	1.197	1.195	1.196	1722.3	16.8
													Min	11.7
													Max	16.9
													Average	14.1

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

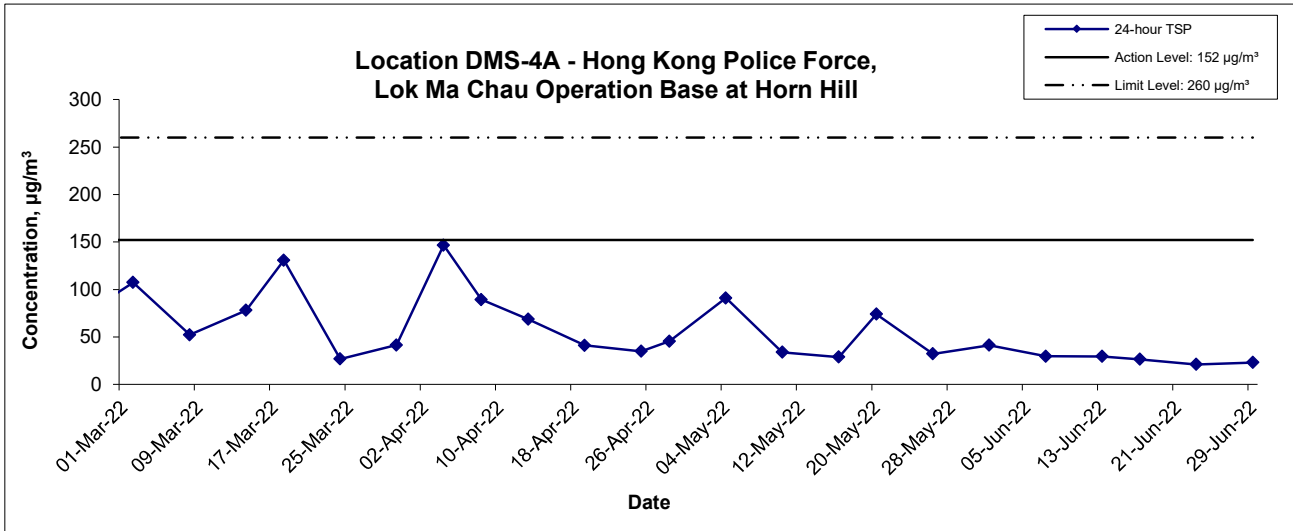
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
1-Jun-22	Cloudy	300.4	757.7	3.2778	3.3494	0.0716	32041.4	32065.4	24.0	1.207	1.204	1.206	1736.0	41.2
7-Jun-22	Cloudy	298.8	756.1	3.5147	3.5661	0.0514	32065.4	32089.4	24.0	1.204	1.211	1.207	1738.8	29.6
13-Jun-22	Cloudy	301.3	757.4	3.2135	3.2644	0.0509	32089.4	32113.4	24.0	1.204	1.203	1.203	1732.9	29.4
17-Jun-22	Cloudy	301.1	758.2	3.2936	3.3395	0.0459	32113.4	32137.4	24.0	1.205	1.204	1.205	1734.5	26.5
23-Jun-22	Sunny	300.2	760.4	3.3293	3.3657	0.0364	32137.4	32161.4	24.0	1.208	1.208	1.208	1739.7	20.9
29-Jun-22	Cloudy	301.5	755.0	3.2740	3.3140	0.0400	32161.4	32185.4	24.0	1.202	1.200	1.201	1729.5	23.1
													Min	20.9
													Max	41.2
													Average	28.4

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	Jun 22	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	匯力 consulting . testing . research
	Date	Jun 22	Appendix	F	

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

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 _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
2-Jun-22	Cloudy	16:25	54.5	55.3	50.4	54.1	47.3
		16:30	52.5	54.9	49.9		
		16:35	51.8	52.7	50.5		
		16:40	56.0	58.4	53.3		
		16:45	54.1	54.4	53.4		
16:50	54.3	54.6	53.3				
8-Jun-22	Cloudy	15:30	63.5	64.4	62.7	61.4	
		15:35	61.5	63.0	60.0		
		15:40	59.8	61.2	58.6		
		15:45	59.7	61.0	58.5		
		15:50	61.2	62.2	60.0		
15:55	61.4	62.5	60.3				
14-Jun-22	Cloudy	11:30	51.1	51.3	48.6	55.3	
		11:35	55.1	58.4	49.2		
		11:40	54.0	54.4	49.3		
		11:45	54.0	57.5	49.3		
		11:50	54.3	58.3	48.9		
11:55	59.0	66.3	48.5				
24-Jun-22	Sunny	09:50	61.8	62.6	52.1	57.7	
		09:55	55.8	57.3	52.4		
		10:00	56.2	57.0	55.4		
		10:05	57.1	58.1	56.0		
		10:10	57.1	58.4	54.9		
10:15	53.7	55.4	52.0				
30-Jun-22	Cloudy	11:30	68.6	69.1	68.1	69.0	
		11:35	68.6	69.1	68.2		
		11:40	68.8	69.3	68.3		
		11:45	69.3	71.3	67.3		
		11:50	70.0	70.3	68.4		
11:55	68.5	69.3	68.3				

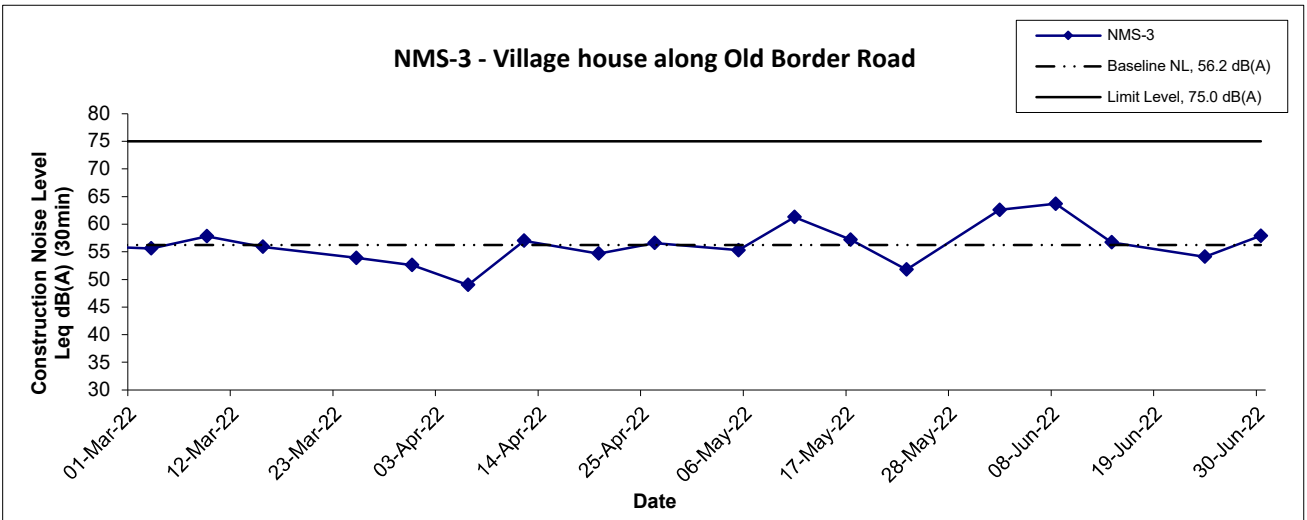
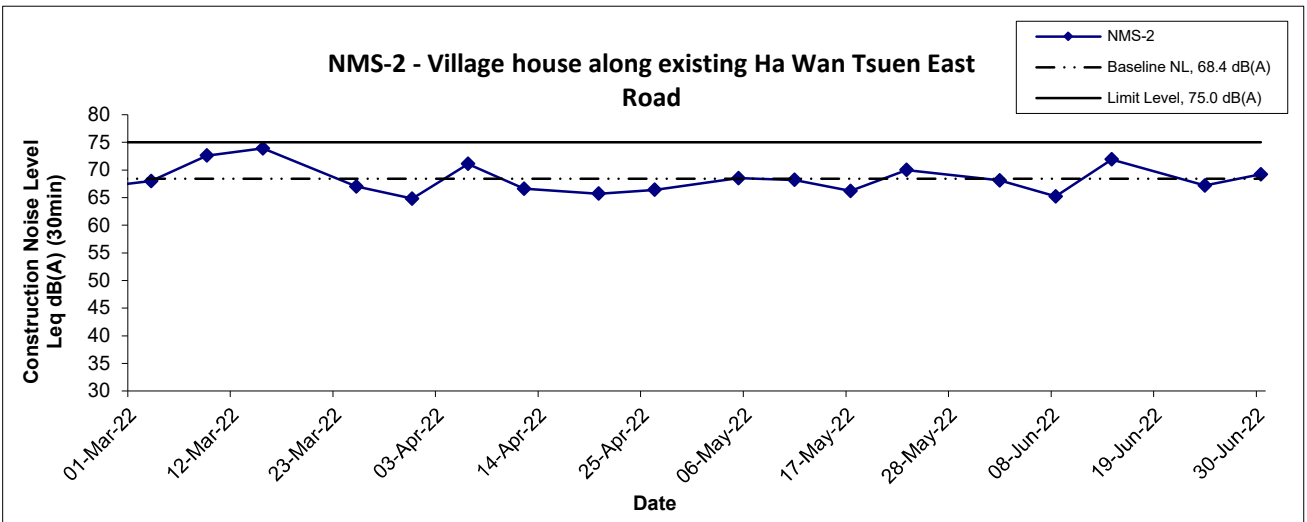
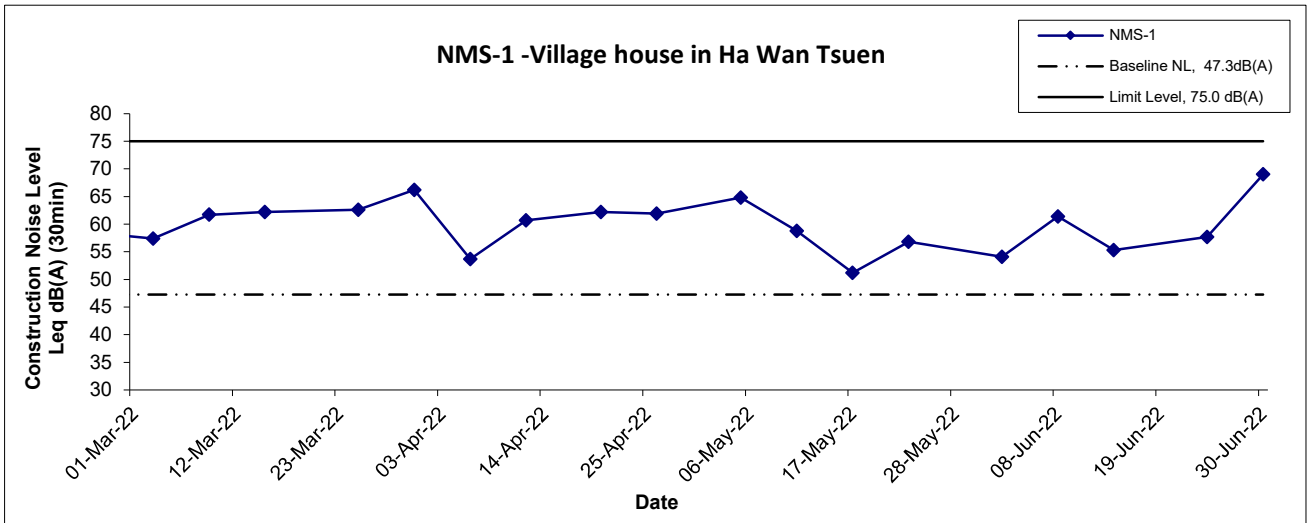
Location NMS-2 - Village house along existing Ha Wan Tsuen East Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
2-Jun-22	Cloudy	13:15	68.2	72.3	64.3	68.1	68.4
		13:20	67.7	70.9	64.3		
		13:25	66.8	69.0	63.9		
		13:30	67.9	70.6	64.5		
		13:35	69.6	71.0	65.5		
13:40	67.8	69.4	64.8				
8-Jun-22	Cloudy	13:45	64.1	67.2	55.6	65.2	
		13:50	63.3	68.3	56.0		
		13:55	64.3	68.7	55.0		
		14:00	65.9	69.6	54.4		
		14:05	64.4	67.0	54.0		
14:10	67.8	71.2	56.5				
14-Jun-22	Cloudy	08:32	70.3	73.6	61.6	71.9	
		08:37	70.6	72.2	63.9		
		08:42	71.2	75.1	64.4		
		08:47	73.8	76.8	63.5		
		08:52	73.1	75.6	61.4		
08:57	71.4	73.8	60.2				
24-Jun-22	Sunny	13:00	67.1	70.2	58.6	67.2	
		13:05	66.3	71.3	59.0		
		13:10	67.4	71.7	58.0		
		13:15	68.9	72.6	57.4		
		13:20	64.4	67.0	55.6		
13:25	67.8	71.2	56.5				
30-Jun-22	Cloudy	08:40	69.9	73.0	52.8	69.2	
		08:45	65.9	70.0	53.3		
		08:50	70.0	73.2	59.4		
		08:55	68.5	74.1	56.1		
		09:00	69.2	73.1	55.6		
09:05	70.2	74.7	55.1				

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 _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
2-Jun-22	Cloudy	10:40	62.3	63.2	61.0	62.6	56.2
		10:45	62.4	63.1	61.1		
		10:50	61.9	62.6	60.1		
		10:55	62.7	63.9	61.6		
		11:00	62.4	63.0	61.7		
11:05	63.5	64.7	62.3				
8-Jun-22	Cloudy	08:50	68.3	63.7	63.5	63.7	
		08:55	64.0	62.8	58.9		
		09:00	60.6	62.2	58.5		
		09:05	60.3	61.3	59.4		
		09:10	61.4	62.6	59.6		
09:15	61.2	62.1	60.6				
14-Jun-22	Cloudy	14:00	57.8	57.9	54.1	56.7	
		14:05	56.4	57.1	54.3		
		14:10	57.2	59.1	55.7		
		14:15	56.8	57.7	55.7		
		14:20	55.5	56.2	54.8		
14:25	56.2	57.2	55.2				
24-Jun-22	Sunny	13:20	53.9	55.0	52.7	54.1	
		13:25	54.6	56.2	54.3		
		13:30	54.2	55.3	53.6		
		13:35	54.0	55.2	53.7		
		13:40	53.8	54.8	52.7		
13:45	54.0	55.1	53.6				
30-Jun-22	Cloudy	10:40	55.8	56.4	53.6	57.9	
		10:45	56.3	57.9	54.7		
		10:50	58.2	59.3	55.7		
		10:55	59.1	60.6	57.6		
		11:00	58.1	59.4	56.7		
11:05	59.1	61.4	55.6				

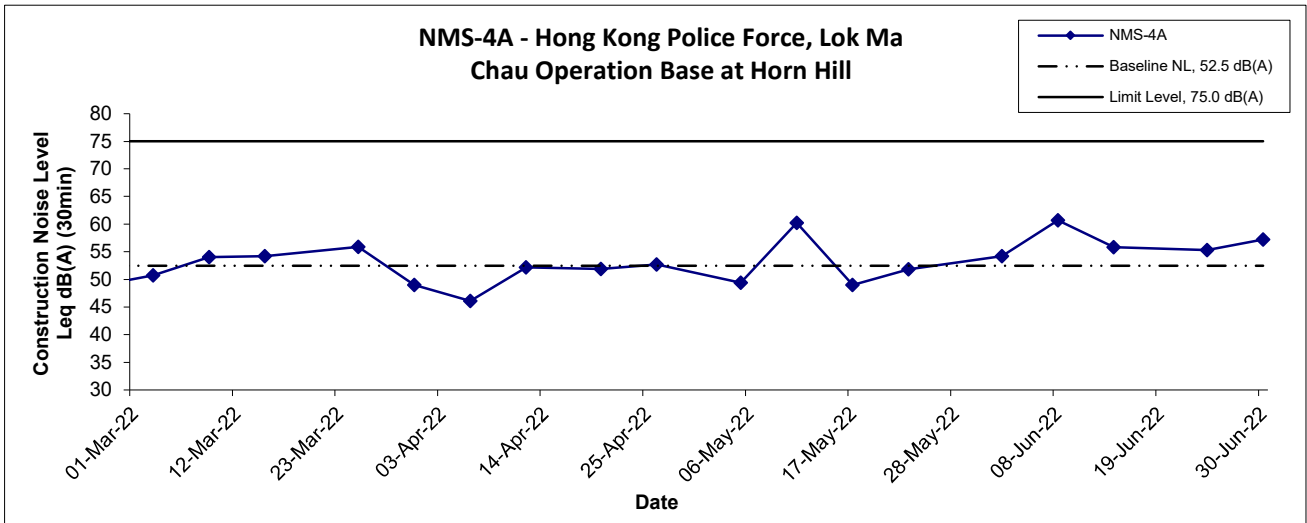
Location NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
2-Jun-22	Cloudy	09:55	53.7	54.0	51.8	54.2	52.5
		10:00	56.8	57.8	51.6		
		10:05	53.9	55.2	52.6		
		10:10	53.2	53.5	52.3		
		10:15	52.4	53.2	51.6		
10:20	53.7	54.1	52.3				
8-Jun-22	Cloudy	09:00	58.4	59.2	56.4	60.7	
		09:05	59.0	59.4	57.3		
		09:10	58.8	60.9	56.4		
		09:15	56.9	57.7	55.7		
		09:20	62.8	67.1	57.2		
09:25	63.9	67.3	59.3				
14-Jun-22	Cloudy	13:00	52.8	54.4	51.1	55.8	
		13:05	54.0	55.8	51.9		
		13:10	54.4	55.2	52.0		
		13:15	55.8	56.4	52.4		
		13:20	59.2	61.8	54.4		
13:25	55.5	57.4	51.6				
24-Jun-22	Sunny	08:57	56.1	56.2	54.2	55.3	
		09:02	55.3	56.4	54.0		
		09:07	55.5	56.6	54.1		
		09:12	54.7	55.2	53.9		
		09:17	54.7	55.2	53.9		
09:22	55.4	55.4	53.9				
30-Jun-22	Cloudy	14:00	57.1	58.3	55.2	57.2	
		14:05	58.3	59.7	56.5		
		14:10	57.6	60.0	55.9		
		14:15	56.4	57.1	55.5		
		14:20	57.0	58.4	55.7		
14:25	56.5	57.3	55.8				

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 Jun 22	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	
	Date Jun 22	Appendix G	

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

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-Jun-22	Sunny	Calm	10:39	Middle	0.5	29.8	29.8	7.5	7.5	0.01	0.01	80.1	80.2	6.1	6.1	29.3	29.3	20	19.0
						29.8		7.5		0.01		80.3		6.1		29.2		18	
4-Jun-22	Rainy	Calm	09:11	Middle	0.5	30.0	30.0	7.4	7.4	0.1	0.1	74.5	74.8	5.6	5.7	18.1	18.2	18	17.5
						29.9		7.4		0.1		75.1		5.7		18.2		17	
6-Jun-22	Sunny	Calm	10:34	Middle	0.5	30.6	30.6	7.9	7.9	1.7	1.7	102.0	102.1	7.6	7.6	14.1	14.1	24	23.5
						30.6		7.9		1.7		102.1		7.6		14.0		23	
8-Jun-22	Rainy	Calm	11:42	Middle	0.5	27.0	27.0	7.3	7.3	1.3	1.3	69.9	69.8	5.5	5.5	14.0	14.0	15	15.0
						27.0		7.3		1.3		69.6		5.5		13.9		15	
10-Jun-22	Cloudy	Calm	13:32	Middle	0.5	28.8	28.8	7.6	7.6	1.0	1.0	87.3	87.3	6.7	6.7	9.8	9.8	10	10.5
						28.8		7.6		1.0		87.2		6.7		9.8		11	
13-Jun-22	Cloudy	Calm	12:19	Middle	0.3	28.9	28.9	8.4	8.5	0.9	0.9	77.6	77.6	6.0	6.0	9.2	9.2	10	10.0
						28.9		8.5		0.9		77.5		5.9		9.2		10	
15-Jun-22	Cloudy	Calm	10:32	Middle	0.5	27.6	27.6	8.2	8.2	0.9	0.9	61.3	61.3	4.8	4.8	8.4	8.4	11	10.5
						27.6		8.2		0.9		61.3		4.8		8.4		10	
17-Jun-22	Cloudy	Calm	11:18	Middle	0.4	31.2	31.2	8.5	8.5	0.9	0.9	114.2	114.2	8.4	8.4	7.7	7.5	15	17.0
						29.3		8.5		0.9		114.2		8.4		7.2		19	
20-Jun-22	Cloudy	Calm	11:28	Middle	0.5	29.3	29.3	8.7	8.7	0.8	0.8	107.6	107.6	8.2	8.2	9.8	9.8	17	18.0
						29.3		8.7		0.8		107.6		8.2		9.8		19	
22-Jun-22	Cloudy	Calm	10:35	Middle	0.5	30.2	30.2	8.2	8.2	0.8	0.8	101.8	101.8	7.6	7.6	9.1	9.1	11	11.5
						30.2		8.2		0.8		101.8		7.6		9.0		12	
24-Jun-22	Sunny	Calm	11:27	Middle	0.5	34.1	34.2	9.3	9.3	0.9	0.9	114.0	114.2	8.0	8.0	8.8	8.8	12	12.0
						34.2		9.3		0.9		114.4		8.0		8.7		12	
27-Jun-22	Sunny	Calm	11:13	Middle	0.6	31.9	31.9	10.0	10.0	0.9	0.9	101.3	101.4	7.4	7.4	12.0	12.0	24	25.5
						31.9		10.0		0.9		101.4		7.4		11.9		27	
29-Jun-22	Sunny	Calm	10:38	Middle	0.6	31.1	31.1	8.5	8.5	0.9	0.9	96.0	96.1	7.1	7.1	10.0	10.0	20	20.0
						31.1		8.5		0.9		96.1		7.1		9.9		20	

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-Jun-22	Sunny	Calm	09:35	Middle	0.2	28.8 28.8	28.8	7.9 7.9	7.9	0.3 0.3	0.3	67.6 67.6	67.6	5.2 5.2	5.2	14.3 14.4	14.4	19 19	19.0
4-Jun-22	Rainy	Calm	07:59	Middle	0.2	30.0 30.1	30.1	8.2 8.2	8.2	0.3 0.3	0.3	77.7 77.7	77.7	5.9 5.9	5.9	12.9 12.9	12.9	16 16	16.0
6-Jun-22	Sunny	Calm	09:33	Middle	0.1	29.8 29.8	29.8	9.0 9.0	9.0	0.2 0.2	0.2	118.0 118.1	118.1	9.0 9.0	9.0	4.1 3.9	4.0	10 11	10.5
8-Jun-22	Rainy	Calm	10:42	Middle	0.1	27.1 27.1	27.1	7.9 7.9	7.9	0.1 0.1	0.1	86.2 86.0	86.1	6.9 6.8	6.9	11.7 11.8	11.8	22 18	20.0
10-Jun-22	Cloudy	Calm	12:24	Middle	0.1	27.6 27.6	27.6	7.9 7.9	7.9	0.2 0.2	0.2	93.1 92.6	92.9	7.3 7.3	7.3	7.2 7.1	7.2	6 6	6.0
13-Jun-22	Cloudy	Calm	10:50	Middle	0.3	26.3 26.3	26.3	8.5 8.5	8.5	0.2 0.2	0.2	55.4 55.1	55.3	4.5 4.4	4.5	11.8 12.0	11.9	10 11	10.5
15-Jun-22	Cloudy	Calm	09:37	Middle	0.2	25.6 25.6	25.6	8.0 8.0	8.0	0.3 0.3	0.3	50.2 50.2	50.2	4.1 4.1	4.1	13.1 13.1	13.1	13 15	14.0
17-Jun-22	Cloudy	Calm	10:17	Middle	0.5	29.2 29.2	29.2	8.2 8.2	8.2	0.3 0.3	0.3	85.8 85.3	85.6	6.6 6.5	6.6	11.7 11.7	11.7	13 14	13.5
20-Jun-22	Cloudy	Calm	10:32	Middle	0.1	30.6 30.6	30.6	8.9 8.9	8.9	0.4 0.4	0.4	139.0 138.8	138.9	10.4 10.4	10.4	8.0 7.9	8.0	5 4	4.5
22-Jun-22	Cloudy	Calm	09:37	Middle	0.1	30.2 30.2	30.2	9.2 9.2	9.2	0.2 0.2	0.2	110.8 111.1	111.0	8.4 8.4	8.4	4.2 4.2	4.2	22 22	22.0
24-Jun-22	Sunny	Calm	10:36	Middle	0.1	31.6 31.7	31.7	9.5 9.4	9.5	0.4 0.4	0.4	95.6 96.1	95.9	7.0 7.0	7.0	3.4 3.5	3.5	4 4	4.0
27-Jun-22	Sunny	Calm	10:02	Middle	0.3	31.3 31.3	31.3	9.0 9.0	9.0	0.3 0.3	0.3	71.1 71.1	71.1	5.3 5.3	5.3	12.5 12.2	12.4	16 17	16.5
29-Jun-22	Sunny	Calm	09:40	Middle	0.3	30.6 30.6	30.6	8.7 8.6	8.7	0.3 0.3	0.3	75.7 75.7	75.7	5.7 5.7	5.7	19.0 19.7	19.4	23 23	23.0

Remarks: *DA: Depth-Averaged

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

Water Quality Monitoring Results at 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-Jun-22	Sunny	Calm	10:15	Middle	0.5	27.1	27.1	7.0	7.0	0.1	0.1	66.5	66.5	5.3	5.3	9.1	9.1	7	6	6.5
						27.1		7.0		0.1		66.5		5.3		9.1				
4-Jun-22	Rainy	Calm	08:41	Middle	0.5	29.9	30.0	7.4	7.4	0.1	0.1	73.8	73.8	5.6	5.6	8.7	8.7	17	18	17.5
						30.0		7.4		0.1		73.8		5.6		8.6				
6-Jun-22	Sunny	Calm	10:10	Middle	0.5	26.8	26.8	7.5	7.5	0.1	0.1	58.7	58.3	4.7	4.7	8.3	8.6	21	20	20.5
						26.8		7.5		0.1		57.9		4.6		8.9				
8-Jun-22	Rainy	Calm	11:15	Middle	0.5	25.3	25.3	6.8	6.8	0.1	0.1	74.4	74.3	6.1	6.1	8.1	8.2	14	13	13.5
						25.3		6.8		0.1		74.1		6.1		8.2				
10-Jun-22	Cloudy	Calm	12:57	Middle	0.5	25.7	25.7	7.0	7.0	0.1	0.1	84.4	84.4	6.9	6.9	6.1	6.1	9	9	9.0
						25.7		7.0		0.1		84.3		6.9		6.0				
13-Jun-22	Cloudy	Calm	12:00	Middle	0.5	25.5	25.5	8.0	8.0	0.1	0.1	77.2	77.2	6.3	6.3	4.7	4.8	5	6	5.5
						25.5		8.0		0.1		77.1		6.3		4.8				
15-Jun-22	Cloudy	Calm	10:06	Middle	0.5	24.3	24.3	8.1	8.1	0.1	0.1	74.1	74.0	6.2	6.2	5.8	5.8	7	7	7.0
						24.3		8.1		0.1		73.9		6.2		5.8				
17-Jun-22	Cloudy	Calm	10:54	Middle	0.4	28.3	28.3	7.5	7.5	0.1	0.1	94.0	94.1	7.3	7.3	7.0	6.8	7	7	7.0
						28.3		7.5		0.1		94.1		7.3		6.6				
20-Jun-22	Cloudy	Calm	11:04	Middle	0.5	27.7	27.7	7.4	7.4	0.1	0.1	82.6	82.6	6.5	6.5	5.4	5.4	7	6	6.5
						27.7		7.4		0.1		82.6		6.5		5.3				
22-Jun-22	Cloudy	Calm	10:12	Middle	0.5	27.9	27.9	7.5	7.5	0.1	0.1	82.2	82.2	6.5	6.5	7.8	8.0	14	16	15.0
						27.9		7.5		0.1		82.1		6.4		8.2				
24-Jun-22	Sunny	Calm	11:08	Middle	0.5	30.7	30.7	8.1	8.1	0.3	0.3	68.7	68.7	5.1	5.1	8.3	8.3	15	13	14.0
						30.7		8.1		0.3		68.7		5.1		8.2				
27-Jun-22	Sunny	Calm	10:47	Middle	0.5	28.7	28.7	7.8	7.8	0.1	0.1	74.8	74.8	5.8	5.8	7.2	7.3	14	17	15.5
						28.7		7.8		0.1		74.7		5.8		7.3				
29-Jun-22	Sunny	Calm	10:19	Middle	0.5	28.3	28.3	7.5	7.5	0.1	0.1	64.1	64.1	5.0	5.0	8.5	8.3	22	22	22.0
						28.3		7.5		0.1		64.0		5.0		8.0				

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-Jun-22	Sunny	Calm	09:17	Middle	0.1	29.0	29.0	7.8	7.8	0.4	0.4	92.2	92.2	7.1	7.1	24.7	24.6	40	37.0
						29.0		7.8		0.4		92.1		7.1		24.4		34	
4-Jun-22	Rainy	Calm	07:40	Middle	0.2	29.5	29.5	7.9	7.9	0.8	0.8	86.3	86.3	6.6	6.6	29.2	29.3	35	36.0
						29.5		7.9		0.8		86.2		6.6		29.4		37	
6-Jun-22	Sunny	Calm	09:11	Middle	0.1	30.4	30.4	8.7	8.7	1.3	1.3	86.8	86.5	6.5	6.5	13.5	13.6	15	15.0
						30.4		8.7		1.3		86.1		6.4		13.6		15	
8-Jun-22	Rainy	Calm	10:20	Middle	0.1	27.0	27.0	7.8	7.8	0.6	0.6	84.7	84.5	6.7	6.7	26.2	26.0	20	18.5
						27.0		7.8		0.6		84.3		6.7		25.8		17	
10-Jun-22	Cloudy	Calm	12:06	Middle	0.1	27.3	27.3	7.8	7.8	0.5	0.5	92.2	92.1	7.3	7.3	17.1	17.0	17	15.5
						27.3		7.8		0.5		92.0		7.3		16.9		14	
13-Jun-22	Cloudy	Calm	10:38	Middle	0.2	26.4	26.4	8.0	8.0	0.2	0.2	51.2	51.5	4.1	4.2	24.6	24.6	23	21.5
						26.4		8.0		0.2		51.7		4.2		24.6		20	
15-Jun-22	Cloudy	Calm	09:26	Middle	0.1	26.4	26.4	7.9	7.9	0.5	0.5	52.2	52.1	4.2	4.2	33.6	33.7	33	32.5
						26.4		7.9		0.5		52.0		4.2		33.7		32	
17-Jun-22	Cloudy	Calm	09:59	Middle	0.4	28.6	28.7	7.9	7.9	0.3	0.3	74.3	74.2	5.8	5.8	25.1	24.6	36	35.5
						28.8		7.9		0.3		74.0		5.7		24.0		35	
20-Jun-22	Cloudy	Calm	10:08	Middle	0.1	29.5	29.5	8.4	8.4	0.6	0.6	96.6	96.7	7.3	7.3	14.7	14.7	24	22.5
						29.5		8.3		0.6		96.7		7.3		14.6		21	
22-Jun-22	Cloudy	Calm	09:17	Middle	0.1	30.5	30.5	8.2	8.2	0.3	0.3	76.9	76.9	5.8	5.8	18.6	18.7	26	26.0
						30.5		8.2		0.3		76.9		5.8		18.8		26	
24-Jun-22	Sunny	Calm	09:59	Middle	0.1	31.4	31.4	8.8	8.8	0.6	0.6	87.5	87.5	6.4	6.4	19.4	19.4	30	30.0
						31.4		8.7		0.6		87.5		6.4		19.3		30	
27-Jun-22	Sunny	Calm	09:33	Middle	0.1	31.5	31.5	8.8	8.8	0.5	0.5	95.6	95.6	7.0	7.0	29.9	29.9	21	23.0
						31.5		8.8		0.5		95.6		7.0		29.9		25	
29-Jun-22	Sunny	Calm	09:18	Middle	0.1	31.3	31.4	8.8	8.8	0.5	0.5	91.3	91.3	6.7	6.7	33.2	32.9	28	29.5
						31.4		8.8		0.5		91.3		6.7		32.6		31	

Remarks: *DA: Depth-Averaged

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

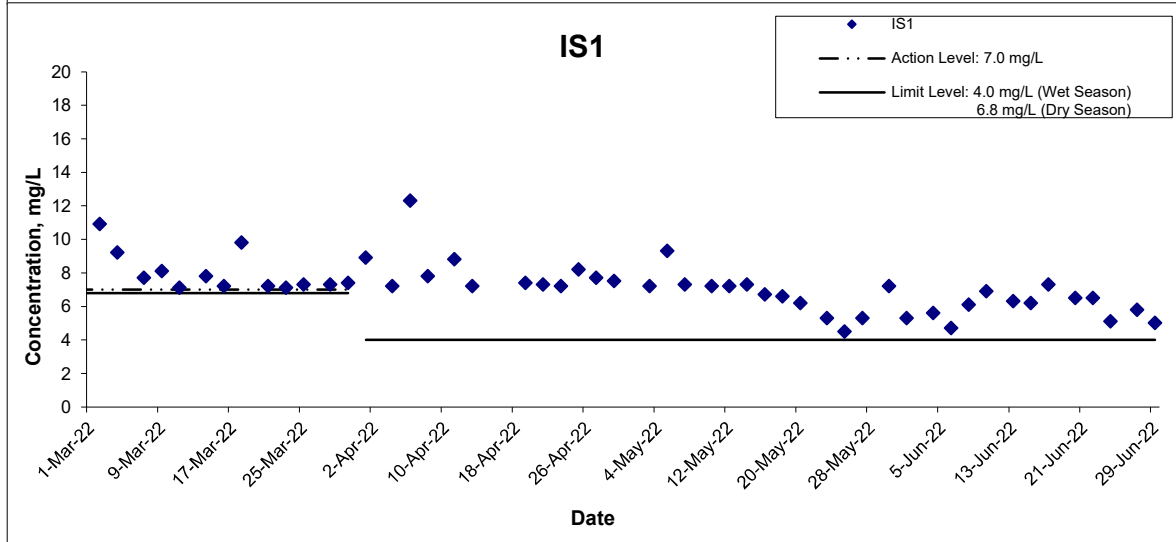
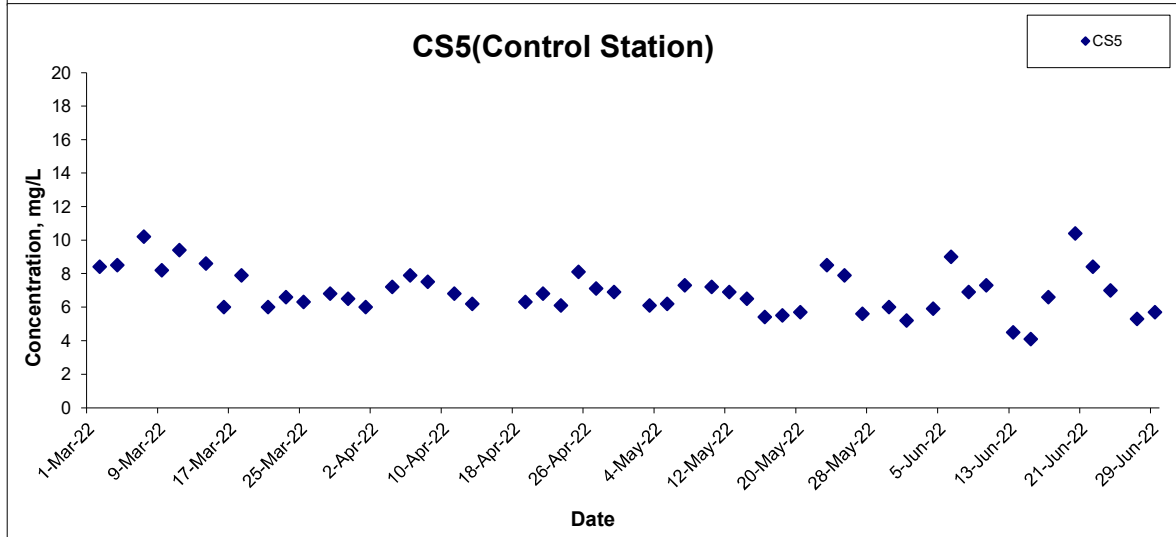
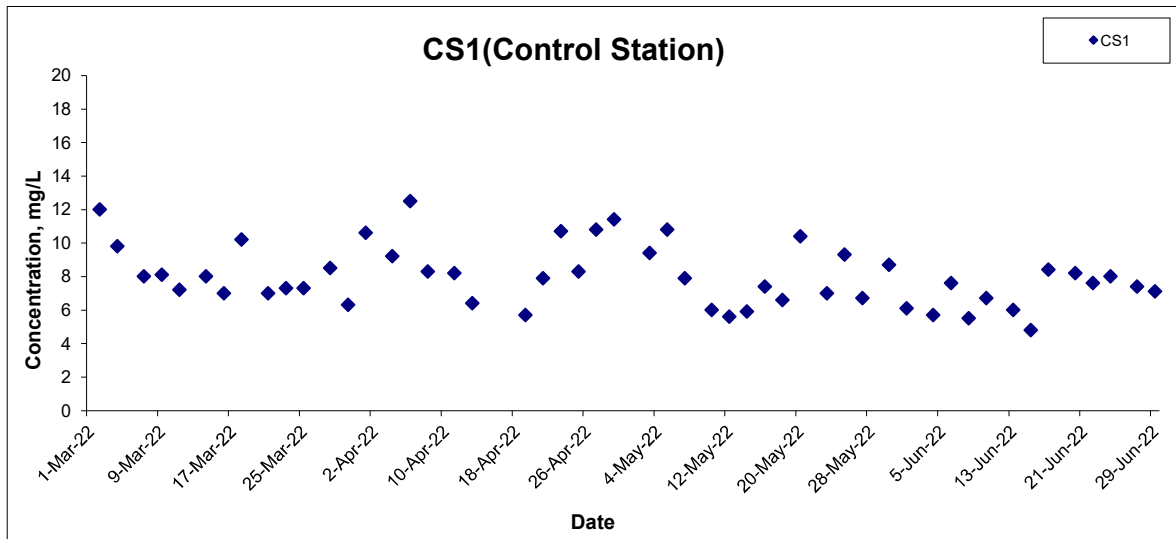
Water Quality Monitoring Results at IS4

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
1-Jun-22	Sunny	Calm	09:52	Middle	0.2	26.2	26.2	7.6	7.6	0.1	0.1	52.1	51.8	4.2	4.2	8.8	8.9	7	7.0
						26.2		7.6		0.1		51.5		4.2		8.9		7	
4-Jun-22	Rainy	Calm	08:17	Middle	0.2	33.3	33.3	8.7	8.7	0.3	0.3	79.1	79.1	5.7	5.7	15.3	15.3	5	5.5
						33.3		8.7		0.3		79.0		5.7		15.3		6	
6-Jun-22	Sunny	Calm	09:52	Middle	0.1	27.6	27.6	8.4	8.4	0.1	0.1	65.1	65.0	5.1	5.1	7.6	7.6	6	6.0
						27.6		8.4		0.1		64.8		5.1		7.6		6	
8-Jun-22	Rainy	Calm	11:02	Middle	0.2	25.3	25.3	7.5	7.5	0.04	0.04	70.9	70.4	5.8	5.8	5.1	5.1	5	4.5
						25.3		7.5		0.04		69.8		5.7		5.0		4	
10-Jun-22	Cloudy	Calm	12:40	Middle	0.2	25.6	25.6	7.5	7.5	0.04	0.04	68.5	68.3	5.6	5.6	4.7	4.7	3	3.5
						25.6		7.5		0.04		68.0		5.6		4.7		4	
13-Jun-22	Cloudy	Calm	11:37	Middle	0.2	24.8	24.8	8.2	8.2	0.03	0.03	52.8	52.8	4.4	4.4	4.5	4.5	6	5.5
						24.8		8.2		0.03		52.7		4.4		4.5		5	
15-Jun-22	Cloudy	Calm	09:50	Middle	0.1	24.0	24.0	8.1	8.1	0.04	0.04	51.8	51.7	4.4	4.4	6.0	6.1	9	9.5
						24.0		8.1		0.04		51.6		4.3		6.1		10	
17-Jun-22	Cloudy	Calm	10:32	Middle	0.2	27.5	27.6	7.8	7.8	0.04	0.04	61.5	61.9	4.9	4.9	3.5	3.6	19	19.0
						27.7		7.7		0.04		62.3		4.9		3.6		19	
20-Jun-22	Cloudy	Calm	10:46	Middle	0.1	27.0	27.1	7.9	7.9	0.1	0.1	51.6	51.5	4.1	4.1	5.4	5.5	6	6.0
						27.1		7.9		0.1		51.3		4.1		5.6		6	
22-Jun-22	Cloudy	Calm	09:55	Middle	0.1	28.1	28.1	8.2	8.2	0.1	0.1	75.6	75.6	5.9	5.9	7.7	7.5	7	7.5
						28.1		8.1		0.1		75.5		5.9		7.7		8	
24-Jun-22	Sunny	Calm	10:49	Middle	0.2	28.0	28.1	8.4	8.4	0.1	0.1	53.4	53.1	4.2	4.2	6.0	6.1	8	8.0
						28.1		8.3		0.1		52.8		4.1		6.1		8	
27-Jun-22	Sunny	Calm	10:21	Middle	0.1	28.0	28.0	7.9	7.9	0.1	0.1	61.7	61.7	4.8	4.8	6.8	6.8	8	7.5
						28.0		7.9		0.1		61.7		4.8		6.8		7	
29-Jun-22	Sunny	Calm	10:00	Middle	0.1	28.2	28.2	8.3	8.3	0.1	0.1	72.6	72.4	5.7	5.7	9.3	9.4	8	7.5
						28.2		8.3		0.1		72.2		5.6		9.4		7	

Remarks: *DA: Depth-Averaged

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

Dissolved Oxygen



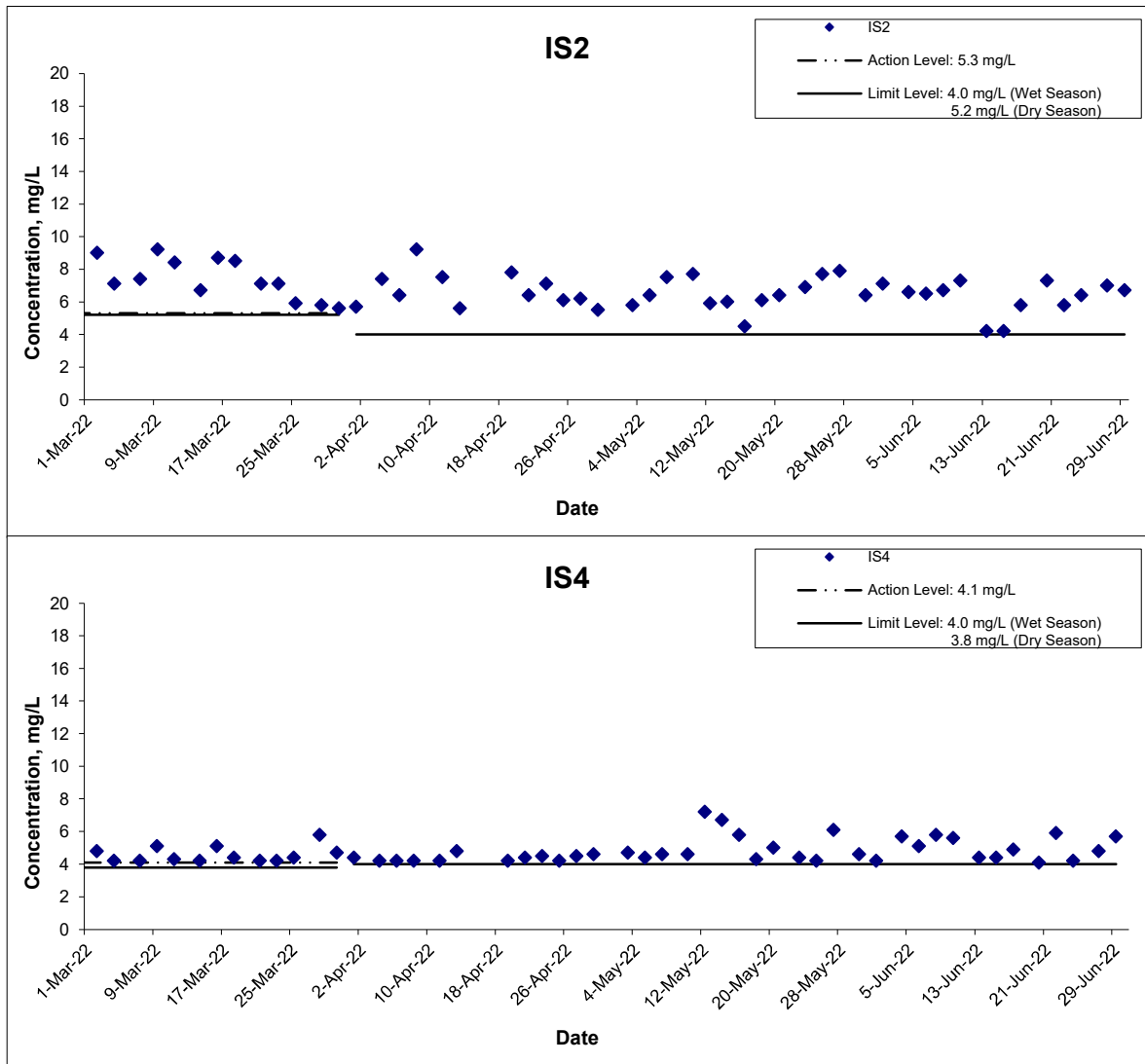
Title
 Service Contract No. WD/04/2020
 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
 Graphical Presentation of Water Quality Monitoring
 Results

Scale
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 Date
 Jun 22

Project
 No. WMA21009
 Appendix
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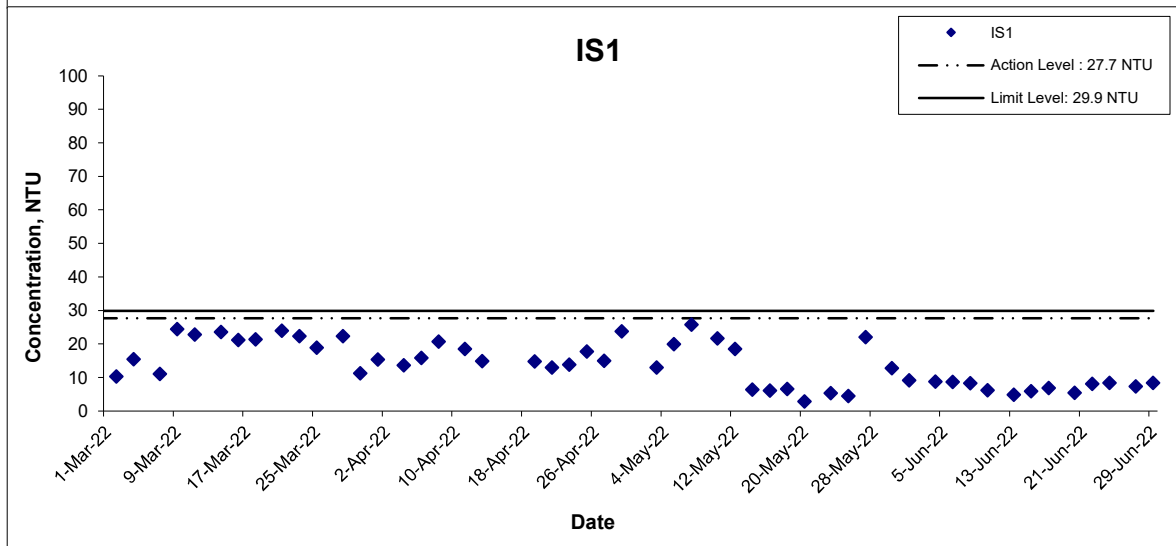
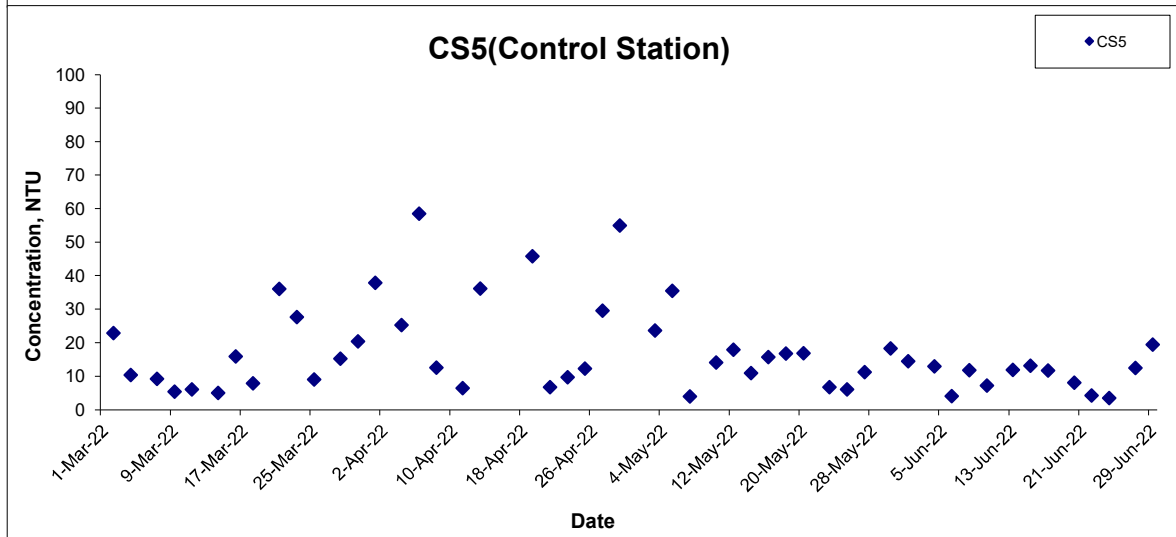
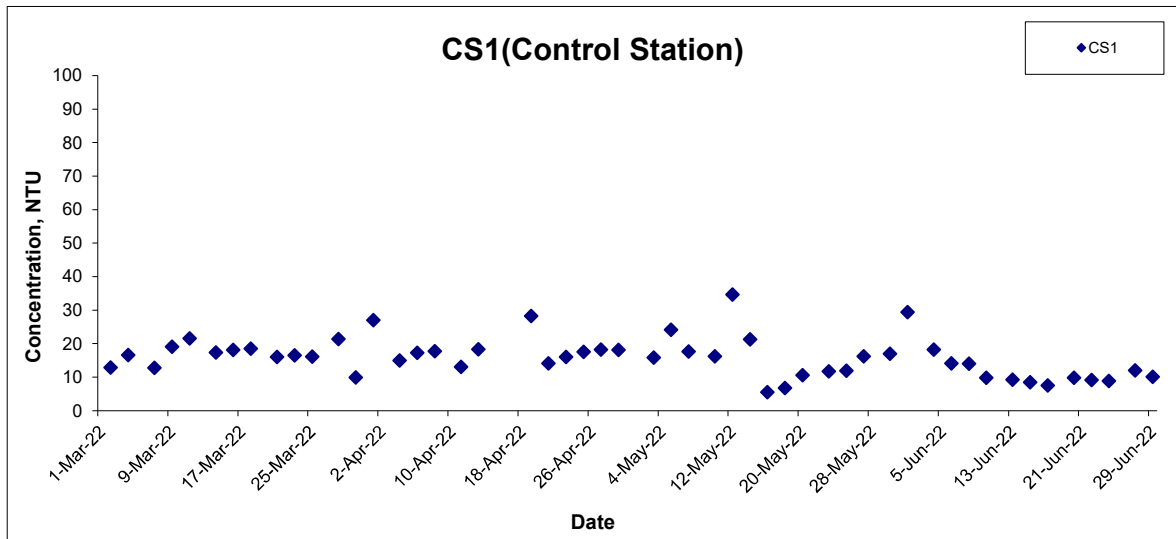


Dissolved Oxygen



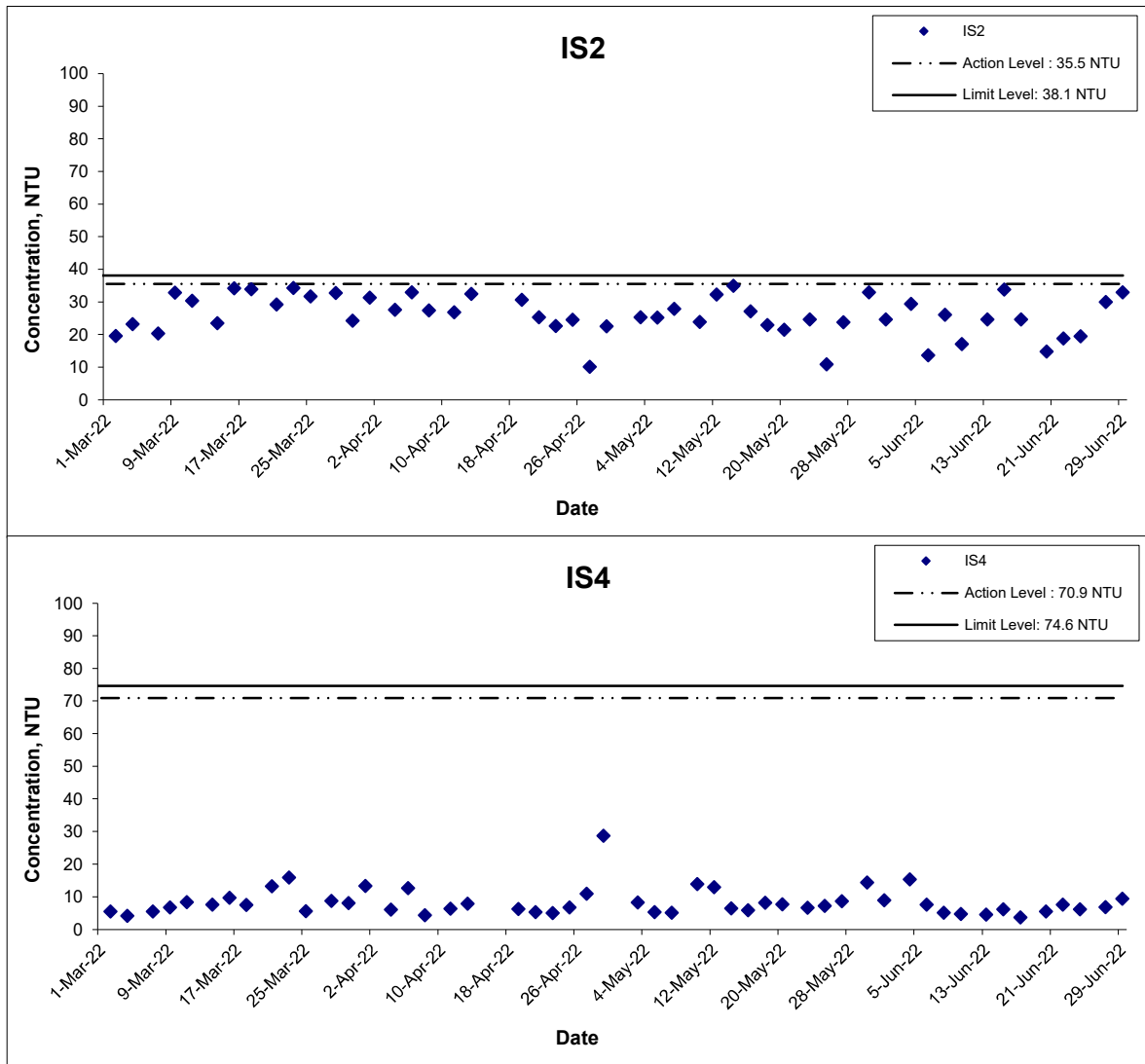
Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. WMA21009	consulting . testing . research
	Date Jun 22	Appendix H	


Turbidity



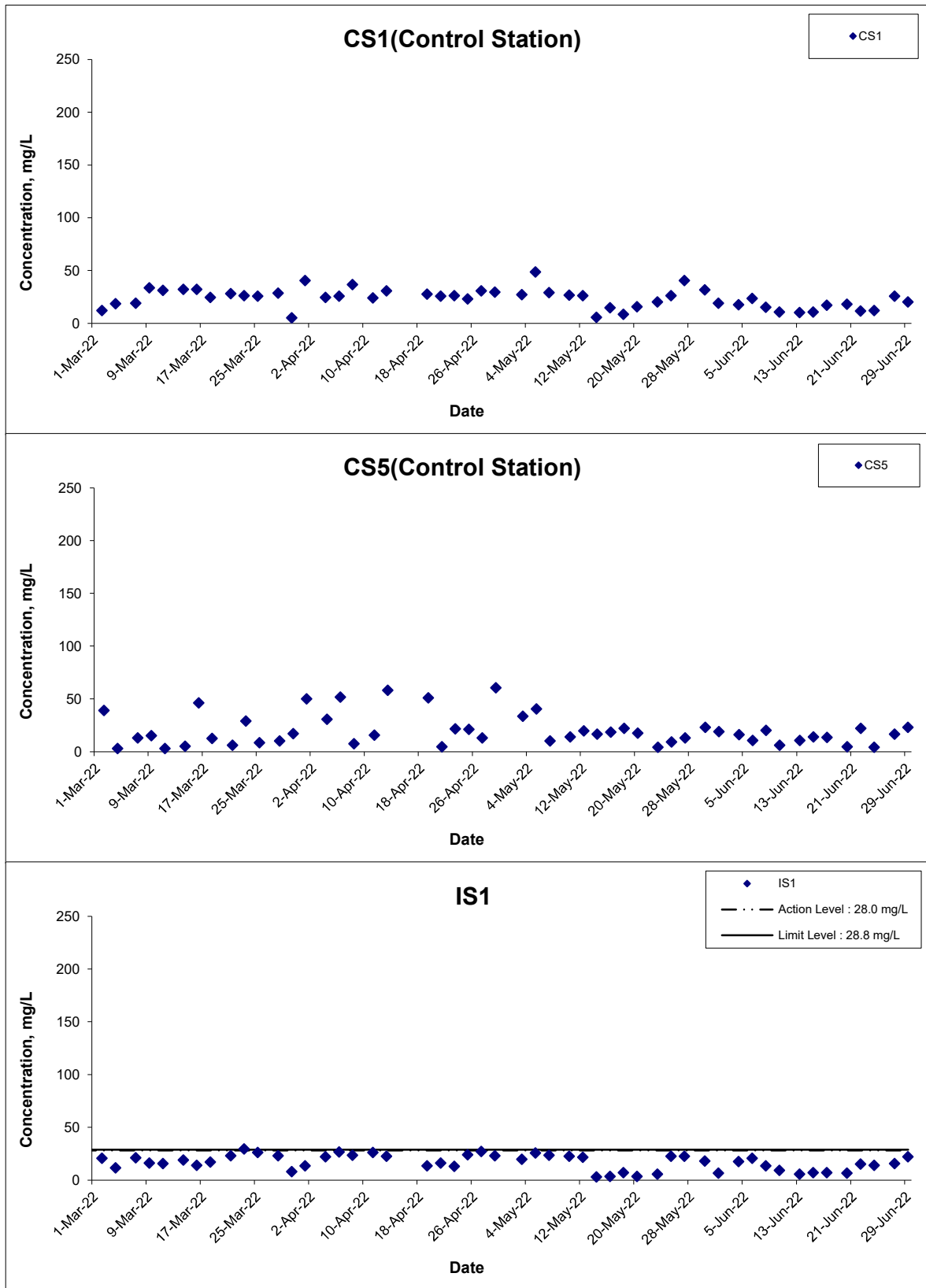
Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. WMA21009	consulting . testing . research
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Turbidity



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 Jun 22	Appendix H	

Suspended Solids



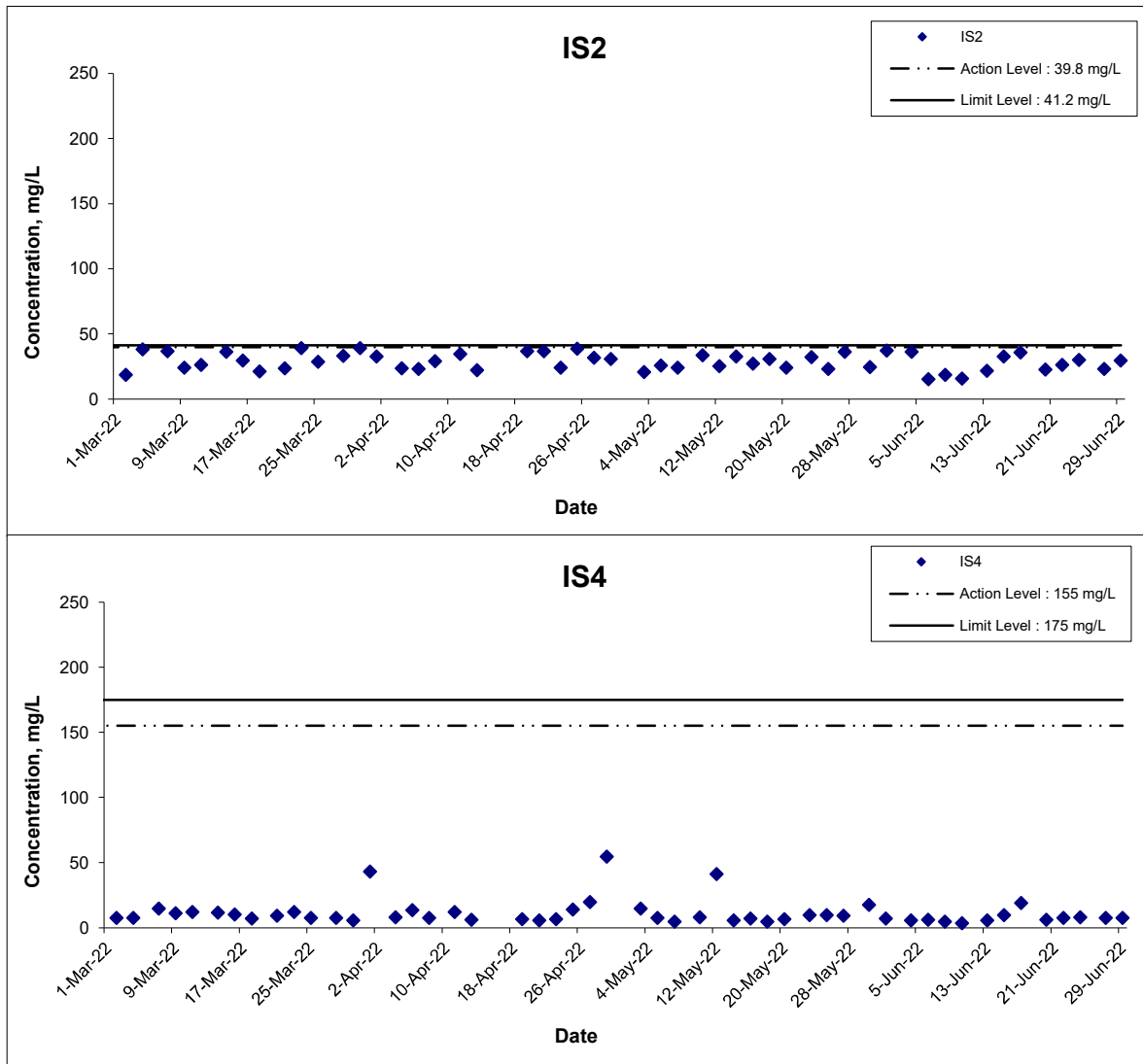
Title
 Service Contract No. WD/04/2020
 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
 Graphical Presentation of Water Quality Monitoring
 Results

Scale
 N.T.S
 Date
 Jun 22

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 Jun 22	Appendix H	

APPENDIX I
WEATHER CONDITION

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

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
1 June 2022	28.7	81	1.2
2 June 2022	28.8	80	11.9
3 June 2022	29.2	81	1.6
4 June 2022	29.6	78	Trace
5 June 2022	29.6	78	Trace
6 June 2022	28.9	83	2.5
7 June 2022	27.4	86	33.8
8 June 2022	25.8	93	66
9 June 2022	26.3	90	28.7
10 June 2022	26.1	92	25.8
11 June 2022	26.8	89	47.5
12 June 2022	28.4	84	2.6
13 June 2022	28.9	80	0
14 June 2022	27.4	87	42.8
15 June 2022	26.7	88	11
16 June 2022	27.6	84	2.6

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
17 June 2022	29	79	1
18 June 2022	28.8	81	1.3
19 June 2022	29.3	81	0.1
20 June 2022	29.2	80	2.8
21 June 2022	29.4	80	Trace
22 June 2022	29.5	78	0
23 June 2022	30	74	0
24 June 2022	30	73	0
25 June 2022	29.6	74	0
26 June 2022	30	74	0.3
27 June 2022	30.1	73	0.1
28 June 2022	30.6	71	0
29 June 2022	30.2	78	0.7
30 June 2022	27.5	89	64.9

* 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-Jun-2022	0:00	0.9	SSW
1-Jun-2022	1:00	0.4	SSW
1-Jun-2022	2:00	0.4	SSW
1-Jun-2022	3:00	0.4	SSW
1-Jun-2022	4:00	0.0	WSW
1-Jun-2022	5:00	0.0	SSW
1-Jun-2022	6:00	0.0	SW
1-Jun-2022	7:00	0.0	SW
1-Jun-2022	8:00	0.0	W
1-Jun-2022	9:00	0.4	W
1-Jun-2022	10:00	0.9	W
1-Jun-2022	11:00	0.4	SSW
1-Jun-2022	12:00	0.4	SSW
1-Jun-2022	13:00	0.9	WSW
1-Jun-2022	14:00	0.9	WNW
1-Jun-2022	15:00	0.9	WNW
1-Jun-2022	16:00	0.9	W
1-Jun-2022	17:00	0.4	W
1-Jun-2022	18:00	0.0	SW
1-Jun-2022	19:00	0.0	SW
1-Jun-2022	20:00	0.0	N
1-Jun-2022	21:00	0.0	ENE
1-Jun-2022	22:00	0.0	NW
1-Jun-2022	23:00	0.4	W
2-Jun-2022	0:00	0.0	NNW
2-Jun-2022	1:00	0.0	N
2-Jun-2022	2:00	0.0	SW
2-Jun-2022	3:00	0.0	SW
2-Jun-2022	4:00	0.0	WSW
2-Jun-2022	5:00	0.0	W
2-Jun-2022	6:00	0.4	SW
2-Jun-2022	7:00	0.0	WSW
2-Jun-2022	8:00	0.0	SW
2-Jun-2022	9:00	0.4	SSW
2-Jun-2022	10:00	0.4	WSW
2-Jun-2022	11:00	0.4	WSW
2-Jun-2022	12:00	0.4	WSW
2-Jun-2022	13:00	0.4	NNE
2-Jun-2022	14:00	0.4	NNE
2-Jun-2022	15:00	0.4	NW
2-Jun-2022	16:00	0.0	NNW
2-Jun-2022	17:00	0.0	NW
2-Jun-2022	18:00	0.0	NNE
2-Jun-2022	19:00	0.0	---
2-Jun-2022	20:00	0.0	---
2-Jun-2022	21:00	0.0	WNW
2-Jun-2022	22:00	0.9	W
2-Jun-2022	23:00	0.0	WSW
3-Jun-2022	0:00	0.0	W
3-Jun-2022	1:00	0.4	W
3-Jun-2022	2:00	0.0	W
3-Jun-2022	3:00	0.0	W
3-Jun-2022	4:00	0.0	W
3-Jun-2022	5:00	0.4	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Jun-2022	6:00	0.4	W
3-Jun-2022	7:00	0.4	W
3-Jun-2022	8:00	0.0	SSW
3-Jun-2022	9:00	0.0	SSE
3-Jun-2022	10:00	0.0	ENE
3-Jun-2022	11:00	0.0	NE
3-Jun-2022	12:00	0.4	NE
3-Jun-2022	13:00	0.4	NE
3-Jun-2022	14:00	0.4	NE
3-Jun-2022	15:00	0.4	NE
3-Jun-2022	16:00	0.0	NE
3-Jun-2022	17:00	0.4	NE
3-Jun-2022	18:00	0.4	NE
3-Jun-2022	19:00	0.0	NE
3-Jun-2022	20:00	0.0	NE
3-Jun-2022	21:00	0.0	NE
3-Jun-2022	22:00	0.0	NNE
3-Jun-2022	23:00	0.0	NE
4-Jun-2022	0:00	0.0	NNE
4-Jun-2022	1:00	0.0	NNE
4-Jun-2022	2:00	0.0	NNE
4-Jun-2022	3:00	0.0	---
4-Jun-2022	4:00	0.0	---
4-Jun-2022	5:00	0.0	N
4-Jun-2022	6:00	0.0	N
4-Jun-2022	7:00	0.4	W
4-Jun-2022	8:00	0.9	W
4-Jun-2022	9:00	0.4	W
4-Jun-2022	10:00	0.0	W
4-Jun-2022	11:00	0.0	NE
4-Jun-2022	12:00	0.0	NE
4-Jun-2022	13:00	0.4	NE
4-Jun-2022	14:00	0.0	NE
4-Jun-2022	15:00	0.0	ENE
4-Jun-2022	16:00	0.0	SSE
4-Jun-2022	17:00	0.0	NNW
4-Jun-2022	18:00	0.0	SSE
4-Jun-2022	19:00	0.0	SSE
4-Jun-2022	20:00	0.0	SSE
4-Jun-2022	21:00	0.0	S
4-Jun-2022	22:00	0.0	SSE
4-Jun-2022	23:00	0.0	SSE
5-Jun-2022	0:00	0.0	SSE
5-Jun-2022	1:00	0.0	S
5-Jun-2022	2:00	0.0	S
5-Jun-2022	3:00	0.0	S
5-Jun-2022	4:00	0.0	---
5-Jun-2022	5:00	0.0	SSE
5-Jun-2022	6:00	0.0	SE
5-Jun-2022	7:00	0.0	SSE
5-Jun-2022	8:00	0.0	SSE
5-Jun-2022	9:00	0.4	SSE
5-Jun-2022	10:00	0.0	SSE
5-Jun-2022	11:00	0.0	ESE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Jun-2022	12:00	0.0	ESE
5-Jun-2022	13:00	0.0	NE
5-Jun-2022	14:00	0.0	NE
5-Jun-2022	15:00	0.0	NE
5-Jun-2022	16:00	0.4	NE
5-Jun-2022	17:00	0.0	NE
5-Jun-2022	18:00	0.0	NE
5-Jun-2022	19:00	0.0	NNE
5-Jun-2022	20:00	0.0	NNE
5-Jun-2022	21:00	0.0	NNE
5-Jun-2022	22:00	0.0	---
5-Jun-2022	23:00	0.0	---
6-Jun-2022	0:00	0.0	---
6-Jun-2022	1:00	0.0	---
6-Jun-2022	2:00	0.0	---
6-Jun-2022	3:00	0.0	NNE
6-Jun-2022	4:00	0.0	---
6-Jun-2022	5:00	0.0	---
6-Jun-2022	6:00	0.0	---
6-Jun-2022	7:00	0.0	---
6-Jun-2022	8:00	0.0	---
6-Jun-2022	9:00	0.0	---
6-Jun-2022	10:00	0.0	SE
6-Jun-2022	11:00	0.0	SSW
6-Jun-2022	12:00	0.0	ENE
6-Jun-2022	13:00	0.0	ENE
6-Jun-2022	14:00	0.0	SSW
6-Jun-2022	15:00	0.0	NE
6-Jun-2022	16:00	0.4	NE
6-Jun-2022	17:00	0.4	W
6-Jun-2022	18:00	0.4	W
6-Jun-2022	19:00	0.9	SSW
6-Jun-2022	20:00	0.4	SW
6-Jun-2022	21:00	0.9	SSW
6-Jun-2022	22:00	1.3	SSW
6-Jun-2022	23:00	1.3	WSW
7-Jun-2022	0:00	1.3	SSW
7-Jun-2022	1:00	0.4	SSW
7-Jun-2022	2:00	0.9	SSW
7-Jun-2022	3:00	0.9	SSW
7-Jun-2022	4:00	0.4	SSW
7-Jun-2022	5:00	0.9	SSW
7-Jun-2022	6:00	0.9	SSW
7-Jun-2022	7:00	0.9	WSW
7-Jun-2022	8:00	0.4	WSW
7-Jun-2022	9:00	0.9	SSW
7-Jun-2022	10:00	1.3	SSW
7-Jun-2022	11:00	0.9	SSW
7-Jun-2022	12:00	1.3	SSW
7-Jun-2022	13:00	1.3	SW
7-Jun-2022	14:00	1.3	SSW
7-Jun-2022	15:00	1.3	SW
7-Jun-2022	16:00	1.3	SW
7-Jun-2022	17:00	1.3	WSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
7-Jun-2022	18:00	0.9	SSW
7-Jun-2022	19:00	1.3	SSW
7-Jun-2022	20:00	1.3	SW
7-Jun-2022	21:00	0.4	SSW
7-Jun-2022	22:00	1.3	SSW
7-Jun-2022	23:00	1.3	SSW
8-Jun-2022	0:00	0.9	SSW
8-Jun-2022	1:00	0.4	SSW
8-Jun-2022	2:00	0.4	SSW
8-Jun-2022	3:00	0.4	SSW
8-Jun-2022	4:00	0.9	SSW
8-Jun-2022	5:00	0.9	WSW
8-Jun-2022	6:00	0.4	WSW
8-Jun-2022	7:00	0.4	WSW
8-Jun-2022	8:00	0.0	SSW
8-Jun-2022	9:00	0.4	SSW
8-Jun-2022	10:00	0.9	SSW
8-Jun-2022	11:00	0.9	SSW
8-Jun-2022	12:00	0.9	SSW
8-Jun-2022	13:00	0.4	SSW
8-Jun-2022	14:00	0.9	SSW
8-Jun-2022	15:00	0.4	W
8-Jun-2022	16:00	0.0	NNE
8-Jun-2022	17:00	0.4	W
8-Jun-2022	18:00	0.9	WNW
8-Jun-2022	19:00	0.9	SSW
8-Jun-2022	20:00	1.3	SSW
8-Jun-2022	21:00	0.9	SSW
8-Jun-2022	22:00	0.4	SSW
8-Jun-2022	23:00	0.4	SSW
9-Jun-2022	0:00	0.4	SSW
9-Jun-2022	1:00	0.4	SW
9-Jun-2022	2:00	0.9	SSW
9-Jun-2022	3:00	0.4	SSW
9-Jun-2022	4:00	0.4	SSW
9-Jun-2022	5:00	0.4	SSW
9-Jun-2022	6:00	0.9	WSW
9-Jun-2022	7:00	0.9	WSW
9-Jun-2022	8:00	0.9	SSW
9-Jun-2022	9:00	1.3	SSW
9-Jun-2022	10:00	0.4	SW
9-Jun-2022	11:00	0.9	WSW
9-Jun-2022	12:00	1.3	SW
9-Jun-2022	13:00	0.4	WSW
9-Jun-2022	14:00	0.4	W
9-Jun-2022	15:00	0.4	WNW
9-Jun-2022	16:00	0.4	WSW
9-Jun-2022	17:00	0.9	WSW
9-Jun-2022	18:00	1.3	SSW
9-Jun-2022	19:00	0.4	SSW
9-Jun-2022	20:00	1.3	SSW
9-Jun-2022	21:00	0.9	SSW
9-Jun-2022	22:00	0.4	SSW
9-Jun-2022	23:00	0.9	SSW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
10-Jun-2022	0:00	0.4	SSW
10-Jun-2022	1:00	0.4	SSW
10-Jun-2022	2:00	0.4	SSW
10-Jun-2022	3:00	0.0	SSW
10-Jun-2022	4:00	0.4	SSW
10-Jun-2022	5:00	0.0	WSW
10-Jun-2022	6:00	0.4	WSW
10-Jun-2022	7:00	0.4	SSW
10-Jun-2022	8:00	1.3	SSW
10-Jun-2022	9:00	1.3	SSW
10-Jun-2022	10:00	1.3	SSW
10-Jun-2022	11:00	1.3	SSW
10-Jun-2022	12:00	1.3	SSW
10-Jun-2022	13:00	1.8	SW
10-Jun-2022	14:00	1.8	SSW
10-Jun-2022	15:00	1.3	SW
10-Jun-2022	16:00	1.8	SSW
10-Jun-2022	17:00	1.8	SSW
10-Jun-2022	18:00	1.3	SSW
10-Jun-2022	19:00	1.3	SSW
10-Jun-2022	20:00	0.9	SW
10-Jun-2022	21:00	1.3	SSW
10-Jun-2022	22:00	1.3	SW
10-Jun-2022	23:00	0.9	WSW
11-Jun-2022	0:00	0.9	SSW
11-Jun-2022	1:00	1.3	SW
11-Jun-2022	2:00	1.3	SSW
11-Jun-2022	3:00	1.3	SSW
11-Jun-2022	4:00	1.3	SSW
11-Jun-2022	5:00	1.3	WSW
11-Jun-2022	6:00	1.3	SW
11-Jun-2022	7:00	1.3	WSW
11-Jun-2022	8:00	0.9	WSW
11-Jun-2022	9:00	1.3	SW
11-Jun-2022	10:00	1.3	SSW
11-Jun-2022	11:00	1.8	SSW
11-Jun-2022	12:00	1.8	SSW
11-Jun-2022	13:00	1.3	SSW
11-Jun-2022	14:00	2.2	SSW
11-Jun-2022	15:00	2.2	SW
11-Jun-2022	16:00	2.7	SSW
11-Jun-2022	17:00	2.2	SSW
11-Jun-2022	18:00	2.2	SSW
11-Jun-2022	19:00	2.2	SSW
11-Jun-2022	20:00	1.8	SSW
11-Jun-2022	21:00	1.8	SSW
11-Jun-2022	22:00	1.8	SW
11-Jun-2022	23:00	1.8	SW
12-Jun-2022	0:00	1.8	SSW
12-Jun-2022	1:00	2.2	SSW
12-Jun-2022	2:00	2.2	SSW
12-Jun-2022	3:00	2.2	SSW
12-Jun-2022	4:00	1.8	SSW
12-Jun-2022	5:00	1.3	SW

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
12-Jun-2022	6:00	0.9	SSW
12-Jun-2022	7:00	1.3	SSW
12-Jun-2022	8:00	1.3	SSW
12-Jun-2022	9:00	0.9	SSW
12-Jun-2022	10:00	0.9	SW
12-Jun-2022	11:00	1.3	W
12-Jun-2022	12:00	0.9	SSW
12-Jun-2022	13:00	0.9	SSW
12-Jun-2022	14:00	0.9	WSW
12-Jun-2022	15:00	0.9	W
12-Jun-2022	16:00	0.9	SSW
12-Jun-2022	17:00	0.4	SSW
12-Jun-2022	18:00	0.4	WNW
12-Jun-2022	19:00	0.4	WNW
12-Jun-2022	20:00	0.0	WSW
12-Jun-2022	21:00	0.0	WSW
12-Jun-2022	22:00	0.0	WNW
12-Jun-2022	23:00	0.0	SSW
13-Jun-2022	0:00	0.0	---
13-Jun-2022	1:00	0.0	---
13-Jun-2022	2:00	0.0	WSW
13-Jun-2022	3:00	0.0	WSW
13-Jun-2022	4:00	0.4	SW
13-Jun-2022	5:00	0.0	SSW
13-Jun-2022	6:00	0.0	WSW
13-Jun-2022	7:00	0.0	SW
13-Jun-2022	8:00	0.0	WSW
13-Jun-2022	9:00	0.4	SSW
13-Jun-2022	10:00	0.4	SSW
13-Jun-2022	11:00	0.4	W
13-Jun-2022	12:00	0.9	W
13-Jun-2022	13:00	0.9	WNW
13-Jun-2022	14:00	0.9	WSW
13-Jun-2022	15:00	0.9	W
13-Jun-2022	16:00	1.3	WNW
13-Jun-2022	17:00	0.4	WSW
13-Jun-2022	18:00	0.0	WNW
13-Jun-2022	19:00	0.0	W
13-Jun-2022	20:00	0.0	WSW
13-Jun-2022	21:00	0.0	SW
13-Jun-2022	22:00	0.0	SSW
13-Jun-2022	23:00	0.4	WSW
14-Jun-2022	0:00	0.0	W
14-Jun-2022	1:00	0.0	SW
14-Jun-2022	2:00	0.0	W
14-Jun-2022	3:00	0.0	WSW
14-Jun-2022	4:00	0.0	SW
14-Jun-2022	5:00	0.0	---
14-Jun-2022	6:00	0.0	SW
14-Jun-2022	7:00	0.0	N
14-Jun-2022	8:00	0.0	W
14-Jun-2022	9:00	0.0	NE
14-Jun-2022	10:00	0.0	NE
14-Jun-2022	11:00	0.4	NE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
14-Jun-2022	12:00	0.4	NE
14-Jun-2022	13:00	0.0	NE
14-Jun-2022	14:00	0.4	NE
14-Jun-2022	15:00	0.4	NE
14-Jun-2022	16:00	0.4	WNW
14-Jun-2022	17:00	0.0	NE
14-Jun-2022	18:00	0.0	NNE
14-Jun-2022	19:00	0.0	NE
14-Jun-2022	20:00	0.0	NNE
14-Jun-2022	21:00	0.0	NNE
14-Jun-2022	22:00	0.0	WNW
14-Jun-2022	23:00	0.0	W
15-Jun-2022	0:00	0.0	---
15-Jun-2022	1:00	0.0	---
15-Jun-2022	2:00	0.0	NNE
15-Jun-2022	3:00	0.0	NE
15-Jun-2022	4:00	0.0	---
15-Jun-2022	5:00	0.0	NNE
15-Jun-2022	6:00	1.3	W
15-Jun-2022	7:00	0.0	W
15-Jun-2022	8:00	0.0	W
15-Jun-2022	9:00	0.0	WNW
15-Jun-2022	10:00	0.0	WNW
15-Jun-2022	11:00	0.4	NE
15-Jun-2022	12:00	0.0	NE
15-Jun-2022	13:00	0.0	WNW
15-Jun-2022	14:00	0.0	NE
15-Jun-2022	15:00	0.0	NE
15-Jun-2022	16:00	0.0	NE
15-Jun-2022	17:00	0.9	NE
15-Jun-2022	18:00	0.9	NE
15-Jun-2022	19:00	0.0	NE
15-Jun-2022	20:00	0.0	NE
15-Jun-2022	21:00	0.0	NNW
15-Jun-2022	22:00	0.0	NNE
15-Jun-2022	23:00	0.0	ENE
16-Jun-2022	0:00	0.0	ENE
16-Jun-2022	1:00	0.0	N
16-Jun-2022	2:00	0.0	NNE
16-Jun-2022	3:00	0.0	NE
16-Jun-2022	4:00	0.0	NNE
16-Jun-2022	5:00	0.0	---
16-Jun-2022	6:00	0.0	---
16-Jun-2022	7:00	0.0	WNW
16-Jun-2022	8:00	0.0	NE
16-Jun-2022	9:00	0.0	NE
16-Jun-2022	10:00	0.4	NE
16-Jun-2022	11:00	0.4	NE
16-Jun-2022	12:00	0.4	NE
16-Jun-2022	13:00	0.4	NE
16-Jun-2022	14:00	0.4	NE
16-Jun-2022	15:00	0.4	NE
16-Jun-2022	16:00	0.4	NNE
16-Jun-2022	17:00	0.0	NE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Jun-2022	18:00	0.0	NW
16-Jun-2022	19:00	0.0	NW
16-Jun-2022	20:00	0.0	NW
16-Jun-2022	21:00	0.0	NW
16-Jun-2022	22:00	0.0	NNE
16-Jun-2022	23:00	0.0	NNE
17-Jun-2022	0:00	0.0	NNE
17-Jun-2022	1:00	0.0	WNW
17-Jun-2022	2:00	0.0	NNE
17-Jun-2022	3:00	0.0	NNE
17-Jun-2022	4:00	0.0	N
17-Jun-2022	5:00	0.0	---
17-Jun-2022	6:00	0.0	N
17-Jun-2022	7:00	0.0	---
17-Jun-2022	8:00	0.0	---
17-Jun-2022	9:00	0.0	---
17-Jun-2022	10:00	0.0	NE
17-Jun-2022	11:00	0.0	NE
17-Jun-2022	12:00	0.0	NE
17-Jun-2022	13:00	0.0	NE
17-Jun-2022	14:00	0.0	NE
17-Jun-2022	15:00	0.4	NE
17-Jun-2022	16:00	0.4	NW
17-Jun-2022	17:00	0.4	NE
17-Jun-2022	18:00	0.4	NE
17-Jun-2022	19:00	0.0	NNE
17-Jun-2022	20:00	0.0	NNE
17-Jun-2022	21:00	0.0	NNE
17-Jun-2022	22:00	0.0	NNE
17-Jun-2022	23:00	0.0	WNW
18-Jun-2022	0:00	0.0	---
18-Jun-2022	1:00	0.0	---
18-Jun-2022	2:00	0.0	---
18-Jun-2022	3:00	0.0	NE
18-Jun-2022	4:00	0.0	NE
18-Jun-2022	5:00	0.0	NE
18-Jun-2022	6:00	0.0	N
18-Jun-2022	7:00	0.0	NE
18-Jun-2022	8:00	0.0	NE
18-Jun-2022	9:00	0.0	NE
18-Jun-2022	10:00	0.4	NE
18-Jun-2022	11:00	0.4	NE
18-Jun-2022	12:00	0.4	NE
18-Jun-2022	13:00	0.0	NE
18-Jun-2022	14:00	0.4	NE
18-Jun-2022	15:00	0.4	NE
18-Jun-2022	16:00	0.4	NE
18-Jun-2022	17:00	0.0	NE
18-Jun-2022	18:00	0.4	NE
18-Jun-2022	19:00	0.0	NE
18-Jun-2022	20:00	0.0	NNE
18-Jun-2022	21:00	0.0	N
18-Jun-2022	22:00	0.0	NNE
18-Jun-2022	23:00	0.0	NE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
19-Jun-2022	0:00	0.0	NE
19-Jun-2022	1:00	0.0	NE
19-Jun-2022	2:00	0.0	NNE
19-Jun-2022	3:00	0.0	---
19-Jun-2022	4:00	0.0	---
19-Jun-2022	5:00	0.0	NNE
19-Jun-2022	6:00	0.0	NNE
19-Jun-2022	7:00	0.0	NE
19-Jun-2022	8:00	0.0	NE
19-Jun-2022	9:00	0.0	NE
19-Jun-2022	10:00	0.0	NE
19-Jun-2022	11:00	0.4	NE
19-Jun-2022	12:00	0.0	NE
19-Jun-2022	13:00	0.4	NE
19-Jun-2022	14:00	0.4	NE
19-Jun-2022	15:00	0.4	NE
19-Jun-2022	16:00	0.4	NNE
19-Jun-2022	17:00	0.0	NE
19-Jun-2022	18:00	0.0	NE
19-Jun-2022	19:00	0.0	NNE
19-Jun-2022	20:00	0.0	NE
19-Jun-2022	21:00	0.0	NNE
19-Jun-2022	22:00	0.0	NNE
19-Jun-2022	23:00	0.0	NNE
20-Jun-2022	0:00	0.0	N
20-Jun-2022	1:00	0.0	NNE
20-Jun-2022	2:00	0.0	NNE
20-Jun-2022	3:00	0.0	NE
20-Jun-2022	4:00	0.0	NE
20-Jun-2022	5:00	0.0	NE
20-Jun-2022	6:00	0.0	NE
20-Jun-2022	7:00	0.0	---
20-Jun-2022	8:00	0.0	NE
20-Jun-2022	9:00	0.0	NE
20-Jun-2022	10:00	0.0	ENE
20-Jun-2022	11:00	0.0	NE
20-Jun-2022	12:00	0.0	NE
20-Jun-2022	13:00	0.0	NE
20-Jun-2022	14:00	0.0	NE
20-Jun-2022	15:00	0.0	NE
20-Jun-2022	16:00	0.4	NE
20-Jun-2022	17:00	0.0	NE
20-Jun-2022	18:00	0.0	NE
20-Jun-2022	19:00	0.0	NE
20-Jun-2022	20:00	0.0	NNE
20-Jun-2022	21:00	0.0	NE
20-Jun-2022	22:00	0.0	NE
20-Jun-2022	23:00	0.0	NE
21-Jun-2022	0:00	0.0	NNE
21-Jun-2022	1:00	0.0	NNE
21-Jun-2022	2:00	0.0	---
21-Jun-2022	3:00	0.0	---
21-Jun-2022	4:00	0.0	---
21-Jun-2022	5:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
21-Jun-2022	6:00	0.0	---
21-Jun-2022	7:00	0.0	NNE
21-Jun-2022	8:00	0.0	NE
21-Jun-2022	9:00	0.0	NE
21-Jun-2022	10:00	0.0	NE
21-Jun-2022	11:00	0.4	NE
21-Jun-2022	12:00	0.4	NE
21-Jun-2022	13:00	0.4	NE
21-Jun-2022	14:00	0.9	NE
21-Jun-2022	15:00	0.9	NE
21-Jun-2022	16:00	0.0	NNE
21-Jun-2022	17:00	0.0	---
21-Jun-2022	18:00	0.0	---
21-Jun-2022	19:00	0.0	---
21-Jun-2022	20:00	0.0	---
21-Jun-2022	21:00	0.0	---
21-Jun-2022	22:00	0.0	---
21-Jun-2022	23:00	0.0	---
22-Jun-2022	0:00	0.0	NNE
22-Jun-2022	1:00	0.0	---
22-Jun-2022	2:00	0.0	---
22-Jun-2022	3:00	0.0	---
22-Jun-2022	4:00	0.0	W
22-Jun-2022	5:00	0.0	---
22-Jun-2022	6:00	0.0	NW
22-Jun-2022	7:00	0.0	WNW
22-Jun-2022	8:00	0.0	ENE
22-Jun-2022	9:00	0.0	NNE
22-Jun-2022	10:00	0.0	---
22-Jun-2022	11:00	0.4	W
22-Jun-2022	12:00	0.0	WNW
22-Jun-2022	13:00	0.0	SW
22-Jun-2022	14:00	0.0	---
22-Jun-2022	15:00	0.0	---
22-Jun-2022	16:00	0.0	---
22-Jun-2022	17:00	0.0	---
22-Jun-2022	18:00	0.0	---
22-Jun-2022	19:00	0.0	---
22-Jun-2022	20:00	0.9	W
22-Jun-2022	21:00	0.4	NE
22-Jun-2022	22:00	0.0	N
22-Jun-2022	23:00	0.0	---
23-Jun-2022	0:00	0.0	---
23-Jun-2022	1:00	0.0	---
23-Jun-2022	2:00	0.0	---
23-Jun-2022	3:00	0.0	---
23-Jun-2022	4:00	0.0	---
23-Jun-2022	5:00	0.0	---
23-Jun-2022	6:00	0.0	---
23-Jun-2022	7:00	0.0	---
23-Jun-2022	8:00	0.0	---
23-Jun-2022	9:00	0.0	---
23-Jun-2022	10:00	0.0	NE
23-Jun-2022	11:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
23-Jun-2022	12:00	0.0	SSW
23-Jun-2022	13:00	0.0	WSW
23-Jun-2022	14:00	0.0	NE
23-Jun-2022	15:00	0.0	NNE
23-Jun-2022	16:00	0.0	NE
23-Jun-2022	17:00	0.0	NE
23-Jun-2022	18:00	0.0	NE
23-Jun-2022	19:00	0.0	ENE
23-Jun-2022	20:00	0.0	WSW
23-Jun-2022	21:00	0.0	WSW
23-Jun-2022	22:00	0.4	W
23-Jun-2022	23:00	0.0	---
24-Jun-2022	0:00	0.0	---
24-Jun-2022	1:00	0.0	W
24-Jun-2022	2:00	0.0	W
24-Jun-2022	3:00	0.0	W
24-Jun-2022	4:00	0.4	W
24-Jun-2022	5:00	0.0	WSW
24-Jun-2022	6:00	0.0	WSW
24-Jun-2022	7:00	0.4	SSW
24-Jun-2022	8:00	0.0	SSW
24-Jun-2022	9:00	0.4	W
24-Jun-2022	10:00	0.4	SW
24-Jun-2022	11:00	0.9	SSW
24-Jun-2022	12:00	0.4	SSW
24-Jun-2022	13:00	0.4	W
24-Jun-2022	14:00	0.0	SW
24-Jun-2022	15:00	0.4	SSW
24-Jun-2022	16:00	0.0	W
24-Jun-2022	17:00	0.0	---
24-Jun-2022	18:00	0.0	WNW
24-Jun-2022	19:00	0.4	W
24-Jun-2022	20:00	0.0	WSW
24-Jun-2022	21:00	0.0	W
24-Jun-2022	22:00	0.0	W
24-Jun-2022	23:00	0.0	WSW
25-Jun-2022	0:00	0.0	SSW
25-Jun-2022	1:00	0.0	WNW
25-Jun-2022	2:00	0.4	W
25-Jun-2022	3:00	0.0	W
25-Jun-2022	4:00	0.4	W
25-Jun-2022	5:00	0.0	SSW
25-Jun-2022	6:00	0.0	WSW
25-Jun-2022	7:00	0.4	WSW
25-Jun-2022	8:00	0.0	SSW
25-Jun-2022	9:00	0.4	SW
25-Jun-2022	10:00	0.0	WSW
25-Jun-2022	11:00	0.0	NNE
25-Jun-2022	12:00	0.0	---
25-Jun-2022	13:00	0.0	---
25-Jun-2022	14:00	0.0	E
25-Jun-2022	15:00	0.0	N
25-Jun-2022	16:00	0.0	W
25-Jun-2022	17:00	0.0	NE

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
25-Jun-2022	18:00	0.0	NW
25-Jun-2022	19:00	0.0	NNW
25-Jun-2022	20:00	0.0	---
25-Jun-2022	21:00	0.0	---
25-Jun-2022	22:00	0.0	---
25-Jun-2022	23:00	0.9	W
26-Jun-2022	0:00	0.0	W
26-Jun-2022	1:00	0.4	W
26-Jun-2022	2:00	0.9	W
26-Jun-2022	3:00	0.9	W
26-Jun-2022	4:00	0.4	W
26-Jun-2022	5:00	0.0	W
26-Jun-2022	6:00	0.0	WSW
26-Jun-2022	7:00	0.0	NNE
26-Jun-2022	8:00	0.0	NW
26-Jun-2022	9:00	0.0	WSW
26-Jun-2022	10:00	0.0	WSW
26-Jun-2022	11:00	0.0	SSW
26-Jun-2022	12:00	0.0	SSW
26-Jun-2022	13:00	0.0	NE
26-Jun-2022	14:00	0.9	W
26-Jun-2022	15:00	0.4	W
26-Jun-2022	16:00	0.0	WNW
26-Jun-2022	17:00	0.0	WNW
26-Jun-2022	18:00	0.0	NNE
26-Jun-2022	19:00	0.0	ENE
26-Jun-2022	20:00	0.0	W
26-Jun-2022	21:00	0.4	W
26-Jun-2022	22:00	0.0	W
26-Jun-2022	23:00	0.0	W
27-Jun-2022	0:00	0.0	WNW
27-Jun-2022	1:00	0.0	W
27-Jun-2022	2:00	0.0	---
27-Jun-2022	3:00	0.0	---
27-Jun-2022	4:00	0.0	---
27-Jun-2022	5:00	0.0	---
27-Jun-2022	6:00	0.0	---
27-Jun-2022	7:00	0.0	ENE
27-Jun-2022	8:00	0.0	NE
27-Jun-2022	9:00	0.0	NE
27-Jun-2022	10:00	0.4	NE
27-Jun-2022	11:00	0.4	NE
27-Jun-2022	12:00	0.9	NE
27-Jun-2022	13:00	0.9	NE
27-Jun-2022	14:00	0.0	---
27-Jun-2022	15:00	0.0	---
27-Jun-2022	16:00	0.0	---
27-Jun-2022	17:00	0.0	NW
27-Jun-2022	18:00	0.0	N
27-Jun-2022	19:00	0.0	NNW
27-Jun-2022	20:00	0.0	---
27-Jun-2022	21:00	0.0	NNE
27-Jun-2022	22:00	0.0	NW
27-Jun-2022	23:00	0.0	N

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
28-Jun-2022	0:00	0.0	NE
28-Jun-2022	1:00	0.0	N
28-Jun-2022	2:00	0.0	NE
28-Jun-2022	3:00	0.0	NNW
28-Jun-2022	4:00	0.0	N
28-Jun-2022	5:00	0.0	NE
28-Jun-2022	6:00	0.0	NE
28-Jun-2022	7:00	0.0	NE
28-Jun-2022	8:00	0.0	W
28-Jun-2022	9:00	0.0	---
28-Jun-2022	10:00	0.0	NE
28-Jun-2022	11:00	0.4	WNW
28-Jun-2022	12:00	0.9	W
28-Jun-2022	13:00	0.0	---
28-Jun-2022	14:00	0.0	S
28-Jun-2022	15:00	0.0	NE
28-Jun-2022	16:00	0.0	NE
28-Jun-2022	17:00	0.0	WNW
28-Jun-2022	18:00	0.0	NNE
28-Jun-2022	19:00	0.0	NE
28-Jun-2022	20:00	0.0	W
28-Jun-2022	21:00	0.0	NE
28-Jun-2022	22:00	0.0	NNE
28-Jun-2022	23:00	0.0	N
29-Jun-2022	0:00	0.0	N
29-Jun-2022	1:00	0.0	NE
29-Jun-2022	2:00	0.0	WNW
29-Jun-2022	3:00	0.0	NNE
29-Jun-2022	4:00	0.0	N
29-Jun-2022	5:00	0.0	NE
29-Jun-2022	6:00	0.0	NE
29-Jun-2022	7:00	0.0	---
29-Jun-2022	8:00	0.0	NE
29-Jun-2022	9:00	0.0	ENE
29-Jun-2022	10:00	0.0	ENE
29-Jun-2022	11:00	0.0	NE
29-Jun-2022	12:00	0.0	NE
29-Jun-2022	13:00	0.4	ENE
29-Jun-2022	14:00	0.0	NE
29-Jun-2022	15:00	0.0	NE
29-Jun-2022	16:00	0.0	NNE
29-Jun-2022	17:00	0.0	NE
29-Jun-2022	18:00	0.0	NNE
29-Jun-2022	19:00	0.0	WNW
29-Jun-2022	20:00	0.0	---
29-Jun-2022	21:00	0.0	NE
29-Jun-2022	22:00	0.0	NNE
29-Jun-2022	23:00	0.0	---
30-Jun-2022	0:00	0.0	NNE
30-Jun-2022	1:00	0.0	NW
30-Jun-2022	2:00	0.0	NE
30-Jun-2022	3:00	0.0	N
30-Jun-2022	4:00	0.0	NNE
30-Jun-2022	5:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
30-Jun-2022	6:00	0.0	NNE
30-Jun-2022	7:00	0.0	NE
30-Jun-2022	8:00	0.0	NE
30-Jun-2022	9:00	0.0	NE
30-Jun-2022	10:00	0.4	NE
30-Jun-2022	11:00	0.4	NE
30-Jun-2022	12:00	0.4	NE
30-Jun-2022	13:00	0.4	NE
30-Jun-2022	14:00	0.4	NW
30-Jun-2022	15:00	0.4	NW
30-Jun-2022	16:00	0.4	WNW
30-Jun-2022	17:00	0.4	NNE
30-Jun-2022	18:00	0.0	NE
30-Jun-2022	19:00	0.0	NE
30-Jun-2022	20:00	0.0	NNE
30-Jun-2022	21:00	0.0	NE
30-Jun-2022	22:00	0.0	N
30-Jun-2022	23:00	0.0	NE

APPENDIX J
EVENT ACTION PLANS

Appendix J Event / Action Plan for Air Quality

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

LIMIT LEVEL

1.Exceedance for one sample	Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures; 5. Supervise implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; and 5. Amend proposal if appropriate.
2.Exceedance for two or more consecutive samples	Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 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.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 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	<p>Notify IEC, ER and Contractor;</p> <p>2. Carry out investigation;</p> <p>3. Report the results of investigation to the IEC, ER and Contractor;</p> <p>4. Discuss with the Contractor and formulate remedial measures;</p> <p>5. Increase monitoring frequency to check mitigation effectiveness.</p>	<p>1. Review the analysed results submitted by the ET;</p> <p>2. Review the proposed remedial measures by the Contractor and advise the ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. Require Contractor to propose remedial measures for the analysed noise problem;</p> <p>4. Ensure remedial measures are properly implemented</p>	<p>1. Submit noise mitigation proposals to IEC and ER;</p> <p>2. Implement noise mitigation proposals.</p>
Limit Level	<p>. Identify source;</p> <p>2. Inform IEC, ER, EPD and Contractor;</p> <p>3. Repeat measurements to confirm findings;</p> <p>4. Increase monitoring frequency;</p> <p>5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented;</p> <p>6. Inform IEC, ER and EPD the causes and actions taken for the exceedances;</p> <p>7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results;</p> <p>8. If exceedance stops, cease additional monitoring.</p>	<p>1. Discuss amongst ER, ET, and Contractor on the potential remedial actions;</p> <p>2. Review Contractors remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly;</p> <p>3. Supervise the implementation of remedial measures.</p>	<p>1. Confirm receipt of notification of failure in writing;</p> <p>2. Notify Contractor;</p> <p>3. Require Contractor to propose remedial measures for the analysed noise problem;</p> <p>4. Ensure remedial measures properly implemented;</p> <p>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.</p>	<p>1. Take immediate action to avoid further exceedance;</p> <p>2. Submit proposals for remedial actions to IEC within 3 working days of notification;</p> <p>3. Implement the agreed proposals;</p> <p>4. Resubmit proposals if problem still not under control;</p> <p>5. Stop the relevant portion of works as determined by the ER until the exceedance is abated.</p>

Event and Action Plan for Water Quality

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

	Action			
Event	ET	IEC	ER	Contractor
sampling day	2. Inform IEC, contractor and ER; 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	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.	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.	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.
Limit level being exceeded by two or more consecutive sampling days	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.

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.

APPENDIX K
SUMMARY OF EXCEEDANCE

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 _{eq} (30 min.) dB(A)	0	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

APPENDIX L
SITE AUDIT SUMMARY

**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	220601
Date	1 June 2022 (Wednesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220601-R01	• The site exit at the TAR3 should be paved.	D 13v.
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220525), no major environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		1 June 2022
Checked by	Dr. Priscilla Choy		1 June 2022

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	220608
Date	8 June 2022 (Wednesday)
Time	10:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220608-R01	• The site exit at TAR3 should be paved and the sand bag bund should be placed at the site boundary facing EA zone.	D4, D 13v., D19
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 220601), follow up action is required for the item 220601-R01 which is renamed as 220608-R01.	

	Name	Signature	Date
Recorded by	Ivy Tam		8 June 2022
Checked by	Dr. Priscilla Choy		8 June 2022

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	220615
Date	15 June 2022 (Wednesday)
Time	9:30 – 10:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220615-R01	• Clear the muddy surface runoff & mud trails at the site exits at Ha Wan Tsuen Road and provide mitigation measures to avoid the recurrence of the aforesaid issue.	D12
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 220608), all environmental deficiencies were rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		15 June 2022
Checked by	Dr. Priscilla Choy		15 June 2022

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	220622
Date	22 June 2022 (Wednesday)
Time	9:00 – 10:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220622-R01	• The exposed soil surface at WCR should be covered with tarpaulin sheet to avoid muddy surface runoff.	D8
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 220615), all environmental deficiencies were rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		22 June 2022
Checked by	Dr. Priscilla Choy		22 June 2022

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	220629
Date	29 June 2022 (Wednesday)
Time	14:00 – 15:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 220621), all environmental deficiencies were rectified by the contractor.	

	Name	Signature	Date
Recorded by	Adrian Lam		30 June 2022
Checked by	Dr. Priscilla Choy		30 June 2022

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	220601
Date	1 June 2022 (Wednesday)
Time	9:30 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220601-R02	• Provide proper management of dredged muck arising from the bored piling work to avoid spreading out to the nearby drain (LCS).	D5
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
220601-R01	• Clear the construction materials within the tree protection zone and provide the fencing surrounding the retain trees at LCS.	G1
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220525), follow-up action was required for item 220525-R01, which was remarked as 220601-R01.	

	Name	Signature	Date
Recorded by	Ivy Tam		1 June 2022
Checked by	Dr. Priscilla Choy		1 June 2022

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	220608
Date	8 June 2022 (Wednesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220608-001	• Muddy water was observed overflow to the drain at LCS. The Contractor was reminded to enhance the sand bag bund to avoid the muddy water discharging out directly.	D4, 15i., 20
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220601), all environmental deficiencies were rectified/ improved by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		8 June 2022
Checked by	Dr. Priscilla Choy		8 June 2022

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	220615
Date	15 June 2022 (Wednesday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220608), all environmental deficiencies were rectified/ improved by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		15 June 2022
Checked by	Dr. Priscilla Choy		15 June 2022

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	220622
Date	22 June 2022 (Wednesday)
Time	10:00 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
220622-R01	• Provide wheel washing facilities at the site exit of CS1.	B6
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220622-R01	• Provide wheel washing facilities at the site exit of CS1.	D14
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220615), no major environmental deficiency was identified during the site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		22 June 2022
Checked by	Dr. Priscilla Choy		22 June 2022

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	220629
Date	29 June 2022 (Wednesday)
Time	10:00 – 11:15

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
220629-R01	• Provide wheel washing facilities at the site exit of CS1.	B6
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220629-R01	• Provide wheel washing facilities at the site exit of CS1.	D14
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220622), follow-up actions are required for item 220622-R01, which was renamed as 220629-R01.	

	Name	Signature	Date
Recorded by	Adrian Lam		30 June 2022
Checked by	Dr. Priscilla Choy		30 June 2022

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

Loop: Main Works Package 1 – Contract 3 Direct Road

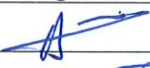

Link Phase 2

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220606
Date	6 June 2022 (Monday)
Time	14:00 – 15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Air Quality</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>C. Noise</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>D. Water Quality</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>E. Waste / Chemical Management</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>F. Land Contamination</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>G. Landscape and Visual</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>H. Ecology</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>I. Fisheries</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>J. Permits/Licences</i>	
	• No environmental deficiency was identified during site inspection.	
	<i>K. Others</i>	
	• Follow-up on previous audit section (Ref. No.: 220530), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Adrian Lam		7 June 2022
Checked by	Dr. Priscilla Choy		7 June 2022

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	220613
Date	13 June 2022 (Monday)
Time	14:00 – 15:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220608), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Adrian Lam		21 June 2022
Checked by	Dr. Priscilla Choy		21 June 2022

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	220620
Date	20 June 2022 (Monday)
Time	14:00 – 16:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
220620-R01	• Faded NRMM label should be replaced.	B 24
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
220620-R02	• To enhance water mitigation measures next to water outlet to ensure untreated waste water does not exit through water outlet.	D 1 & 4
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220613), no major environmental deficiency was identified during site inspection.	



	Name	Signature	Date
Recorded by	Adrian Lam		22 June 2022
Checked by	Dr. Priscilla Choy		22 June 2022

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	220627
Date	27 June 2022 (Monday)
Time	14:00 – 14:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
	• No environmental deficiency was identified during site inspection.	
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
	• No environmental deficiency was identified during site inspection.	
	E. Waste / Chemical Management	
	• No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	• No environmental deficiency was identified during site inspection.	
	H. Ecology	
	• No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	• No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	• No environmental deficiency was identified during site inspection.	
	K. Others	
	• Follow-up on previous audit section (Ref. No.: 220620), all environmental deficiencies were rectified/ improved by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		27 June 2022
Checked by	Dr. Priscilla Choy		27 June 2022

**APPENDIX M
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

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
Construction Dust Impact							
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 ² 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	<p>The contractor shall follow the procedures and requirements given in the Air Pollution Control (Construction Dust) Regulation</p> <ul style="list-style-type: none"> • All vehicles shall be shut down in intermittent use • Only well-maintained plant should be operated on-site to avoid emission of dark smoke • Valid No-Road Mobile Machinery (NRMM) labels should be provided to regulated machines 	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"> • Following dust suppression measures should also be incorporated by the Contractor to control the dust nuisance throughout the construction Phase • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • A stockpile of dusty material should not be extend beyond the pedestrian barriers, fencing or traffic cones; • 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 	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
		<p>the vehicle;</p> <ul style="list-style-type: none"> • 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; • When there are open excavation and reinstatement works, hoarding of not less than 2.4m high should be provided as far as practicable along the site boundary with provision for public crossing. Good site practice shall also be adopted by the Contractor to ensure the conditions of the hoardings are properly maintained throughout the construction period. • 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; Surfaces where any pneumatic or power-driven drilling, cutting, polishing or other mechanical breaking operation takes place should be sprayed with water or a dust suppression chemical continuously; • Any area that involves demolition activities should be sprayed with water or a dust suppression chemical immediately prior to, during and immediately after the activities so as to maintain the entire surface wet; • Where a scaffolding is erected around the perimeter of a building under construction, effective dust screens, sheeting or netting should be provided to enclose the scaffolding from the ground floor level of the building, or a canopy should be provided from the first floor level up to the highest level of the scaffolding; Any skip hoist for material transport should be totally enclosed by impervious sheeting; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by 					<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
		<p>impervious sheeting or placed in an area sheltered on the top and the 3 sides;</p> <ul style="list-style-type: none"> • 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; • 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 • 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. 					<p>N/A</p> <p>N/A</p> <p>^</p>
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	^
Construction Noise Impact							
S4.8	N-CP1-DP1/D P2/DP3	<p>Implement the following good site management practices:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • 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; • 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 	Control construction airborne noise	Contractor	All construction sites	Construction stage	<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
		<p>equipment should be properly fitted and maintained during the construction works;</p> <ul style="list-style-type: none"> • Mobile plant should be sited as far away from NSRs as possible and practicable; • Material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities. 					<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	^
Water Quality Impact (Construction Phase)							
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"> Update and implementation of Stormwater Pollution Control Plan 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. 	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"> • 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. • 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. • 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. • 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 					<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"> • 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. • 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. • 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. • 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. • 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. 					<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"> • 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. • 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. • Construction solid waste, debris and rubbish on site should be collected, handled and disposed of properly to avoid water quality impacts. • 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. • 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 					<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"> No mitigation measure is required for groundwater treatment in LMC Loop. Additional investigation is required to identify if contaminated groundwater is found. 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. 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. 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. 	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"> 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 	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 0.15m³/day/employed populations and be responsible for appropriate disposal and maintenance.</p> <ul style="list-style-type: none"> 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. 					<p>^</p> <p>^</p>
S5.7	W4-CP -DP1	<p><u>Riverbanks Formation</u></p> <ul style="list-style-type: none"> 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. Water quality of the Shenzhen River and the meander would be monitored to ensure effectiveness of the implemented mitigation measures. 	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"> 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&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 	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"> On-site compensate the same area of the occupied reedbed; Provide pilot plant during construction; or Increase the hydraulic retention time of the proposed Loop STW. <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"> 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. All the fishponds will be drained and no fishpond will be affected by bridge crossing. 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. 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. 	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
		<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"> • Training of site personnel in site cleanliness, appropriate waste management procedures and concepts of waste reduction, reuse and recycling; • Provision of sufficient waste disposal points and regular collection for disposal; • Appropriate measures to minimise windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; 					<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"> • Waste such as soil should be handled and stored well to ensure secure containment; • Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; • Different locations should be designated to stockpile each material to enhance reuse; 	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"> • Remove waste in timely manner; • Employ the trucks with cover or enclosed containers for 	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
		<p>waste transportation;</p> <ul style="list-style-type: none"> Obtain relevant waste disposal permits from the appropriate authorities; and Disposal of waste should be done at licensed waste disposal facilities. 					<p>^</p> <p>^</p>
S7.6	WM6-D P1/DP2 /DP3	<p><u>Excavated and C&D Material</u></p> <p>Wherever practicable, C&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&D materials:</p> <ul style="list-style-type: none"> Maintain temporary stockpiles and reuse excavated fill material for backfilling; Carry out on-site sorting; Make provisions in the Contract documents to allow and promote the use of recycled aggregates where appropriate; and Implement a trip-ticket system for each works contract to ensure that the disposal of C&D materials are properly documented and verified. <p>The recommended C&D materials handling should include:</p> <ul style="list-style-type: none"> On-site Sorting of C&D Materials Reuse of C&D Materials Use of Standard Formwork and Planning of Construction Materials Purchasing Provision of Wheel Wash Facilities <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	<p><u>Contaminated Soil</u></p> <p>As a precaution, it is recommended that standard good site</p>	Remediate contaminated	Contractor	All construction	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
	P1/DP2 /DP3	practice should be implemented during the construction phase to 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.	soil		sites where applicable	phase	N/A
S7.6	WM8-D P1/DP2 /DP3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> 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. 	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"> General refuse should be stored in enclosed bins separately from construction and chemical wastes. Recycling bins should also be placed to encourage recycling. 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. 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	^ ^ ^

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		<ul style="list-style-type: none"> A reputable waste collector should be employed to remove general refuse on a daily basis. 					
S7.6	WM10-DP1/D P2	<p><u>Sewage</u></p> <ul style="list-style-type: none"> The WMP should document the locations and number of portable chemical toilets depending on the number of workers, land availability, site condition and activities. Regularly collection by licensed collectors should be arranged to minimize potential environmental impacts. 	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"> stockpiling area(s) must be properly designed and closed to the dredging locations as far as possible; Stockpiling area(s) should be lined with impermeable sheeting and banded; stockpiles should be properly covered by impermeable sheeting; vehicles delivering the sediments should be covered, and truck bodies and tailgates should be sealed to prevent any discharge during transportation; bulk earth moving equipments should be utilized as much as possible to minimize workers' handling and contact of the excavated materials; and personal protective clothing should be provided to site 	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
		workers. 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.					
Land Contamination							
S8.7	LC1-D P2/DP3	<u>Remediation of arsenic-contaminated soil</u> <ul style="list-style-type: none"> “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. 	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"> Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; 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 	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
		<p>means;</p> <ul style="list-style-type: none"> • Excavation should be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • 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; • Supply of suitable clean backfill material after excavation, if required; • 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; • Speed control for the trucks carrying contaminated materials should be enforced; and • Vehicle wheel washing facilities at the site's exit points should be established and used. 					<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"> • The loading, unloading, handling, transfer or storage of cement should be carried out in an enclosed system; 	To minimize the potential environmental impacts arising from the handling	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
		<ul style="list-style-type: none"> • Mixing process and other associated material handling activities should be properly scheduled to minimise potential noise impact and dust emission; • The mixing facilities should be sited as far apart as practicable from the nearby noise sensitive receivers; • Mixing of contaminated soil and cement / water / other additive(s) should be undertaken at a solidification plant to minimise the potential for leaching; • Runoff from the solidification / stabilization area should be prevented by constructing a concrete bund along the perimeter of the solidification / stabilization area; • 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; • If stockpile of treated soil is required, the 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 site run-off during rainy season; and If necessary, there should be clear and separated areas for stockpiling of untreated and treated materials. 	of contaminated materials				<p>N/A</p> <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	<u>Safety Measures</u> <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; 	To minimize the potential adverse effects on health	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
		<ul style="list-style-type: none"> • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones; • Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers if necessary; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers, if necessary; • Provide first aid training and materials to site worker; • Bulk earth moving equipment should be utilized as much as possible to minimize workers' handling and contact of the contaminated materials; and • Eating, drinking and smoking should not be allowed in contaminated areas to avoid inadvertent ingestion of contaminant. 	and safety of construction 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	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
					the adjacent areas in Hong Kong outside LMC Loop		
Landscape and Visual Impact (Construction Phase)							
S11.5.4 Table11.5 .9	L-CP1-DP1/D P3	<p><u>Preservation and Protection of Existing Trees (Good Site Practice)</u></p> <ul style="list-style-type: none"> 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. It is recommended that a full detailed tree survey and felling application will be undertaken and submitted for approval by the relevant government departments in accordance with ETWB TCW No. 3/2006, 'Tree Preservation'. This will be conducted during the detailed design phase of the project and submitted to DLO for approval. The methodology and scope including the programme for the tree survey and felling application are also subject to the approval of the relevant authorities. Trees which are not in conflict with the proposals would be retained and shall be protected by means of fencing during 	Avoid disturbance and protection of existing trees	Detailed design consultant/ Contractor	Within project site	Detailed design and 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>construction phase to prevent damage to tree canopies and root zones from vehicles and storage of materials.</p> <ul style="list-style-type: none"> 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. 					^
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"> The construction sequence and construction programme shall be optimized in order to minimize the duration of impact. 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. 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. 	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"> 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. 	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
	L-CP4-DP1/D P2/DP3	<p><u>Transplantation of Existing Trees</u></p> <ul style="list-style-type: none"> Some specimens have relatively higher amenity value which are in conflict with the proposals shall be considered for transplantation. For trees affected by the proposed infrastructure works the final receptor sites shall be preferably adjacent to their current locations alongside of the alignment to retain their contribution to the local landscape context. For the LMC Loop the receptor locations will be selected to allow the trees to be moved directly to their final locations in accordance with the detailed landscape proposals. The transplanting proposals are subject to review at the detailed design phase and to agreement-in-principle with the relevant management and maintenance agents and/or government departments. The implementation programme for the proposed works shall reserve sufficient time for the advanced tree transplanting preparation works to enhance the survival of the transplanted trees. The transplanting proposals will be subject to the findings of the detailed tree survey and felling application to be undertaken by the detailed design consultants and following approval by the relevant departments. 	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^
	L-CP6-DP1/D	<p><u>Creation of Wetland and Landscape Buffer</u></p> <ul style="list-style-type: none"> The existing reedbed acquired for development areas for 	Compensation of the loss of landscape resources	Project Proponent/	The whole project area	Detailed design, construction and	^

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
		the period of disturbance.			applicable		
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"> 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. The preservation of existing tree shall provide instant greening and screening effect for proposed works. 	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"> The construction sequence and construction programme shall be optimized in order to minimize the duration of impact. 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. Hoarding designed with recessive colour shall be set up around the construction site providing screening effect for the construction works. The site office or temporary above-ground structures shall 	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
		be sited at less visual prominent locations.					
	V-CP3-DP3	<u>Advance Implementation of Mitigation Planting</u> <ul style="list-style-type: none"> 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. 	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	<u>Coordination with Concurrent Projects</u> <ul style="list-style-type: none"> Coordinated implementation programme with concurrent projects to minimise impacts and where possible reduce the period of disturbance. 	Minimize visual impacts	Contractor	The whole project area where applicable	Construction phase	^
Ecology (Construction Phase)							
S12.7	E1-DP1	<u>Disturbance to Fish Ponds at HHW</u> <ul style="list-style-type: none"> Development set back a minimum of 23m from the edge Meander. Management of fish pond habitat to enhance ecological value to twice existing value, in order to compensate for disturbance to large waterbirds. 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. <u>Construction phase</u>	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

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"> Erection of a 3m high, dull green site boundary fence to 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"> Temporary sewerage and drainage will be designed and installed to collect wastewater and prevent it from entering nearby water bodies; 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; 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; 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; Stockpiling of construction materials, if necessary, will be 	<p>Minimise the indirect impact from the increasing suspended solids and pollutants in LMC Meander</p>	Contractor	Seawall,	During construction	<p>^</p> <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
		considered.					
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"> Prepare an emergency contingency plan The plan will include, but not be limited to, the following: <ul style="list-style-type: none"> - Potential emergency situations; - Chemicals or hazardous materials used on-site (and their location); - Emergency response team; - Emergency response procedures; - List of emergency telephone hotlines; - Locations and types of emergency response equipment; - Training plan and testing for effectiveness. 	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"> Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project. 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. <p>These include the following:</p>	Minimize the mortality impacts on birds	Developer / Detailed design consultant/ contractor/ operator	Area within project site	Detailed design, construction and operation 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
		<ul style="list-style-type: none"> • Fritting, or the placement of ceramic lines or dots on glass, 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. • Angled glass may be used only for smaller panes in buildings with a limited amount of glass. • The use of glass that reflects UV light (primarily visible to birds, but not to humans) acts to reduce collision. • 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. • 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. <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</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
		<p>between one hour prior to sunset and one hour after sunrise.</p> <ul style="list-style-type: none"> Provision of compensatory reed marsh in the Ecological Area in LMC Loop, including open water channels and islands within the reed marsh, both of which features are considered to be used by the species. 					^
S12.7	E8-DP2	<ul style="list-style-type: none"> Refer to E2 and E3 	Prevent impacts on Rose Bitterling, small snakehead and <i>Somanniathelphus zanklon</i>	Contractor	Within project site	Construction phase	^
S12.7	E10-DP 1	<ul style="list-style-type: none"> Preserve undisturbed, semi-natural habitat conditions of LMC Meander and adjacent areas of LMC Loop up to approximately 150m in width in order to avoid disturbance to core part of flight line corridor. This area to comprise an Ecological Area largely constituting reed marsh and a 50m wide buffer zone densely planted with shrubs and trees. Small number of low buildings (max 14mPD high, except the building height of on-site STW is 15mPD high) allowed in inner 25m of this area at a plot ratio of 0.1. At Ha Wan Tsuen entry point for many birds to LMC Loop area provide a wider Ecological Area to minimize disturbance from nearby buildings. 	Minimize impacts on flight line corridor from LMC Loop development	Developer / Detailed design consultant/ Contractor/ Operator	Within project site	Detailed design, construction and operation 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
		<ul style="list-style-type: none"> Further minimisation of impact by maintaining a lower building height in areas adjacent to the buffer zone for the EA. In addition, the sewage treatment works, which is located near the point where many birds cross from the Meander to HHW, should not exceed 15mPD. 					N/A
S12.7	E11-DP 1	<ul style="list-style-type: none"> Employ site boundary fence as long as possible. Use of movable barrier for more intense site formation activity. Provision of fencing with 30cm gap between the existing reed marsh and LMC Meander during the establishment period of Ecological Area and the gap will be closed once established. Restrict work to period from 0900h to 1700h. All major works along the edge of LMC Meander and in the Ecological Area will be conducted in the wet season. 	Minimize disturbance impacts of mitigation provisions	Contractor	Within project site	Construction phase	^ ^
S12.7	E12-DP 1/DP2/ DP3	<ul style="list-style-type: none"> Minimal night-time lighting No direct light on Meander 	Minimize impacts on LMC Meander	Contractor/ Operator	All	Construction and operation phases	^ ^
S12.7	E13-DP 2	<ul style="list-style-type: none"> Construction limited to wet season between the hours of 9am and 5pm. Use of opaque visual/noise barriers and planting of trees shrubs along length of road adjacent to fish ponds. Compensatory habitat management elsewhere to mitigate wetland loss. 	Minimize impacts from the construction and operation disturbance impacts	Contractor/ Operator	Pond habitat along alignment (mainly Ha Wan Tsuen Road)	Construction and operation phases	^ ^ ^
S12.7	E13-DP	<ul style="list-style-type: none"> Use of viaduct alignment to minimize wetland loss. 	Minimize wetland loss	Project	Within project	Detailed design	^

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
	3	Compensatory wetland habitat elsewhere.		Proponent / Detailed design consultant / Contractor /	site	and construction phases	
S12.7	E16-DP 1	<ul style="list-style-type: none"> Provision of compensatory reed marsh in the Ecological Area will provide habitat suitable for Common Evening Hawker. Measures designed to protect other fauna and water quality will generally benefit odonata. 	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"> 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 	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"> Use noise/visual barriers to minimise disturbance. 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). 	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"> Use of opaque visual/noise barriers and roadside planting of trees and shrubs to minimize disturbance impacts. 	Minimize impacts on flight line corridor from	Project Proponent/	Construction site from	Detailed design, construction and	^

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
			Western Connection Road	Detailed design consultant/ Contractor Operator	Western Connection Road	operation 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	^
Fisheries (Construction Phase)							
S13.7	F4-	<ul style="list-style-type: none"> • Reprovision of replacement Artificial Reefs(of the same volume as the existing ARs inside Marine Exclusion Zone) 	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"> • Reduce re-suspension of sediments • Limit dredging and works fronts. • Good site practices • Strict enforcement of no marine dumping • Spill response plan 	Minimise marine water quality impacts	Contractor	Seawall	During construction	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
S13.7	F4-DP3	During the construction phase, a layer of sheet pile wall will be 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.	Bund stability	Contractor	Fish ponds	Construction phase	N/A
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	<u>Dust Minimization</u> <ul style="list-style-type: none"> 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. Any excavated or stockpile of dusty material should be 	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>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"> • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • 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; • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • 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; • Supply of suitable clean backfill material after excavation, if required; • Vehicles containing any excavated materials should be suitably covered to limit potential dust emissions or 					

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"> • Speed control for the trucks carrying contaminated materials should be enforced; and • Vehicle wheel washing facilities at the site's exit points should be established and used. 					
S13.7	F8-DP3	<p><u>Contingency plan</u> 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"> • Potential emergency situations; • Chemicals or hazardous materials used on-site (and their location); • Emergency response team; • Emergency response procedures; • List of emergency telephone hotlines; • Locations and types of emergency response equipment; 	Deal with any accidental spillage event	Contractor / Operator	Fish ponds	Construction and operational phases	N/A

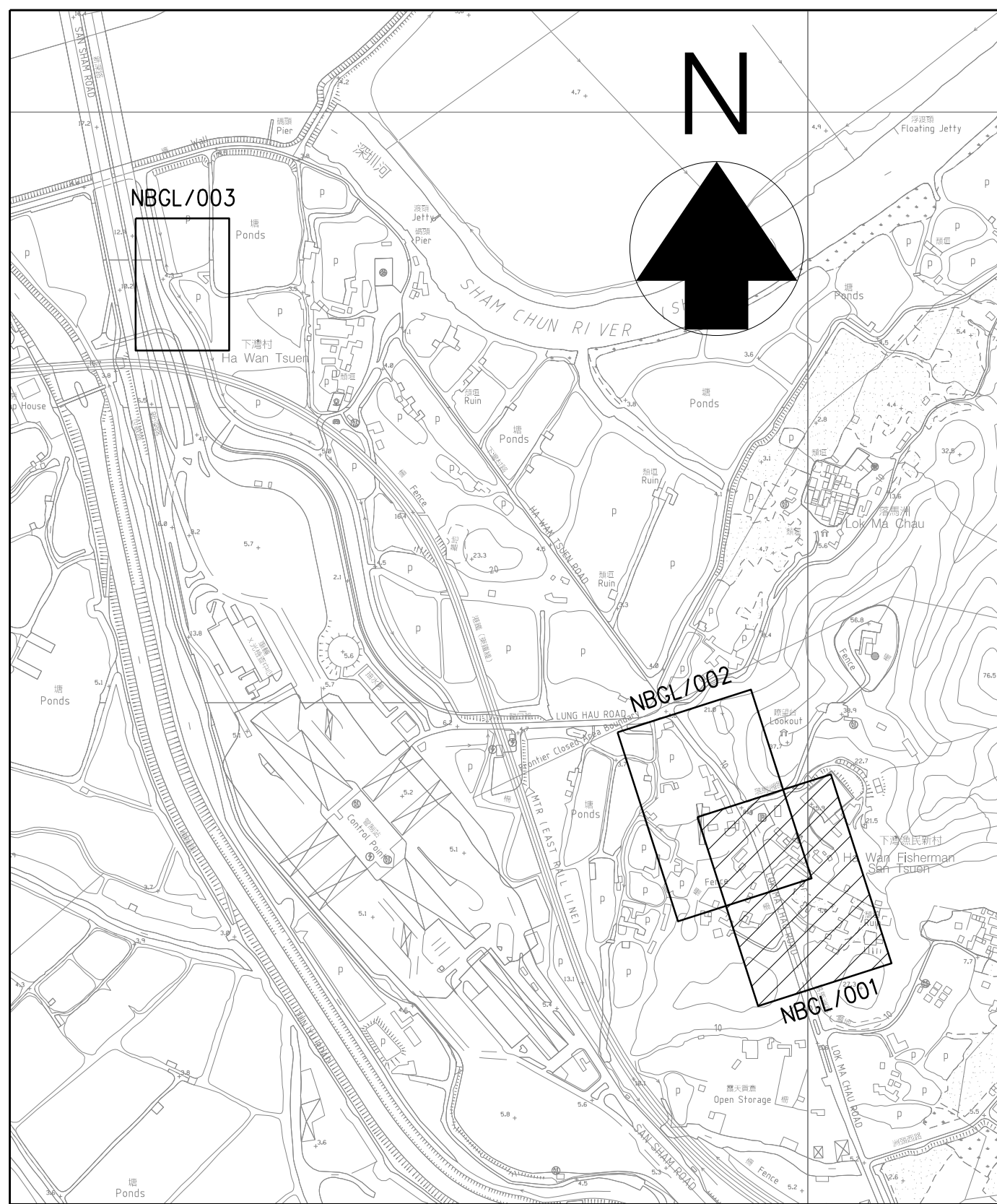
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • Training plan and testing for effectiveness. 					
Food Safety (Construction Phase)							
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 (http://www.cfs.gov.hk/english/programme/programme_fs/programme_fs.html). 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"> • 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. 	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
		<ul style="list-style-type: none"> • 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; • Any dusty materials remaining after a stockpile is removed should be wetted with water and cleared from the surface of roads; • 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; • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • 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; • Supply of suitable clean backfill material after excavation, if required; • Vehicles containing any excavated materials should be 					

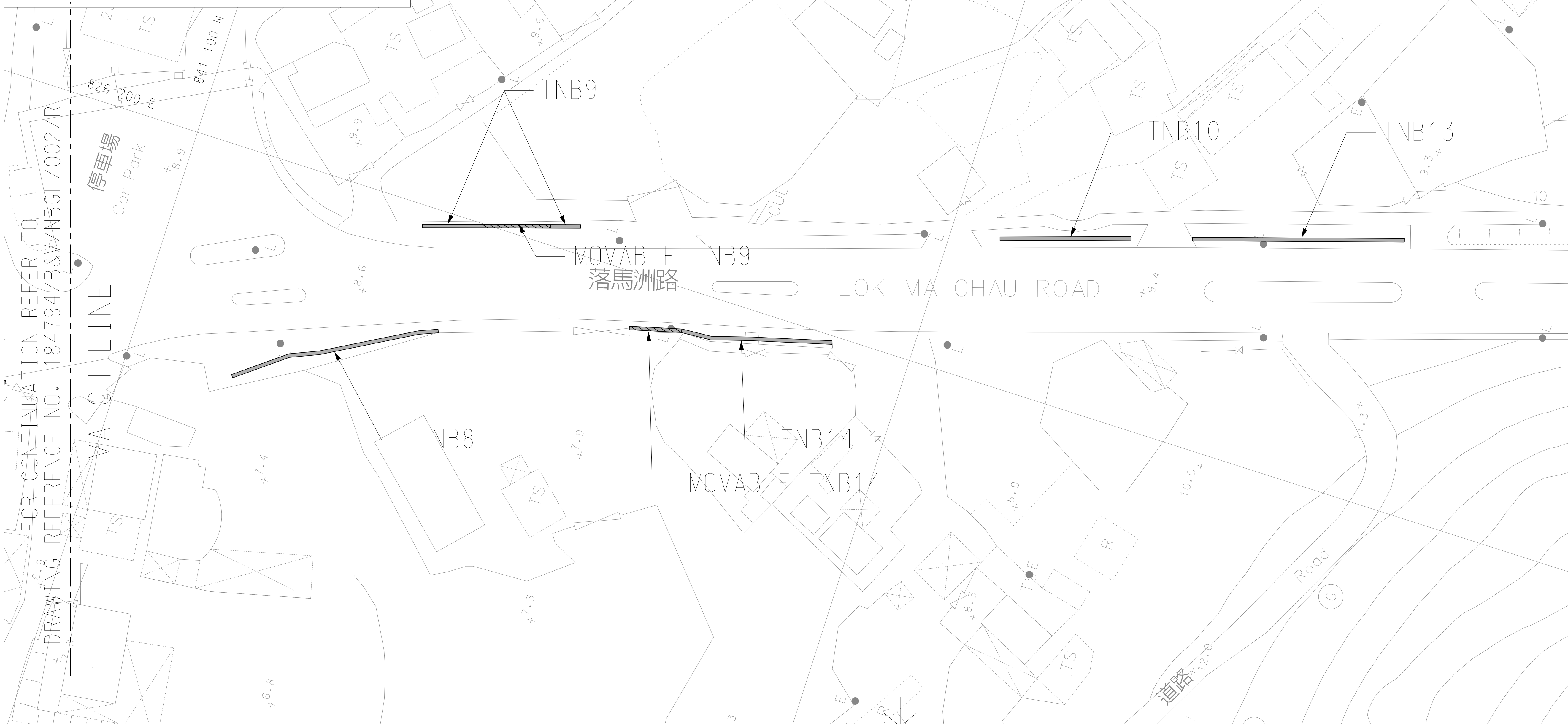
EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>suitably covered to limit potential dust emissions or contaminated run-off, and truck bodies and tailgates should be sealed to prevent any discharge during transport or during wet season;</p> <ul style="list-style-type: none"> • Speed control for the trucks carrying contaminated materials should be enforced; and • Vehicle wheel washing facilities at the site's exit points should be established and used. 					

- 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)

APPENDIX N
TEMPORARY NOISE BARRIERS



LOCATION PLAN
N.T.S.




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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

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



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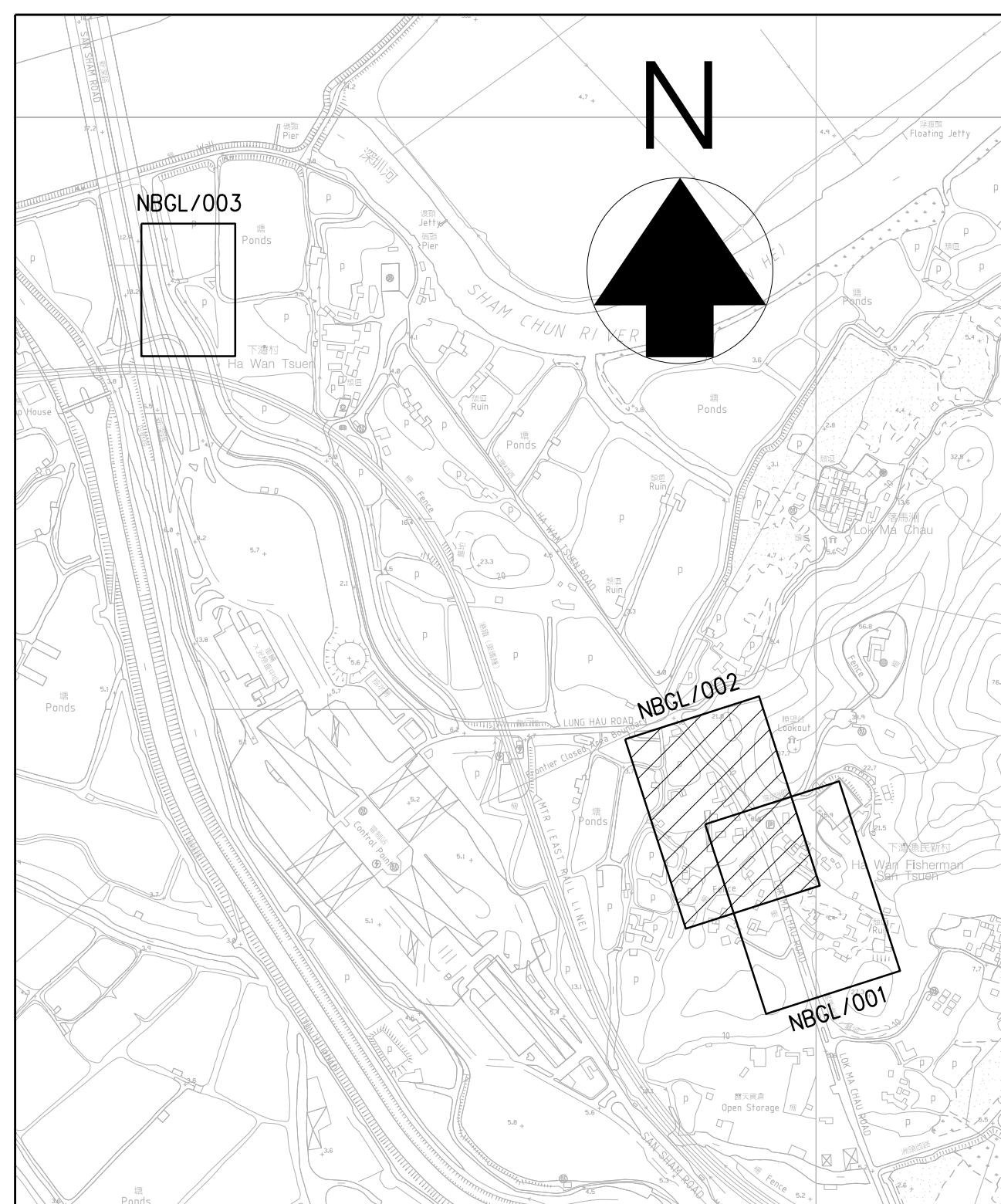
BINNIES HONG KONG LIMITED
賓尼士工程顧問有限公司

NOTES:

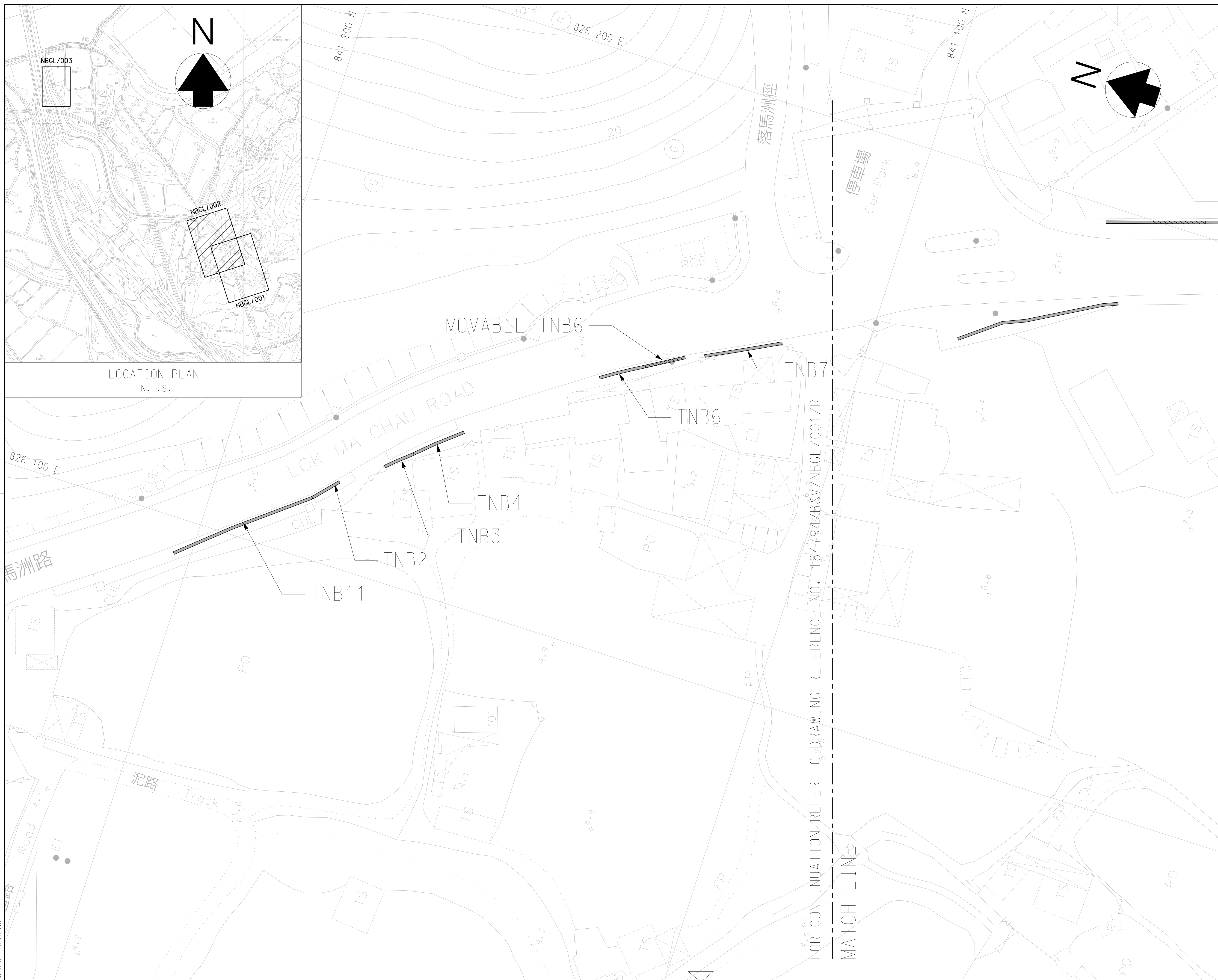
1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

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/001/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 2 OF 3)

圖則參考編號
Drawing Reference No. 184794/NBGL/002/R 修訂
Revision -

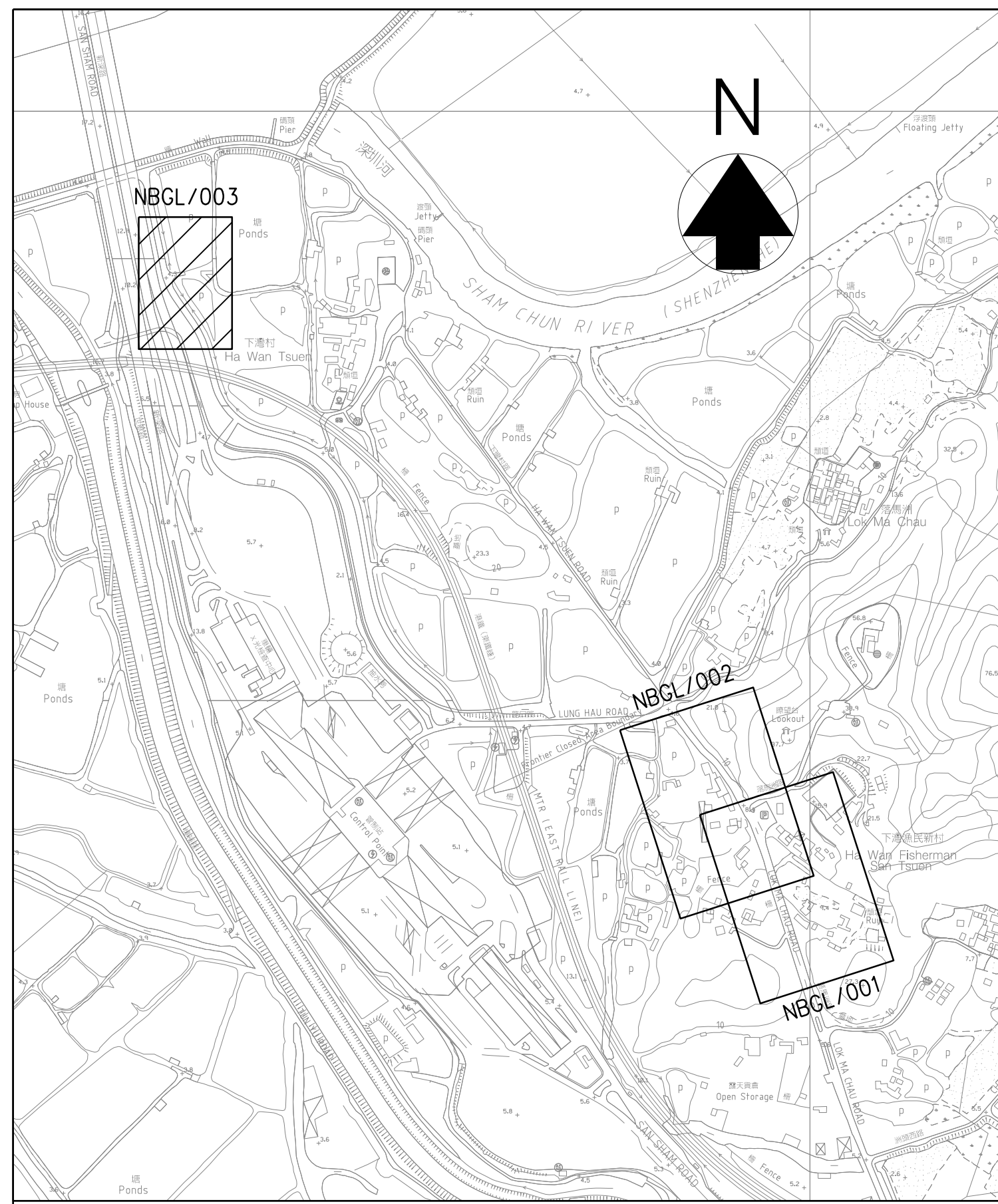
合約圖則編號
Contract Drawing No. 修訂
Revision -

比例
Scale A1 1 : 300
A3 1 : 600

土木工程拓展署
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Development Department

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賓尼士工程顧問有限公司



LOCATION PLAN
N.T.S.



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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
**CEDD Civil Engineering and
Development Department**

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賓尼士工程顧問有限公司

Plot Date : 11/7/2021




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, corrugated metal structure. In the background, there are buildings, including one with Chinese characters. A red line with the label 'TNB6' spans the length of the barrier.
TNB7	 A photograph showing a temporary noise barrier (TNB7) along a road. The barrier is a grey, corrugated metal structure. 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' spans the length of the barrier.
TNB8	 A photograph showing a temporary noise barrier (TNB8) along a road. The barrier is a grey, corrugated metal structure. In the background, there are trees and a building with a red roof. A red line with the label 'TNB8' spans the length 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 with a chain-link fence on top. In the background, there are trees and a building. A red 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 with a chain-link fence on top. In the background, there are trees and a building. A red 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 with a chain-link fence on top. In the background, there are trees and a building. A red 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	
TNB15	

**APPENDIX O
WASTE GENERATION IN THE
REPORTING MONTH**

**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 2022 (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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan-22	1.485	0.000	1.472	0.000	0.013	0.000	0.000	0.000	0.000	76.140	0.000	1.730
Feb-22	0.242	0.000	0.000	0.000	0.242	0.000	9.150	0.000	0.000	24.170	0.000	0.426
Mar-22	0.120	0.000	0.000	0.000	0.120	0.000	0.000	0.000	0.000	0.000	0.000	0.143
Apr-22	0.058	0.000	0.000	0.000	0.058	0.000	0.000	0.000	0.000	0.000	0.000	0.068
May-22	0.022	0.000	0.000	0.000	0.022	0.000	0.001	0.000	0.010	13.630	0.000	0.021
Jun-22	0.004	0.000	0.000	0.000	0.004	0.000	0.008	0.000	0.194	0.000	0.000	0.023
Sub-total	1.930	0.000	1.472	0.000	0.458	0.000	9.159	0.000	0.204	113.940	0.000	2.411
Jul-22												
Aug-22												
Sep-22												
Oct-22												
Nov-22												
Dec-22												
Total	1.930	0.000	1.472	0.000	0.458	0.000	9.159	0.000	0.204	113.940	0.000	2.411

Remarks:

1. Assume the density of soil fill=2.0 tonnes/m³
2. Assume the density of rock and broken concrete=2.5 tonnes/m³
3. Assume the density of refuse = 1.5 tonnes/m³
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 2022 (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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000 m ³)
Jan	0.000	0.000	0.000	0.000	0.000	0.458	0.000	0.000	0.000	0.000	0.131
Feb	0.000	0.000	0.000	0.000	0.000	0.045	0.000	0.000	0.000	0.000	0.121
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.040
Apr	0.000	0.000	0.000	0.000	0.063	0.000	0.000	0.000	0.000	0.000	0.121
May	0.000	0.000	0.000	0.000	0.018	0.000	0.000	0.000	0.000	0.000	0.184
Jun	0.000	0.000	0.000	0.000	0.167	0.000	0.000	0.000	0.000	0.000	0.576
Sub-total	0.000	0.000	0.000	0.000	0.248	0.503	0.000	0.000	0.000	0.000	1.173
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	0.000	0.000	0.000	0.000	0.248	0.503	0.000	0.000	0.000	0.000	1.173

Note:

1. For non-inert portion of C&D material, assume the density of 1 m³ general refuse is equal to 200 kg.
2. For inert portion of C&D material, assume 6 m³ 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 2022 (year)

Name of Person completing the record:

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 ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000 kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan-22												
Feb-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr-22	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-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.002
Jun-22	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.002
Jul-22												
Aug-22												
Sep-22												
Oct-22												
Nov-22												
Dec-22												
Total	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.010	0.000	0.002

Remarks:

1. Assume the density of soil fill=2.0 tonnes/m³
2. Assume the density of rock and broken concrete=2.5 tonnes/m³
3. Assume the density of refuse = 1.5 tonnes/m³
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

**APPENDIX P
COMPLAINT LOGS**

Appendix P - Complaint LogContract No. YL/2017/03 – Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Complaint Nature	Investigation Finding	Status
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

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Fining	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 Fining	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&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"> - 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. - 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. - 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. - 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. - Induction training and tool box talk have been provided to the site staff and workers regarding the dust suppression measure. - Temporary covers have been provided to stockpile of the dusty materials and the exposed slope. 	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

**APPENDIX Q
SUMMARY OF SUCCESSFUL
PROSECUTION**

Appendix Q - Summary of Successful Prosecution

Date of Successful Prosecution	Details of the Successful Prosecution	Status	Follow Up
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APPENDIX R
ECOLOGICAL MONITORING RESULTS

Appendix R1 – Avifauna Monitoring Results (Pond 12)

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	1 st June 2022
					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	
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R	1		
Black Drongo	<i>Dicrurus macrocercus</i>	黑卷尾	Sv		1	
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R	2	2	
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)	2	1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R			5
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)	1	1
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鵲鴝	R			1
Pied Kingfisher	<i>Ceryle rudis</i>	斑魚狗	UR	(LC)		4
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	3	3
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鷯	R		4	4
Total No. of Species					6	11
No. of Birds Recorded					13	24

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	8 th June 2022
					Weather Condition	Overcast
					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	
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		2	
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R	1	3	
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R	1	4	
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鶇	R	(VU)	1	
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)	2	1
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)	3	2
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R			1
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	6	10
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶇	USV, UPM	(LC)		1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶇	R		3	2
Total No. of Species					6	11
No. of Birds Recorded					16	28

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	15 th June 2022
					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
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R			3
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		2	4
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)	2	2
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)		1
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)		2
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鵲鵂	R			1
Purple Heron	<i>Ardea purpurea</i>	草鷺	R	RC		1
Red-billed Blue Magpie	<i>Urocissa erythrorhyncha</i>	紅咀藍鵲	R		1	1
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		1	4
Scaly-breasted Munia	<i>Lonchura punctulata</i>	斑文鳥	R		2	5
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R			1
White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	白胸苦惡鳥	R			1
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	3	8
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶇	USV, UPM	(LC)	2	1

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	15 th June 2022
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶯	R		2	3
Total No. of Species					8	16
No. of Birds Recorded					15	39

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	22 nd June 2022
					Weather Condition	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		1	3
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R		2	1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		3	4
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)	1	
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)	3	2
Masked Laughingthrush	<i>Pterorhinus perspicillatus</i>	黑臉噪鶇	R			2
Pied Kingfisher	<i>Ceryle rudis</i>	斑魚狗	UR	(LC)		1
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			2
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R			1
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	7	5
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶯	R		4	3
Total No. of Species					8	11
No. of Birds Recorded					22	25

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	29 th June 2022
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R			1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		2	4
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鶯	R	PRC(RC)	1	2
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鶇	R	(VU)		1
Little Egret	<i>Egretta garzetta</i>	小白鶯	R	PRC(RC)		2
Purple Heron	<i>Ardea purpurea</i>	草鶯	R	RC		1
Scaly-breasted Munia	<i>Lonchura punctulata</i>	斑文鳥	R			20
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背椋鳥	M, WV, Sv	LC	4	6
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		2	3
Total No. of Species					4	9
No. of Birds Recorded					9	40

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)

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: 9 June 2022					
			Weather Condition: Fine					
			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	6*	0	0

WAL – Wet Agricultural Land, AFP – Abandoned Fishpond

* Vocal calls heard

Appendix R3 – Aquatic Fauna (Rose Bitterling) Survey Results

Common Name	Species Name	Chinese Name	Date: 15 June 2022							
			Weather Condition: Fine							
			Counts							
			Location(s)							
			S1	S2	S3	S4	A1	A2	B1	B2
Rose Bitterling	<i>Rhodeus ocellatus</i>	高體鯉鰱	Direct Observation:							
			0	0	0	0	0	7	0	0
			Sweep Netting:							
			0	0	0	0	0	0	0	0

Service Contract No. WD/04/2020

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

Water Quality Monitoring Results on 10-Jun-22

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	14:37	29.4	29.4	7.8	7.8	0.1	0.1	94.1	94.0	7.2	7.2	2.2	2.2
			29.4		7.8		0.1		93.8		7.2			
A2	Rainy	14:21	28.8	28.8	7.6	7.6	0.1	0.1	41.3	41.2	3.2	3.2	2.5	2.5
			28.8		7.6		0.1		41.0		3.2			
B1	Rainy	14:13	28.8	28.8	8.2	8.2	0.1	0.1	118.4	118.3	9.1	9.1	11.9	11.9
			28.7		8.2		0.1		118.2		9.1			
B2	Rainy	14:07	29.0	29.0	8.6	8.6	0.1	0.1	141.8	141.9	10.9	10.9	10.3	10.3
			29.0		8.6		0.1		141.9		10.9			
S1	Rainy	14:45	28.6	28.6	7.7	7.7	0.1	0.1	80.5	80.2	6.2	6.2	12.0	12.1
			28.6		7.7		0.1		79.9		6.2			
S2	Rainy	14:31	27.2	27.3	7.8	7.8	0.1	0.1	69.5	69.4	5.5	5.5	3.0	2.9
			27.3		7.7		0.1		69.2		5.5			
S3	Rainy	13:51	27.2	27.2	7.9	7.9	0.1	0.1	70.6	70.5	5.6	5.6	11.4	11.4
			27.2		7.9		0.1		70.3		5.6			
S4	Rainy	14:00	27.5	27.5	7.6	7.6	0.1	0.1	62.8	62.6	5.0	5.0	7.8	7.9
			27.5		7.6		0.1		62.3		4.9			

Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team
Water Quality Monitoring Results on 15-Jun-22

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	Cloudy	10:44	28.8	28.8	7.6	7.6	0.1	0.1	65.1	64.9	5.0	5.0	12.4	12.5
			28.8		7.6		0.1		64.7		5.0		12.5	
A2	Cloudy	09:50	28.5	28.5	7.7	7.7	0.1	0.1	93.5	93.1	7.3	7.3	13.5	13.5
			28.5		7.7		0.1		92.7		7.2		13.4	
B1	Cloudy	09:26	27.1	27.1	7.6	7.6	0.1	0.1	44.2	44.0	3.5	3.5	4.6	4.6
			27.1		7.6		0.1		43.8		3.5		4.6	
B2	Cloudy	09:38	28.7	28.7	7.8	7.8	0.1	0.1	103.1	102.9	8.0	8.0	13.0	13.0
			28.7		7.7		0.1		102.6		7.9		12.9	
S1	Cloudy	10:31	28.4	28.4	7.6	7.6	0.1	0.1	23.4	23.0	1.8	1.8	1.9	1.9
			28.4		7.5		0.1		22.5		1.8		1.9	
S2	Cloudy	10:18	27.3	27.4	7.8	7.8	0.1	0.1	64.1	63.7	5.1	5.1	4.4	4.4
			27.4		7.7		0.1		63.2		5.0		4.4	
S3	Cloudy	10:03	28.9	28.9	7.6	7.6	0.1	0.1	38.6	38.1	3.0	3.0	1.7	1.7
			28.8		7.6		0.1		37.5		2.9		1.7	
S4	Cloudy	09:14	27.2	27.2	7.7	7.7	0.1	0.1	47.4	47.2	3.8	3.8	3.7	3.7
			27.2		7.7		0.1		47.0		3.7		3.6	

Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team
Water Quality Monitoring Results on 22-Jun-22

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	11:44	29.5	29.5	7.7	7.7	0.1	0.1	63.9	63.8	4.9	4.9	15.1	14.8
			29.5		7.7		0.1		63.7		4.9		14.5	
A2	Sunny	11:12	29.6	29.6	8.1	8.1	0.1	0.1	106.3	106.0	8.1	8.1	15.1	15.3
			29.6		8.0		0.1		105.7		8.0		15.5	
B1	Sunny	10:59	28.1	28.1	7.8	7.8	0.1	0.1	50.2	49.9	3.9	3.9	6.3	6.3
			28.1		7.8		0.1		49.6		3.9		6.2	
B2	Sunny	11:05	30.6	30.6	8.6	8.6	0.1	0.1	148.9	149.3	11.1	11.2	13.8	13.7
			30.6		8.6		0.1		149.6		11.2		13.6	
S1	Sunny	11:36	30.4	30.4	7.8	7.8	0.1	0.1	54.0	53.7	4.1	4.1	1.8	1.8
			30.3		7.8		0.1		53.3		4.0		1.8	
S2	Sunny	11:30	28.7	28.7	7.9	7.9	0.1	0.1	66.3	66.2	5.1	5.1	8.3	8.2
			28.7		7.9		0.1		66.1		5.1		8.1	
S3	Sunny	11:20	29.9	29.9	7.7	7.7	0.1	0.1	36.4	36.3	2.8	2.8	2.3	2.4
			29.9		7.7		0.1		36.1		2.7		2.4	
S4	Sunny	10:52	27.7	27.7	8.1	8.1	0.1	0.1	57.0	56.9	4.5	4.5	8.3	8.3
			27.7		8.1		0.1		56.7		4.5		8.3	

Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team
Water Quality Monitoring Results on 27-Jun-22

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	12:49	32.0	32.1	8.0	8.0	0.1	0.1	59.2	59.8	4.3	4.4	29.4	27.8
			32.1		8.0		0.1		60.4		4.4		26.2	
A2	Sunny	12:17	31.8	31.8	8.5	8.5	0.1	0.1	99.0	98.7	7.3	7.3	18.2	18.2
			31.8		8.5		0.1		98.4		7.2		18.2	
B1	Sunny	12:04	30.2	30.2	8.2	8.2	0.1	0.1	52.1	52.0	3.9	3.9	6.6	6.6
			30.2		8.1		0.1		51.9		3.9		6.5	
B2	Sunny	12:10	33.8	33.8	9.7	9.7	0.1	0.1	176.9	177.2	12.5	12.6	15.3	15.3
			33.7		9.7		0.1		177.4		12.6		15.2	
S1	Sunny	12:42	32.7	32.7	7.9	7.9	0.1	0.1	45.9	45.8	3.3	3.3	2.4	2.4
			32.6		7.9		0.1		45.6		3.3		2.4	
S2	Sunny	12:35	29.6	29.7	8.7	8.7	0.1	0.1	71.6	71.5	5.4	5.4	2.5	2.4
			29.7		8.7		0.1		71.3		5.4		2.3	
S3	Sunny	12:25	32.8	32.8	8.0	8.0	0.1	0.1	63.4	63.2	4.6	4.6	4.6	4.7
			32.7		8.0		0.1		63.0		4.6		4.7	
S4	Sunny	11:56	29.6	29.6	9.1	9.1	0.1	0.1	67.5	67.4	5.1	5.1	4.0	4.0
			29.6		9.1		0.1		67.3		5.1		4.0	