

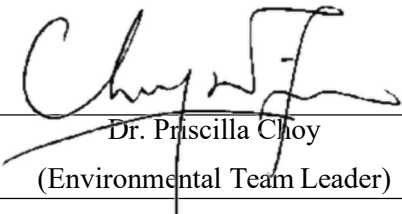
Civil Engineering and Development Department

**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 July 2023**

(Version 1.0)

Certified By 
Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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Our ref.: LES/J2021-04/CS/L134
Date : 16 August 2023

By Post & Email

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

Attn: Ms. TAM Im Fei

Dear Ms. TAM,

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

Verification of Monthly EM&A Report (July 2023)

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

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

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

Raymond Dai
Independent Environmental Checker

c.c. AECOM
Wellab Limited

Mr. Eric Wong
Dr. Priscilla Choy

By Email
By Email

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EXECUTIVE SUMMARY

Introduction

1. This is the 55th 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 31st July 2023 (hereinafter called “the reporting month”).
2. During the reporting month, the following Works Contracts were undertaken for the Project:
 - Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 (hereinafter called the “Contract 1”)
 - Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1 (hereinafter called the “Contract 2”)
 - Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

Environmental Monitoring and Audit Activities

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

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

Environmental Aspect		Monitoring Parameter	Date
Air Quality		1-hr Total Suspended Particulates (TSP) Monitoring	3 rd , 7 th , 13 th , 19 th , 25 th and 31 st July 2023
		24-hr TSP Monitoring	6 th , 12 th , 18 th , 24 th and 28 th July 2023
Construction Noise		Leq30mins	6 th , 12 th , 21 st and 27 th June 2023
Water Quality		<ul style="list-style-type: none"> • Temperature • pH • Turbidity • Water depth • Salinity • Dissolved Oxygen (DO) • Suspended Solids (SS) 	3 rd , 5 th , 7 th , 10 th , 12 th , 14 th , 19 th , 21 st , 24 th , 26 th , 28 th and 31 st July 2023
Ecological	Lok Ma Chau (LMC) Loop	Avifauna flight line survey	21 st July 2023
		Mammal monitoring (by infra-red flash cameras)	Temporary suspended as the connectivity between the reed marsh in the LMC Loop and the EA Zone has been fenced off due to other project’s land occupier (i.e. emergency hospital)
Ecological	Western	Avifauna flight line survey	21 st July 2023

Environmental Aspect		Monitoring Parameter	Date
Connection Road (WCR)		Avifauna survey at Pond 12	6 th , 10 th , 18 th , 24 th and 31 st July 2023
		Herpetofauna survey	21 st July 2023
		Aquatic Fauna survey	6 th July 2023
		Water Quality Monitoring for Aquatic Fauna	<u>LMC Meander</u> 3 rd , 5 th , 7 th , 10 th , 12 th , 14 th , 19 th , 21 st , 24 th , 26 th , 28 th and 31 st July 2023 <u>Stream and associated ponds south of Lung Hau Road</u> 6 th , 12 th , 21 st and 26 th July 2023
Site Environmental Audit	Environmental protection and pollution control measures	<u>Contract 1</u> 5 th , 12 th , 19 th and 26 th July 2023 <u>Contract 2</u> 5 th , 12 th , 19 th and 26 th July 2023 <u>Contract 3</u> 3 rd , 10 th , 19 th , 24 th and 31 st July 2023	

Breaches of Action and Limit Levels

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

Table II Summary Table for Environmental Exceedances in the Reporting Month

Environmental Monitoring	Parameter	Action Level	Limit Level	Event & Action		
				Investigation Result	No. of Exceedance related to the Construction Works of the	Corrective Action
Air Quality	1-hr TSP	0	0	--	0	--
	24-hr TSP	0	0	--	0	--
Construction Noise	<u>Daytime</u> Leq(30min)	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 except on 17th July 2023. Water quality monitoring on that day was cancelled as Typhoon signal no. 8 was in force. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

LMC Loop

Avifauna (Flight Line Survey)

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

Mammals

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

Western Connection Road

Avifauna (Flight Line Survey)

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

Avifauna (Pond 12)

13. Avifauna survey at Pond 12 was conducted as scheduled in the reporting month except the survey on 17th July 2023 was rescheduled to 18th July 2023 due to Typhoon signal no. 8. Weekly count of birds using the Pond was recorded. No significant impact of construction activities on bird use of the pond was observed.

Herpetofauna

14. Herpetofauna survey was rescheduled from 17th July 2023 to 21st July 2023 as Typhoon signal no. 8 was in force on 17th July 2023. It was observed that the shallow agricultural ponds where Chinese Bullfrog was recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population. However, no significant impact of construction activities on this species was observed.

Aquatic fauna

15. Aquatic fauna survey was conducted as scheduled in the reporting month except on 17th July 2023. The water quality monitoring for Aquatic fauna on 17th July 2023 was rescheduled to 21st July 2023 as Typhoon signal no. 8 was in force on 17th July 2023. 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	5 th , 12 th , 19 th and 26 th July 2023
Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1	5 th , 12 th , 19 th and 26 th July 2023
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	3 rd , 10 th , 19 th , 24 th and 31 st July 2023

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) Wetland Compensation Establishment Works and Ecological Monitoring.
- (b) Additional Ground Investigation.
- (c) Deep Cement Mixing Work for Western Connection Road.
- (d) Structure Construction for Box Culverts and Retaining wall at WCR.
- (e) Drainage Works and Roadworks.
- (f) Woodland Compensation Works.
- (g) Form the Piling Platform for the South Pier Cap of the Meander Bridge.

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

Section 1

- (a) Tree Felling and Site Clearance along RW8 area and immediate vicinity. Forming of temporary carriageway to divert traffic.
- (b) Subway modification for Bay 12 to Bay 14.
- (c) Excavation and lateral support for RW9 Bay 1 to Bay 4.
- (d) Construction of retaining wall RW9. Backfill works after construction of RW9 Bay 5 to Bay 16.
- (e) Commencement of construction of retaining wall RW8.
- (f) Excavation and Lateral Support for RW10.

Section 2A

- (g) Complete all RC block removal works at BPW1.

- (h) Complete all slopes trimming works at CS1 and CS2. Soil nailing works at CS2.
- (i) Site Clearance at LMC Road Zone 3, Zone 4, Zone 5 and Zone 6
- (j) Liaison with utility companies for utility diversion
- (k) RW6 ELS works and construction of concrete structure.
- (l) PW6A pipe piling works
- (m) RW – CTW ELS works and construction of concrete structure.
- (n) DN700 watermain laying works.
- (o) Noise Barrier NB16 ELS works and construction of concrete structure (Bay 1, Bays 4-6)
- (p) UU works along Lok Ma Chau Road Carriageway.

Section 2B

- (q) EIBC foundation work – total 8 nos. of bored piles.
- (r) Manual survey and vibration monitoring in MTR Tunnel.

Section 2C

- (s) Bored pile for Bridge ST01 and CTFB (ST01-P05, FBP01 and 02).
- (t) Construction of Pier at ST01-P02, P03 & P04.
- (u) Construction of FBA-02 and FBP-01 Pile caps.
- (v) Construction of Pile Cap and Pier at ST01-P06.

Section 3

- (w) Bored pile for Bridge DRL-P02 and P11.
- (x) Construction of Pile Cap at DRL-P02 to P05 and Piers at DRL-P12 & P13.
- (y) Construction of temporary working platform for DRL-P06, P07 and P08 in Eash Nullah.

Section 5

- (z) Pai Lau Finishing Works.

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

- (a) LMC Station Structural Steel Fabrication.
- (b) LMC Station Structural Openings for E&M Diversion.
- (c) ELS Works and foundation RC construction at Elevated PTI.
- (d) UU Diversion for Watermain (MTR) and Drainage Diversion at Elevated PTI.
- (e) Bored Piling Works at Double-deck Footbridge.

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 55th EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme in the period from 1st to 31st July 2023.

Structure of the report

- 1.3 The structure of the report is as follows:

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

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

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

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

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

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

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

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

Section 9: **Environmental Site Inspection** - summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 10: **Implementation Status of Environmental Mitigation Measures** -

summarises the compliance status of environmental mitigation measures.

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

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

Section 13: **Conclusions and Recommendations**

2 PROJECT INFORMATION

Background

- 2.1 The development at Lok Man Chau (LMC) Loop is one of the ten major infrastructure projects for economic growth of the Hong Kong Special Administrative Region (HKSAR). The HKSAR Government would work with the Shenzhen authorities to tap the land resources of the LMC Loop to meet future development needs and consolidate the strategic position of both cities in the Pan-Pearl River Delta region. The Project is to develop LMC Loop with higher education as the leading land use, complemented by high-tech research and development facilities and cultural and creative industries.
- 2.2 The planning and engineering study for the Loop development is a designated project (DP) classified under Item 1 Schedule 3 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499). In October 2013, the EIA Report (AEIAR-176/2013) of the Project was approved by the Director of Environmental Protection pursuant to the EIA Ordinance in accordance with the EIA Study Brief (No. ESB-201/2008 and ESB-238/2011) and the Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM). The Environmental Permit (EP) (EP no.: EP-477/2013) was also granted in November 2013.
- 2.3 Pursuant to Section 13 of the EIAO, the Director of Environmental Protection amends the Environmental Permit (No. EP-477/2013) based on the Application No. VEP- 595/2021 and the environmental Permit (Permit No. E EP-477/2013/A) was issued on 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) Ground treatment and site formation works;	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) Construction of carriageway, footpaths, cycle tracks and a public transport interchange within the Loop; c) Construction of Western Connection Road Phase 1 through widening of existing Ha Wan Tsuen East Road, which includes construction of footpath, cycle track, slopes, retaining walls and a vehicular bridge over the old Shenzhen River meander; d) Provision of other infrastructures, including a tertiary sewage treatment works and sewerage system, water supply system, drainage system, and other associated works; and e) Environmental mitigation measures including about 18 ha offsite wetland compensation and about 1.3 ha offsite woodland compensation. 	
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) Construction of Western Connection Road Phase 2 through widening of a section of existing Lok Ma Chau Road; b) Construction of Direct Road Link Phase 1 comprising a viaduct of about 720m long; construction of slip roads connecting Lok Ma Chau Road and Fanling Highway / San Tin Highway including a viaduct of about 340 m long; c) Construction of a cycle track cum footbridge; d) Construction of associated works including road improvement works, footpaths, cycle tracks, slopes, retaining walls, water supply system and drainage system; and e) Provision of noise barriers. 	Figure 1b
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	<ul style="list-style-type: none"> a) Construction of an elevated public transport interchange of an approximate area of 5,700 square metres above the existing Lok Ma Chau Spur Line Public Transport Interchange; b) Construction of an approximately 90 metres long double-deck footbridge and a lift tower of approximately 21 metres in height with three lifts and three escalators connecting the elevated public transport interchange mentioned above to the MTR Lok Ma Chau Station; c) Associated modification works within the MTR Lok Ma Chau Station; and d) Associated roadworks, landscaping, electrical and mechanical works and ancillary works. 	Figure 1b

Project Organisation

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

Table 2.2 Key Contacts of the Project

Organization	Project Role	Contact Person	Tel No.	Fax No.
CEDD	Project Proponent	Mr. Davy KS CHAN	2417 6370	2412 0358
WELLAB	ET	Dr Priscilla Choy – ET Leader	2898 7388	2898 7076
Lam Environmental Services Limited (LAM)	IEC	Mr. Raymond Dai	2839 5666	2882 3331
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
		Senior Engineer – Mr. Max Mak	9263 1116	2774 0197
		Senior Engineer – Mr. Stephen Leung	9770 6390	2774 0197
		Environmental Officer – Ms. Lila Lui	5261 0378	2774 0197
Contract No. YL/2020/02				
AECOM	Consultants	Mr. Eric Wong	9861 8664	TBA
China Road and Bridge Corporation	Contractor	Site Agent – Mr. Roger Poon	9503 2488	3996 9202
		Construction Team Leader – Mr. Angus Mok	98389224	3996 9202
		Environmental Officer – Mr. Calvin So	9724 6254	3996 9202
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
		Environmental Officer – Mr. Tino Law	6856 4150	3015 7861

Construction Programme

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

Summary of Construction Works Undertaken During Reporting Month

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

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

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

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

- (a) Tree felling works.
- (b) Breaking of one cell of existing box culvert and backfill for forming piling platform for Integrated structure completed.
- (c) Monthly monitoring of the polishing function of the Reedbed Cell No. 3A carried out.
- (d) Monitoring of groundwater level at Slopes CS1 and CS2.
- (e) H-pile of FBA-01 completed (8 out of 8 nos).
- (f) Slope trimming work behind BPW1 is in progress. Upper concrete block wall removed. Removal of concrete blocks for lower concrete platform commenced. Excavation for surface channel is in progress.
- (g) Bored Piles for DRL-P02-01, 03, 04, DRL-P03-01, 02, DRL-P11-01, 02, and 04 (total 8 nos.) completed in report period. DRL-P02-02 and DRL-P11-03 are in progress.
- (h) Retaining Wall RW9- Construction of Wall Stem Bay16 –Bay 5 completed. Backfilling for Bay16-Bay5 is in progress. Bay3-Bay4 Base slab ELS installation and Excavation are in progress.
- (i) Subway demolition works completed, Bay 12 – Bay 14 base slab works in progress.
- (j) Pai Lau - Construction superstructure has been completed. ABWF works is in

progress.

- (k) TTA along Lok Ma Chau Road SIB near CTWR implemented. UU including FMOs and CLP laying works is in progress. DN700 watermain installation is in progress, 64 m completed.
- (l) ELS for Pile Cap of DRL-P04 is in progress.
- (m) Enhanced Integrated Structure –Piling Platform Erection Works completed; Bored piling works for EIBC-P04 will follow.
- (n) Retaining Wall RW – CTWR sheet piling work is in progress.
- (o) Retaining Wall PW6A – Timber piling platform erection works completed. Tree pruning to facilitate pipe piling works completed.

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

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

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-RN0634-23	18/06/2023	17/09/2023	Valid
Contract No. YL/2020/02	GW-RN0386-23	09/05/2023	08/08/2023	Superseded by GW-RN0724-23
	GW-RN0724-23	09/07/2023	08/09/2023	Valid
Contract No. YL/2021/01	GW-RN0734-23	24/07/2023	23/09/2023	Valid

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
	GW-RN0642-23	28/06/2023	27/08/2023	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	21/07/2021	Till the Contract ends	Valid
Contract No. YL/2020/02	WPN 5213-542-C1232-24	29/11/2021	Till the Contract ends	Valid
Contract No. YL/2021/01	WPN 5213-542-P3483-01	21/04/2022	Till the Contract ends	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
Contract No. YL/2020/01	WT00039466-2021	04/01/2023	31/12/2026	Valid
	WT00041233-2022	18/07/2022	31/07/2027	Valid
Contract No. YL/2020/02	WT00041280-2022	27/07/2022	31/07/2027	Valid
	WT00042556-2022	23/11/2022	30/11/2027	Valid
	WT00043043-2023	21/04/2023	30/04/2028	Valid
Contract No. YL/2021/01	WT00041259-2022	21/07/2022	31/07/2027	Valid
Specified Processes for Cement Works under Air Pollution Control Ordinance				
Contract No. YL/2020/01	L-3-270(1)	25/04/2023	24/04/2025	Valid

Status of Compliance with Environmental Permits Conditions

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

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

EP Conditions	Submission(s)	Requirement	Submission Date	Approval Status
2.3	Management Organizations	no later than one month before the commencement of construction of the Project	<u>YL/2020/01</u> : 7 July 2021 <u>YL/2020/02</u> : 17 Nov 2021 <u>YL/2021/01</u> : 30 Mar 2022	*
2.4	Pedestrian Walkway Reserve in the Direct Link to MTR LMC Station	at least one month before the commencement of construction of the Direct Link, deposited with the Director	17 Nov 2021	*
2.5 & 2.6	Submission of Works Schedule and Location Plans	Works Schedule: at least one month before the commencement of the works of the Project Location Plan: at least two weeks before the commencement of the works of the Project	<u>YL/2020/01</u> : 7 July 2021 <u>YL/2020/02</u> : 17 Nov 2021 <u>YL/2021/01</u> : 30 Mar 2022	*
2.7	Ecological Mitigation / Habitat Creation and Management Plan	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	7 Dec 2021 (Issue 4)	*
2.8	Landscape Plan	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	To be submitted at least one month before the commencement of corresponding parts of the works of the Project (tentative submission date will be supplemented once available)	*
2.11	Emergency Contingency Plan	at least one month before the commencement of the concerned works of the Project, deposited with the Director	26 Oct 2021	*
2.15	Re-appraisal report	at least one month before the commencement of corresponding parts of the works of the Project, deposited with the Director	18 Jun 2021	*
2.16	Remediation Report	no later than one month after the completion of the remediation works for approval	N/A (no remediation is required according to re-appraisal report)	N/A
2.17	(a) Updated Contamination Assessment Plan (CAP) (b) Contamination Assessment Report (CAR) (c) Remedial Action Plan (RAP)	(a) submitted to the Director for approval (b) no later than two months after the completion of the Supplementary SI (c) submitted to the Director for approval (d) no later than one month after the completion of the	N/A (no remediation is required according to re-appraisal report)	N/A

EP Conditions	Submission(s)	Requirement	Submission Date	Approval Status
	(d) Remediation Report (RR)	remediation works for approval		
3.3	Baseline Monitoring Report	at least one month before commencement of construction of the Project.	3 Dec 2018	*
3.4	Monthly EM&A Report	within 10 working days after the end of each reporting month	Regular submitted within 10 working days after the end of each reporting month	*

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

3 AIR QUALITY MONITORING

Monitoring Requirements

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

Monitoring Location

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

Table 3.1 Location of Air Quality Monitoring Stations

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

Notes:

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

Monitoring Equipment

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

Table 3.2 Air Quality Monitoring Equipment

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

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

Remarks:

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

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

Monitoring Parameters and Frequencies

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

Table 3.3 Impact Air Quality Monitoring Parameters and Frequencies

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

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

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

HVS Installation

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

- A horizontal platform with appropriate support was provided to secure the samplers

- against gusty wind;
- No two samplers were placed less than 2 metres apart;
- The distance between the sampler and an obstacle, such as buildings, was at least twice the height that the obstacle protruded above the sampler;
- A minimum of 2 metres of separation from walls, parapets and penthouses was required for rooftop samples;
- A minimum of 2 metres separation from any supporting structure, measured horizontally was required;
- No furnaces or incineration flues were nearby;
- Airflow around the sampler was unrestricted;
- The samplers were more than 20 metres from the drip line;
- Any wire fence and gate, to protect the sampler, should not cause any obstruction during monitoring;
- Permission and access to the monitoring stations had been obtained to set up the samplers; and
- A secured supply of electricity was provided to operate the samplers.

Filters Preparation

- 3.8 Wellab Limited was the HOKLAS accredited laboratory (HOKLAS Registration No.083) and responsible for the preparation of 24-hr conditioned and pre-weighed filter papers for the monitoring team.
- 3.9 All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ± 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 $\pm 3^\circ\text{C}$; the RH should be $< 50\%$ and not vary by more than $\pm 5\%$. A convenient working RH is 40%. Weighing results were returned for further analysis of TSP concentrations collected by each filter.

Maintenance/Calibration

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

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

1-hour and 24-hour TSP Air Quality Monitoring

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

(AEROCET-831)

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

Maintenance/Calibration

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

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

Results and Observations

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

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

Monitoring Station	Concentration ($\mu\text{g}/\text{m}^3$)		Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
	Average	Range		
DMS – 1a	34.0	20.0 – 70.3	353	500
DMS – 2B	28.9	14.8 – 59.5	370	
DMS – 3	39.9	22.2 – 87.5	351	
DMS – 4A	31.8	15.9 – 57.6	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	29.4	20.9 – 40.8	184	260
DMS – 2B	22.3	16.1 – 31.1	166	
DMS – 3	18.9	14.1 – 30.9	166	
DMS – 4A	21.4	14.5 – 29.2	152	

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

Table 3.6 Observation at Air Quality Monitoring Stations

Monitoring Station	Major Dust Source
DMS-1a	Road traffic, exposed site area, site vehicle / equipment movement
DMS-2B	Road traffic, exposed site area, 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 (NMS-4A) as no work would be conducted near NSR MTL-20 due to exclusion of the original ECR.

Monitoring Equipment

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

Table 4.2 Noise Monitoring Equipment

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

Monitoring Parameters, Frequency and Duration

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

Table 4.3 Noise Monitoring Parameters, Duration and Frequency

Monitoring Stations	Parameter	Duration	Frequency
NMS-1 NMS-2 NMS-3 NMS-4A	L ₁₀ (30 min.) dB(A) L ₉₀ (30 min.) dB(A) L _{eq} (30 min.) dB(A) (as six consecutive L _{eq} , 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.

L₁₀ is the level exceeded for 10% of the time. For 10% of the time, the sound or noise has a sound pressure level above L₁₀.

L₉₀ 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 min.) dB(A)
(as six consecutive L_{eq}, 5min 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}, L₉₀ and L₁₀ 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	56.3	53.0 – 60.3	When one documented complaint is received.	75 dB(A)
NMS-2	70.2	67.7 – 72.2		
NMS-3	59.1	56.8 – 59.9		
NMS-4A	54.6	50.3 – 55.7		

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/Limit Level exceedance was recorded.
- 4.10 According to our field observations, the major noise source identified at the designated noise monitoring stations in the reporting month are as follows:

Table 4.5 Observation at Noise Monitoring Stations

Monitoring Station	Major Noise Source
NMS-1	Excavation works, loading and unloading works, site vehicle / equipment movement
NMS-2	Excavation works, loading and unloading works, 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
IS6	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0
Total	Action Level	0	0	0	0	0
	Limit Level	0	0	0	0	0

- 5.35 Water quality monitoring was conducted as scheduled in the reporting month except on 17th July 2023. Water quality monitoring on that day was cancelled due to Typhoon signal no. 8 was in force. No Action/Limit Level exceedance was recorded.
- 5.36 No water quality monitoring was conducted at IS6 in the reporting month since the channel was dry. Water quality monitoring station, IS6 will be further reviewed and a proposal for any alternative monitoring location including justification will be submitted for approval from IEC and EPD.

**IS6****Event and Action Plan**

- 5.35 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 21st July 2023. Sunrise time at 5:50 am and the survey started at 5:20 am and lasted for 2 hours. The weather was fine throughout the survey.

Monitoring Result

- 6.14 Total number of birds observed was 155. Six species were included in the record of the flight line survey, including Little Egret, Great Egret, Chinese Pond Heron, Black-crowned Night Heron, Grey Heron and Black Kite. **Table 6.1** shows the summary of the number of birds observed in this Survey.

Table 6.1 Number of Birds Observed

Species	Number of Birds	Height class 1	Height Class 2	Height Class 3
Little Egret 小白鷺	65	2	9	54
Great Egret 大白鷺	79	1	16	62
Chinese Pond Heron 池鷺	3	2	1	0
Black-crowned Night Heron 夜鷺	1	0	0	1
Grey Heron 蒼鷺	1	0	0	1
Black Kite 黑鳶	6	0	0	6
Total	155	5	26	124

- 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 1,521. **Table 6.2** shows the number of bird-flights for the six species respectively.
- 6.16 The distribution of flight line usage in this survey is shown in **Figure 6**.
- 6.17 Flight lines recorded were in general concentrated mainly on LMC Meander and adjacent areas including Ecological Area Zone (EA Zone) and along Shenzhen River. It demonstrates that the large waterbirds prefer using the flight line corridor above the LMC Meander as well as the unaffected Shenzhen River instead of the centre of LMC Loop.

Table 6.2 Number of Bird-flights

Species	Total number of Bird-Flights
Little Egret 小白鷺	618
Great Egret 大白鷺	801
Chinese Pond Heron 池鷺	20
Black-crowned Night Heron 夜鷺	9
Grey Heron 蒼鷺	9
Black Kite 黑鳶	64
Total	1,521

Monitoring Requirements (Mammals)Monitoring Requirements

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

Monitoring Location

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

Monitoring Methodology

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

Monitoring Results

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

Western Connection Road**Monitoring Requirements (Avifauna Monitoring – Flight Line Survey)**

- 6.24 Refer to Sections 6.1 to 6.17.

Monitoring Requirements (Avifauna Monitoring – Pond 12)

Monitoring Requirements

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

Monitoring Frequency

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

Monitoring Location

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

Monitoring Methodology

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

Monitoring Result

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

Dates of pond 12 avifauna survey: 6th, 10th, 18th, 24th and 31st July 2023

- 6.32 In total, 238 individuals from 25 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
6 th July 2023	7	16	23	49
10 th July 2023	4	13	11	27
18 th July 2023	7	14	10	36
24 th July 2023	8	14	21	37
31 st July 2023	3	12	7	17

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

Herpetofauna

Monitoring Requirements

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

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

Monitoring Frequency

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

Monitoring Location

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

Monitoring Methodology

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

Monitoring Result

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

Date of Herpetofauna survey: 21st July 2023 (both day-time and night-time survey)

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

Aquatic Fauna

Monitoring Requirements

6.42 Under Section 11.4.2.3 of EM&A Manual, surveys of the population of Rose Bitterling at streams and associated ponds south of Lung Hau Road and monitoring of water quality are required to identify potential impacts.

6.43 The purpose of the survey was to ensure the population of Rose Bitterling at the stream and associated ponds south of Lung Hau Road as well as the water quality at the area where Rose Bitterling is present are not affected by construction works.

Monitoring Frequency

6.44 Monitoring of Rose Bitterling population was conducted monthly during the construction period of WCR to identify potential impacts.

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

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

Monitoring Location

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

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

Monitoring Methodology

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

Monitoring Result

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

Date of Aquatic Fauna Survey: 6th July 2023

LMC Meander

3rd, 5th, 7th, 10th, 12th, 14th, 19th, 21st, 24th,
26th, 28th and 31st July 2023

Date of Water Quality Monitoring for
Aquatic Fauna

Stream and associated ponds south of
Lung Hau Road

6th, 12th, 21st and 26th July 2023

- 6.53 No potential impact due to the runoff from the construction activities of the Western Connection Road was identified during the survey of Aquatic Fauna in the reporting month. In addition, no deterioration in the water quality due to the construction activities of the Western Connection Road was observed.
- 6.54 The detailed aquatic fauna (Rose Bitterling) results and *In situ* water quality monitoring results at the stream and associated ponds south of Lung Hau Road are shown in **Appendices R3** and **R4** respectively.
- 6.55 *In situ* water quality monitoring results in LMC Meander at 3 monitoring stations, including CS1, IS1 and IS2 are presented in Section 5 and **Appendix H**. No Action/Limit level exceedance was recorded in the reporting month.

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)	1.393	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)	0.603	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)	0.961	N/A
Contract No. YL/2020/01	Non-inert	Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0.287	N/A
		Recycled Plastic ('000kg)	0	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m ³)	0.058	NENT Landfill
Contract No. YL/2020/02		Recycled Metal ('000kg)	0	N/A
		Recycled Paper / Cardboard Packing ('000kg)	0	N/A
		Recycled Plastic ('000kg)	0.001	N/A
		Chemical Wastes ('000kg)	0	N/A
		General Refuses ('000m ³)	0.213	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)	0.003	NENT Landfill	

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

9 ENVIRONMENTAL SITE INSPECTION

Site Audits

- 9.1 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures on the Project site. The summaries of site audits are attached in **Appendix L**.
- 9.2 Site audits were conducted by ET with the representative of the Consultants, the Contractor and IEC on 3rd, 5th, 10th, 12th, 19th, 24th, 26th and 31st July 2023 in the reporting month. Summary of site audits under the Project are presented in **Table 9.1**. The details of observations during site audit are shown in **Table 9.2**.

Table 9.1 Summary of Site Audits

Contract(s)	Date(s) of Site Environmental Audit
Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1	5 th , 12 th , 19 th and 26 th July 2023
Contract No.: YL/2020/02 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling / San Tin Highway and Direct Road Link Phase 1	5 th , 12 th , 19 th and 26 th July 2023
Contract No.: YL/2021/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	3 rd , 10 th , 19 th , 24 th and 31 st July 2023

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

Table 9.2 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Contract No. YL/2020/01			
<i>Air Quality and Water Quality</i>	5/07/2023	Dust suppression measures and water quality mitigation measures should be provided for the dusty materials stockpiling site at Zone 4.	Exposed stockpiles of dusty materials have been covered with tarpaulin sheet and concrete bund was observed surround the stockpiles of dusty materials during follow-up audit session on 12/07/2023.
	26/07/2023	The exposed slopes and stockpile of soil along WCR should be properly covered with tarpaulin sheet.	The exposed slopes have been covered properly with tarpaulin sheet and stockpile of soil has been removed by the Contractor as observed during follow-up audit session on 2/08/2023.
<i>Air Quality</i>	12/07/2023	The idle stockpiling site at near Pai Lau should be covered with tarpaulin sheet to avoid dust emission.	The idle stockpiling site has been covered with tarpaulin sheet by the Contractor as observed during follow-up audit session on

Parameters	Date	Observations and Recommendations	Follow-up
			19/07/2023.
<i>Noise</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Water Quality</i>	19/07/2023	The sand bag bund or similar measures should be provided along the earthworks to avoid muddy surface runoff discharge (Pond 12).	The sand bag bund has been deployed along the earthworks by the Contractor as observed during follow-up audit session on 26/07/2023.
	19/07/2023	The silt curtain for meander bridge should be properly deployed without gap.	The silt curtain has been properly maintained to ensure no gap by the Contractor as observed during follow-up audit session on 26/07/2023.
<i>Waste / Chemical Management</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Land Contamination</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Landscape and Visual</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Ecology</i>	5/07/2023	Provide maintenance to the green fence at Pond 12 and meander bridge works area.	Regular maintenance has been provided for the erection of green fences by the Contractor during follow-up audit session on 12/07/2023.
	19/07/2023	The green fence next to Pond 12 should be properly erected.	The green fence has been properly erected by the Contractor during follow-up audit session on 26/07/2023
<i>Ecology and Water Quality</i>	19/07/2023	The exposed slope at near Pond 12 should be properly covered.	The exposed slope at near Pond 12 has been covered properly with tarpaulin sheet by the Contractor during follow-up audit session on 02/08/2023.
<i>Fisheries</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Permits/Licences</i>	--	No major environmental deficiency was identified during the reporting month.	--
Contract No. YL/2020/02			
<i>Air Quality</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Noise</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Water Quality</i>	12/07/2023	The water hose should be fixed at LCS to avoid water leakage.	The damage water hose has been fixed by the Contractor as observed during follow-up audit session on 19/07/2023.
	19/07/2023	The sand bag bund or similar measures should be provided along the earthworks at Fu Tai Site Area.	Sand bag bund has been set up along the earthworks by the Contractor as observed during follow-up audit session on 26/07/2023.
	26/07/2023	A bund should be provided along the	Sand bag bund has been provided

Parameters	Date	Observations and Recommendations	Follow-up
		wheel washing area at Fu Tai site to avoid the water from wheel wash directly discharging to the nearby nullah.	along the wheel washing area at Fu Tai site by the Contractor as observed during follow-up audit session on 2/08/2023.
	26/07/2023	Wastewater treatment facilities should be provided at RW9 as soon as possible according to the approved effluent discharge license.	Follow up action is needed for this item in the following audit sessions of the next reporting period.
Waste / Chemical Management	19/07/2023	Drip tray should be provided for the generator at Reedbed 3A.	The generator without drip tray has been removed off site as observed during follow-up audit session on 26/07/2023.
Land Contamination	--	No major environmental deficiency was identified during the reporting month.	--
Landscape and Visual	5/07/2023	To set up tree protection zone for retained trees. (Fu Tai).	The tree protection zone has been set up for the retained trees by the Contractor as observed during follow-up audit session on 12/07/2023.
	19/07/2023	Tree protection works should be provided for the retained trees at Fu Tai Site Area	The water barriers as protective fences have been properly erected to protect the retained trees by the Contractor as observed during follow-up audit session on 26/07/2023.
Ecology	--	No major environmental deficiency was identified during the reporting month.	--
Fisheries	--	No major environmental deficiency was identified during the reporting month.	--
Permits/Licences	--	No major environmental deficiency was identified during the reporting month.	--
Contract No. YL/2021/01			
Air Quality	--	No major environmental deficiency was identified during the reporting month.	--
Air Quality and Water Quality	10/07/2023	The worn sand bags should be cleared and the site exit should be paved at EEAA.	According to C3 Contractor, the sand bag bund is belonged to C2 Contractor. This item has been referred to C2 Contractor by C3 Contractor and all worn sand bags have been replaced as observed during follow-up audit session on 24/07/2023.
	19/07/2023	The worn sand bags should be cleared and the site exit should be paved at EEAA.	According to C3 Contractor, the sand bag bund is belonged to C2 Contractor. This item has been referred to C2 Contractor by C3 Contractor and all worn sand bags have been replaced as observed during follow-up audit session on 24/07/2023.
Noise	10/07/2023	The worn noise barrier to enclose the breaker at EEAA should be replaced.	The worn noise barrier has been replaced by the Contractor as observed during follow-up audit session on 19/07/2023.

Parameters	Date	Observations and Recommendations	Follow-up
<i>Water Quality</i>	3/07/2023	The exposed site area should be properly protected at near the MTR drainage at EEAA.	The exposed site area was covered with tarpaulin sheet and sand bag bund was provided around the works by the Contractor as observed during follow-up audit session on 10/07/2023.
	31/07/2023	To provide maintenance to the leaking plastic hoses to prevent runoff going through site surface, and enhance water mitigation measures to the surrounding site boundary.	The concerned plastic hose have been removed from the site by the Contractor as observed during follow-up audit session on 7/08/2023
<i>Waste / Chemical Management</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Land Contamination</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Landscape and Visual</i>	31/07/2023	To remove any water barriers leaning onto protected trees in the tree protection zone.	Water barriers have been moved away from protected trees in the tree protection zone as observed during follow-up audit session on 7/08/2023.
<i>Ecology</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Fisheries</i>	--	No major environmental deficiency was identified during the reporting month.	--
<i>Permits/Licences</i>	--	No major environmental deficiency was identified during the reporting month.	--

10 IMPEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

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

Table 10.1 Compliance Status of Related Environmental Mitigation Measures

EP Requirements	Compliance Status	Remarks
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, including re-vegetation upon completion of the works and various ecological designs, such as practicability of	Yes	The EA design has implemented these measures.

EP Requirements	Compliance Status	Remarks
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	Refer to Section 10.11 to 10.14.
(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 programme, maintenance and management schedules, and drawings in the scale of 1:1,000 or other appropriate	Yes	<u>Development of Lok Ma Chau Loop: Land Decontamination and Advance Engineering Works</u> The HCMP has been submitted and approved under the EP condition 2.7.

EP Requirements	Compliance Status	Remarks
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.		<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.
<u>Submissions or Measures to be implemented for Construction of the Project</u>		
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 (Figures 2a and 2b of EP-477/2013/A). (Appendix N) The TNBs installation under Contract 2 were completed in August 2022 (Figures 3a and 3b of EP-477/2013/A). (Appendix N) 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	-
EP Condition 2.10 To Mitigate Construction Stage Fisheries Impact		
For some fish ponds which will be partly affected by construction works, to mitigate construction stage fisheries impacts, a layer of sheet pile/barrier wall shall be erected to separate the works area from the remaining areas of the affected fish ponds before the commencement of other construction works, e.g. excavation or filling within the works area. The sheet pile/barrier wall shall be constructed by non-percussive piling method (e.g. Press-in method) to reduce the fisheries impact. In addition, the sheet pile/barrier wall shall have impermeable lining to minimise water loss from the fish pond to the works area.	Not applicable	Based on the ground truthing during the weekly site inspections / site visits prior to the commencement of the works at all Ponds, no fisheries impacts were anticipated due to the following observation: <ul style="list-style-type: none"> No aquaculture activities include drying of ponds, reprofiling, harvesting and feeding; No evidence of recently used pond culture equipment;

EP Requirements	Compliance Status	Remarks
		<ul style="list-style-type: none"> • No presence of fish-rearing paraphernalia and • No evidence of trimming of vegetation growing on pond bund. <p>As such, the erection of sheet pile/barrier wall to mitigate construction stage fisheries impacts as stated in Condition 2.10 of the EP would not be applicable.</p> <p>The photographic records of Ponds in May 23 are shown in Appendix S.</p>
EP Condition 2.12 To Mitigate Construction Stage Water Quality Impact		
To reduce sediment transport arising from the stabilisation works at the bank of the old Shenzhen River meander of the LMC Loop, cofferdam/diaphragm wall and/or silt curtain system shall be deployed to surround the works area, from water surface down to the bottom of the meander, in order to minimise the sediment loss to the water body outside the works areas.	Yes	Silt curtain system was deployed to surround the works area under YL/2020/01.
EP Condition 2.14 To Minimise the Disturbance to the Reedbed System of MTR LMC Spurline		
For the construction of the Direct Link, the existing reeds in the reedbed system of the MTR LMC Spurline shall not be removed by the construction works of the Project, except for the 2 areas with a total area of approximately 320 m ² in size within the Reedbed No. 3 as shown in Figure 5 of this Permit. Upon the completion of works at the reedbed system, the affected reedbed system shall be reinstated.	Yes	These measures have been implemented under YL/2020/02.

Remark: N/A – Not fulfilled yet

Ecological Mitigation Measures – Offsite Wetland Compensation Areas (OWCAs)

10.3 According to the EIA Report, habitat loss and disturbance impacts are predicted for both construction and operation phase of the development of Lok Ma Chau Loop. All these impacts are expected to be compensated both temporarily (during construction phase) and permanently (during operation phase). Among other measures identified from EIA report to avoid, minimize and compensate for identified impacts, three areas of existing fishpond habitat (Areas 2, 7 and 9) were proposed in the EIA Report to provide OWCAs.

10.4 These Areas are located within a Priority Site for Enhanced Conservation, namely "Deep Bay wetlands outside the Ramsar site". Many of these fishponds are currently participating in the Nature Conservation Management Agreement Scheme in the Northwest New Territories, which has the objective of restoring and enhancing the conservation value of commercial fishponds in the area. In general, the activities involved in the establishment of OWCAs are in nature the same as those associated with commercial fishpond management currently taking place in the area. Therefore, there are no direct implications for the ecological impacts at OWCAs according to Section 12.7.9 of EIA report.

10.5 Under Environmental Permit (EP) number EP-477/2013/A, an Ecological Mitigation/

Habitat Creation and Management Plan (HCMP) is required for all habitat compensation measures required by the Project EIA. The OWCAs are established according to the HCMP which provides a framework and specifications for development and management of the OWCAs.

- 10.6 The OWCAs (Areas 2, 7 and 9) has been substantial completed and the starting date of establishment period is confirmed by AFCD on 14th October 2022.
- 10.7 According to Section 6.1.2 of approved HCMP, the monitoring of the OWCAs have been commenced for the establishment period starting from 14th October 2022. The Environmental Team would undertake the monitoring role through relevant EIAO Documents, audit mechanisms, participation at meetings, as well as certification of results and reports according to EM&A Manual, Section 11.5. The Monthly Monitoring and Management Report for OWCAs would be submitted by the Ecologist under YL/2020/01 separately.

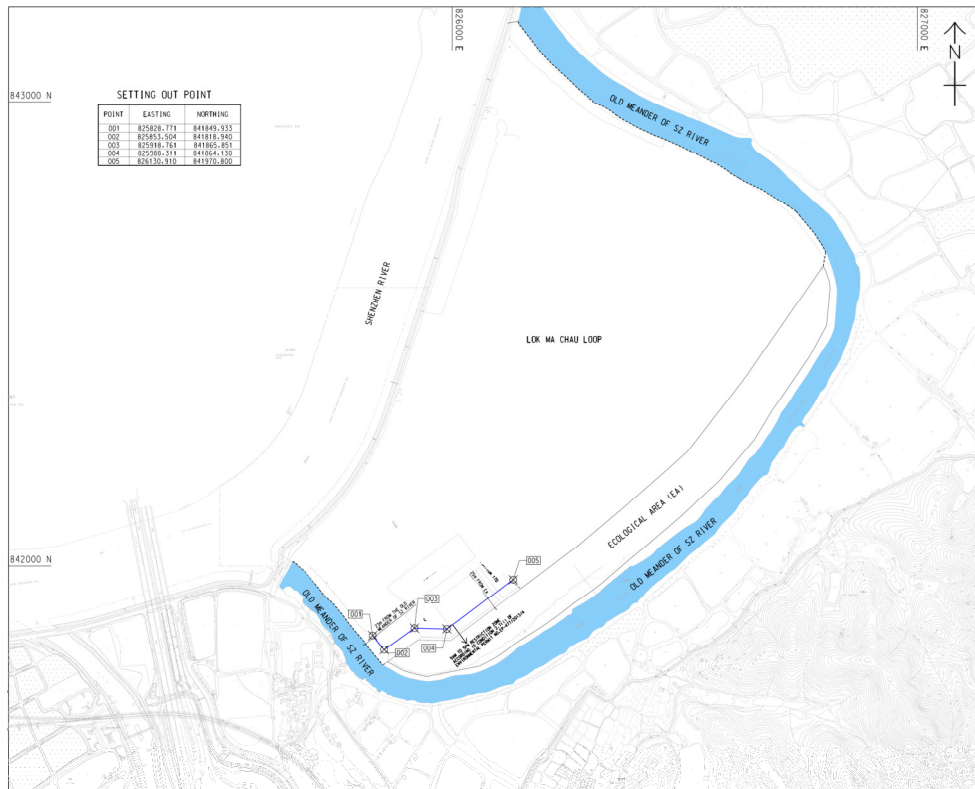
Ecological Mitigation Measures – Installation of 3m-high Olive Green Fence

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





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



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

Ecological Mitigation Measures – Environmental Permit No. EP-477/2013/A Condition 2.7 (i)Mitigation for Impacts Arising from the Western Connection Road (Ha Wan Tsuen East Road)

- 10.11 The specific Environmental Permit No. EP-477/2013/A condition 2.7 (i) refers, using powered mechanical equipment for construction works only during the period 9am to 5pm at or near the identified important ecologically sensitive areas. However, the work sites along Ha Wan Tsuen East Road are considered not the important ecologically sensitive areas as some ponds have already been drained in the construction phase of the WCR in which the permanent and temporary habitat loss area have already been compensated in the Off-site Wetland Mitigation areas (OWCAs). Therefore, the EP-477/2013/A condition 2.7 (i) do not apply to the construction work of WCR at Ha Wan Tsuen East Road.
- 10.12 Nonetheless, the restriction of operating between 9 am and 5 pm was recommended as a mitigation measure in the EIA report to minimize potential disturbance to flight line corridor and mammals (in particularly the Eurasian Otter) during their peak activity period. The Ecologist conducted reviews and identification based on the results from the recent ecological monitoring, leading to the following findings:

Flight Line Corridor

- Several sections of the EIA Report have stated that “the use of the flight line is greatest in the early morning” (e.g., S.12.7.7.2); which is equivalent to the recommended timing of the flight line monitoring undertaken by the EM&A Program of the LMC Loop project, i.e., “two hours from 30 minutes before sunrise”. According to HKO, the sunrise from 1st of August to the end of October is from 05:55 to 06:27, as such the peak activity period of the flight line corridor between these three months would be 07:25 to 07:57, or before 08:00.
- A review of the flight line corridor in the wet season of 2023 noted that the flight lines were concentrated primarily around Pond 11 and Pond 12 in the southern part of the Ha Wan Tsuen East Road, and same pattern has also been noted during an *ad hoc* flight line survey conducted within the first two hours of construction works at Ha Wan Tsuen East Road (from 0900 to 1100) on 8/8/2023, where more than 50% of the flight lines during that period were passed through the area south of Pond 11, and approximately 38% of the recorded flight lines during the same period were over the area where construction activities were taking place. These findings suggest that, during the wet season, on-going construction activities along Ha Wan Tsuen East Road may not have any significant impact to the use of the flight line corridor by waterbird.

Eurasian Otter

- The EIA predicted that the disturbance caused by human activity and increased lighting may impede the Eurasian Otter's use of the LMC Meander as foraging area and potential movement corridor. However, Eurasian Otters have not been observed or recorded in the LMC Loop area or the LMC meander since the mammal monitoring commenced at the advanced work stage of the Project.
- Construction of the Off-site Wetland Compensation Areas (OWCAs) and the Ecological Area (EA) within the LMC Loop has already completed since Oct 2022 and 2021 to mitigate the potential indirect and indirect construction disturbance of the LMC Loop Project (including the WCR); in which specific habitat features to promote their user by Eurasian Otter has been constructed, including a range of wetland habitats, otter holts, floating platforms, and rock platforms. When compared to the existing conditions along Ha Wan

Tsuen East Road where the general area have been substantially disturbed by the construction works, the naturalness, habitats and ecological niches available in the OWCA and EA Zone offer significantly higher ecological potential and ecological value as habitat for mammal including the Eurasian Otter.

Conclusion

- 10.13 Based on the above discussions, it is considered that the extension of the restricted working hours from 9am to 5pm to 8am to 10pm would not have any significant impact to the use of the flight line corridor by waterbirds in the wet season (i.e., March to October) as the peak activities of flight movements would be ended before 8 am; and it is unlikely that the area in the vicinity of Ha Wan Tsuen East Road would offer any valuable ecological functions to important mammal species (including the Eurasian Otter) given it's current disturbed/fragmented state and the habitation nearby, especially two ecological mitigation areas with much higher ecological potential and value to this concerned species has already established under the Project.
- 10.14 Other ecological mitigation measures as stipulated in EP-477/2013/A condition 2.7 where applicable would be properly implemented for the construction works along Ha Wan Tsuen East Road. The following good site practice and measures will also be adopted by the Contractor:

Noise control measures:

- Avoid noisy construction activities such as breaking of rock etc. before 9 am or after sunset.
- Install a noise/visual curtain around noisy stationary machinery within the work site.
- Deploy "silencers" or "mufflers" on construction equipment, whenever practicable.
- Shut down intermittent-use machines and plant between work periods or minimize their throttle settings.
- Position and direct noise-emitting plant away from the ponds near the work site during the extended working hours, whenever practicable.

Light control measures:

- Ensure that all light sources within or along the work site boundary are not directed towards the nearby pond.
- Avoid excessive lighting within the construction site and keep the intensity and duration of lighting to a necessary minimum.
- Minimize light spill by avoiding bare bulbs or upward-pointing lights. Outdoor lighting fixtures should be shielded to emit little or no light above the horizontal plane, with less than 10% of the light emitted within ten degrees below the horizontal plane.

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 monitoring, construction noise and water quality.

Summary of Environmental Complaint

- 11.3 No environmental complaint was received in the reporting month. The statistical summary table of the environmental complaints is presented in **Table 11.1** and the details and status of the investigation are presented in Complaint Log as attached in **Appendix P**.

Table 11.1 Statistical Summary of Environmental Complaints

Reporting Period	Environmental Complaint Statistics		
	Frequency	Cumulative	Project related complaint
Jan 2019 – Jun 2023	21	21	1
Ju1 2023	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 **Tables 11.2** and **11.3** respectively. Summary of successful prosecution as attached in **Appendix Q**.

Table 11.2 Statistical Summary of Environmental Summons

Reporting Period	Environmental Summons Statistics		
	Frequency	Cumulative	Project related summon
Jan 2019 – Jun 2023	0	0	0
Jul 2023	0		0

Table 11.3 Statistical Summary of Environmental Prosecution

Reporting Period	Environmental Prosecution Statistics		
	Frequency	Cumulative	Project related Prosecution
Jan 2019 – Jun 2023	0	0	0
Jul 2023	0		0

12 FUTURE KEY ISSUES

Key Issues in the Coming Months

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

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

- (a) Wetland Compensation Establishment Works and Ecological Monitoring.
- (b) Additional Ground Investigation.
- (c) Deep Cement Mixing Work for Western Connection Road.
- (d) Structure Construction for Box Culverts and Retaining wall at WCR.
- (e) Drainage Works and Roadworks.
- (f) Woodland Compensation Works.
- (g) Form the Piling Platform for the South Pier Cap of the Meander Bridge.

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

Section 1

- (a) Tree Felling and Site Clearance along RW8 area and immediate vicinity. Forming of temporary carriageway to divert traffic.
- (b) Subway modification for Bay 12 to Bay 14.
- (c) Excavation and lateral support for RW9 Bay 1 to Bay 4.
- (d) Construction of retaining wall RW9. Backfill works after construction of RW9 Bay 5 to Bay 16.
- (e) Commencement of construction of retaining wall RW8.
- (f) Excavation and Lateral Support for RW10.

Section 2A

- (g) Complete all RC block removal works at BPW1.
- (h) Complete all slopes trimming works at CS1 and CS2. Soil nailing works at CS2.
- (i) Site Clearance at LMC Road Zone 3, Zone 4, Zone 5 and Zone 6
- (j) Liaison with utility companies for utility diversion
- (k) RW6 ELS works and construction of concrete structure.
- (l) PW6A pipe piling works
- (m) RW – CTW ELS works and construction of concrete structure.
- (n) DN700 watermain laying works.

-
- (o) Noise Barrier NB16 ELS works and construction of concrete structure (Bay 1, Bays 4-6)
 - (p) UU works along Lok Ma Chau Road Carriageway.

Section 2B

- (q) EIBC foundation work – total 8 nos. of bored piles.
- (r) Manual survey and vibration monitoring in MTR Tunnel.

Section 2C

- (s) Bored pile for Bridge ST01 and CTFB (ST01-P05, FBP01 and 02).
- (t) Construction of Pier at ST01-P02, P03 & P04.
- (u) Construction of FBA-02 and FBP-01 Pile caps.
- (v) Construction of Pile Cap and Pier at ST01-P06.

Section 3

- (w) Bored pile for Bridge DRL-P02 and P11.
- (x) Construction of Pile Cap at DRL-P02 to P05 and Piers at DRL-P12 & P13.
- (y) Construction of temporary working platform for DRL-P06, P07 and P08 in Eash Nullah.

Section 5

- (z) Pai Lau Finishing Works.

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

- (a) LMC Station Structural Steel Fabrication.
- (b) LMC Station Structural Openings for E&M Diversion.
- (c) ELS Works and foundation RC construction at Elevated PTI.
- (d) UU Diversion for Watermain (MTR) and Drainage Diversion at Elevated PTI.
- (e) Bored Piling Works at Double-deck Footbridge.

- 12.2 The Contractor is recommended to arrange and maintain the water quality mitigation measures according to the construction site drainage plan during wet season (i.e., March to October). The dikes or embankments for flood protection should be implemented around the boundaries of earthwork areas. Temporary ditches should be provided to facilitate the runoff discharge into an appropriate watercourse, through a site/sediment trap. The sediment/silt traps should be incorporated in the permanent drainage channels to enhance deposition rates. Efficient silt removal facilities shall deploy to ensure all treated effluent from wastewater treatment plant shall meet the requirements as stated in WPCO licences and drainage facilities shall be not be clogged with sediment to avoid overflow during rainy season. The site drainage plan shall also be updated based on the site condition and construction programme.
- 12.3 Dust can be generated during construction works and exposed site area. To prevent high dust concentrations, the Contractor should pay attention on the air quality mitigation measures as far as practicable to minimise the dust impact to the villages which are located adjacent to the Project works. The Contractor was also reminded to follow the Project Implementation Schedule in the approved EIA report / EM&A Manual to implement appropriate dust control measures including “watering in all works areas once per hour during working hours to control fugitive dust impact, particularly during dry weather and covering any excavated or stockpile of dusty material by impervious sheets and spraying all dusty material with water immediately prior to any loading transfer operations to keep the dusty materials wet during material handling at the stockpile areas” as well as the relevant dust control practices as stipulated in the Air Pollution Control (Construction Dust) Regulation such that no adverse dust impact would arise from the Project works.
- 12.4 Ecology is also one of the key environmental issues during construction of the Project. Noise pollution has a negative impact on wildlife species by reducing habitat quality. Therefore, noise mitigation measures such as using quiet plants and noise barriers should be in place, where applicable. The Contractor should properly maintain the temporary noise barriers by frequently checking and maintaining the acoustic materials wrapped on noisy part of PME and ensure no gaps between noise barriers; proactively identify any potential construction noise impact to NSRs and provide sufficient mitigation measures if necessary. Moreover, the fencing used for the site boundary and as a visual barrier during the construction phase shall also be properly maintained at 3m high and of a dull or olive green colour, in order to minimise visual impact as this fencing is to shroud the most visible human activity (movement of persons and vehicles) from adjacent wetland areas. All ecological mitigation measures recommended in the Project Implementation Schedule in EP / approved EIA report / EM&A Manual should be properly implemented and maintained as far as practicable.

Monitoring Schedule for the Next Month

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

Construction Programme for the Next Month

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

13 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

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

Air Quality

1-hour TSP Monitoring

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

24-hour TSP Monitoring

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

Construction Noise

- 13.4 All construction noise monitoring was conducted as scheduled in the reporting month. No Action/Limit Level exceedance was recorded.

Water Quality

- 13.5 Water quality monitoring was conducted as scheduled in the reporting month except on 17th July 2023. Water quality monitoring on that day was cancelled as Typhoon signal no. 8 was in force. No Action/Limit Level exceedance was recorded.

Ecological Monitoring

LMC Loop

Avifauna (Flight Line Survey)

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

Mammals

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

Western Connection Road*Avifauna (Flight Line Survey)*

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

Avifauna (Pond 12)

- 13.10 Avifauna survey at Pond 12 was conducted as scheduled in the reporting month except the survey on 17th July 2023 was rescheduled to 18th July 2023 due to Typhoon signal no. 8. Weekly count of birds using the Pond was recorded. No significant impact of construction activities on bird use of the pond was observed.

Herpetofauna

- 13.11 Herpetofauna survey was rescheduled from 17th July 2023 to 21st July 2023 as Typhoon signal no. 8 was in force on 17th July 2023. It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population. However, no significant impact of construction activities on this species was observed.

Aquatic fauna

- 13.12 Aquatic fauna survey was conducted as scheduled in the reporting month except on 17th July 2023. The water quality monitoring for Aquatic fauna on 17th July 2023 was rescheduled to 21st July 2023 as Typhoon signal no. 8 was in force on 17th July 2023. 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 3rd, 5th, 10th, 12th, 19th, 24th, 26th and 31st July 2023 by ET in the reporting month.

Environmental Complaints, Summons and Prosecutions

- 13.16 No environmental complaint was received in the reporting month.

- 13.17 No notification of summons or successful prosecution was received in the reporting month.
- 13.18 The ET would keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Recommendations

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

Air Quality Impact

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

Noise Impact

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

Water Impact

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

Ecology Impact

- To maintain properly the 3m high olive-green fence around the construction site and along the works of meander bridge;
- To provide and maintain visual barrier along Ha Wan Tsuen Road;
- To ensure the powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any; and
- To prevent any surface runoff discharge into the stream and clear up any construction materials at the streams.

Waste/Chemical Management

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

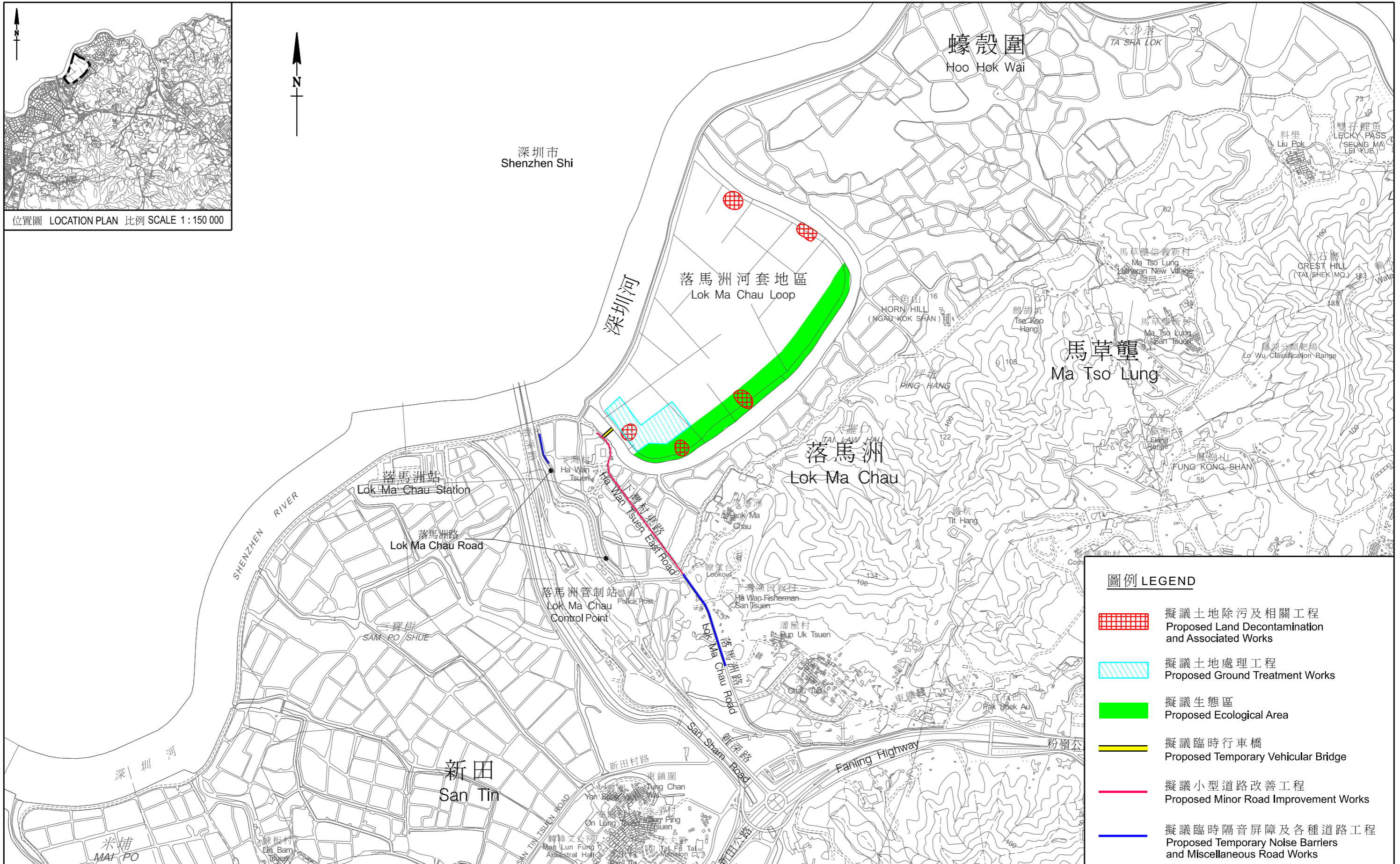
Landscape and Visual

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

Permits/Licences

- To display the Environmental Permit conspicuously on site.

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

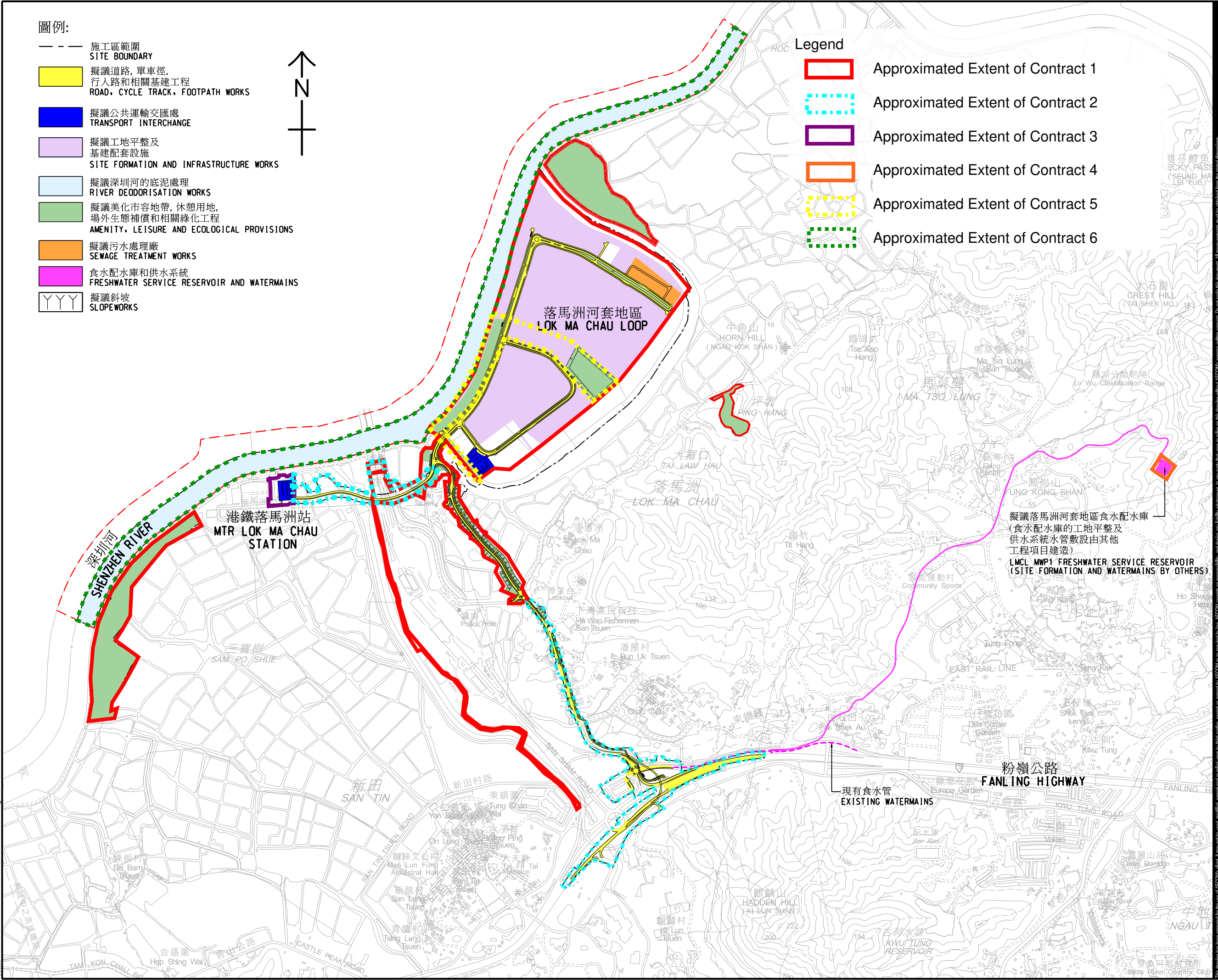
ISO A1 594mm x 841mm
 Approved:
 Checked:
 Designer:
 Project Management Initials:
 5/12/2020
 PATH PROJECTS\60588085\DRAWING\SKETCH\SK0099.dgn
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- 圖例:**
- 施工區範圍
SITE BOUNDARY
 - 擬議道路, 單車徑, 行人路和相關基建工程
ROAD, CYCLE TRACK, FOOTPATH WORKS
 - 擬議公共運輸交匯處
TRANSPORT INTERCHANGE
 - 擬議工地平整及基建配套設施
SITE FORMATION AND INFRASTRUCTURE WORKS
 - 擬議深圳河的底泥處理
RIVER DEODORISATION WORKS
 - 擬議美化市容地帶, 休憩用地, 場外生態補償和相關綠化工程
AMENITY, LEISURE AND ECOLOGICAL PROVISIONS
 - 擬議污水處理廠
SEWAGE TREATMENT WORKS
 - 食水配水庫和供水系統
FRESHWATER SERVICE RESERVOIR AND WATERMAINS
 - 擬議斜坡
SLOPEWORKS



Legend

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



AECOM

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

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

CONSULTANT
 AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS
 分列工程顧問公司

ISSUE/REVISION

I/R	DATE	DESCRIPTION	CHK.

STATUS

SCALE **DIMENSION UNIT**
 1:8000 METRES

KEY PLAN

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

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

SHEET NUMBER
 60588085/SK0099



LEGEND:

 Air Quality Monitoring Station



Location of Wind Data Monitoring

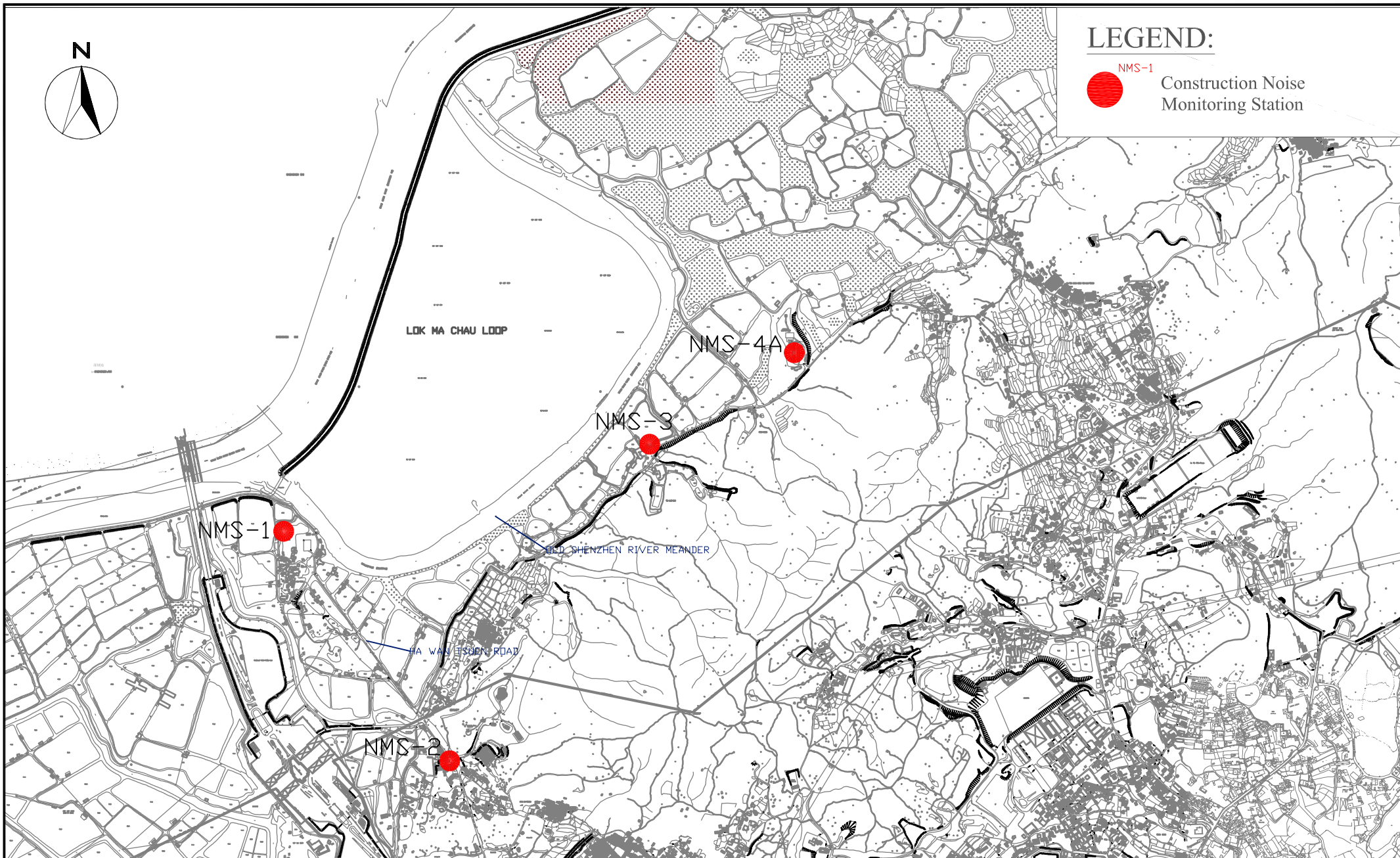


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JOB No.	WMA21009	FIGURE NO.	Fig 2
		REV	-

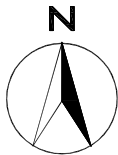


LEGEND:

NMS-1
 Construction Noise Monitoring Station

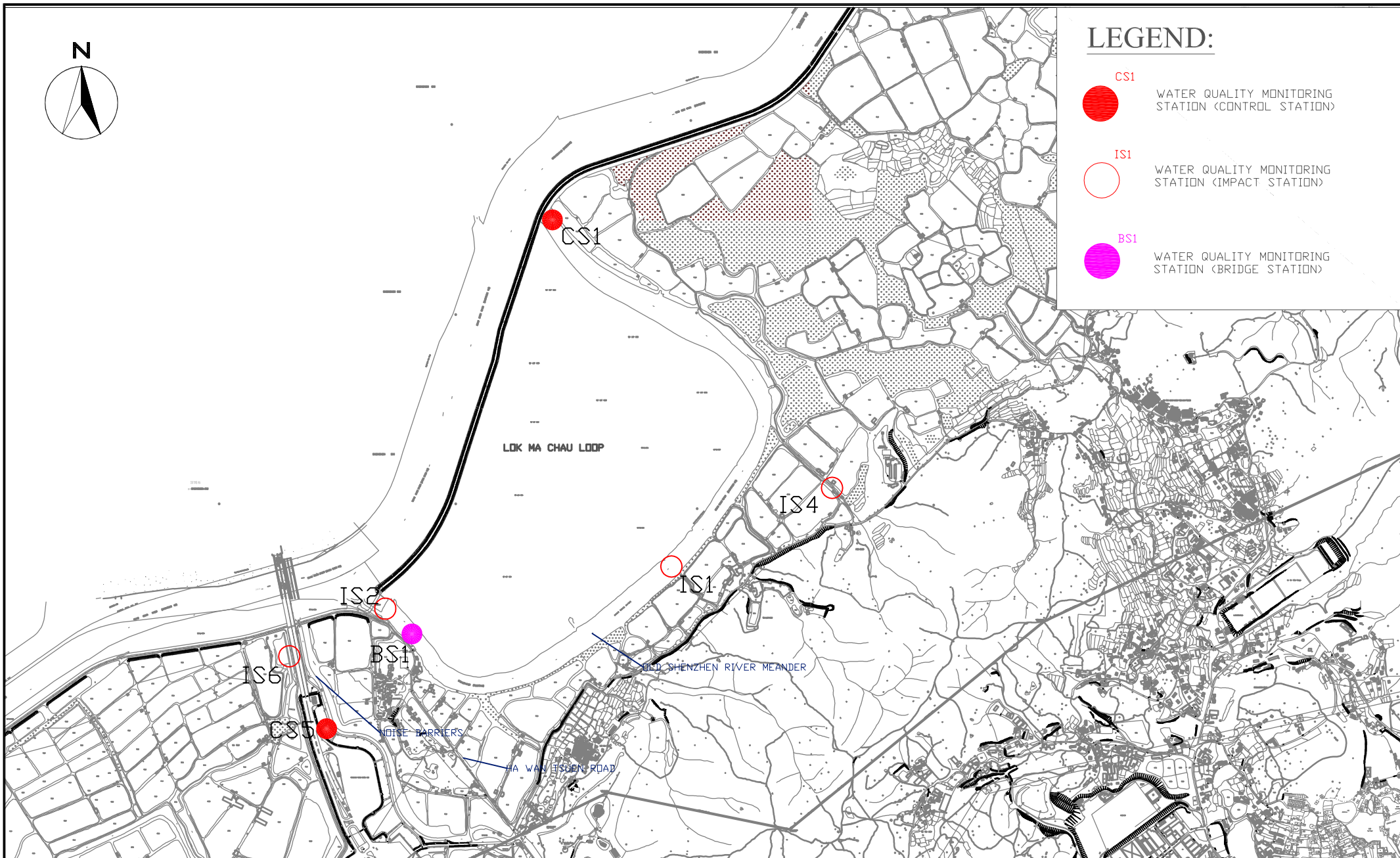


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		REV	-

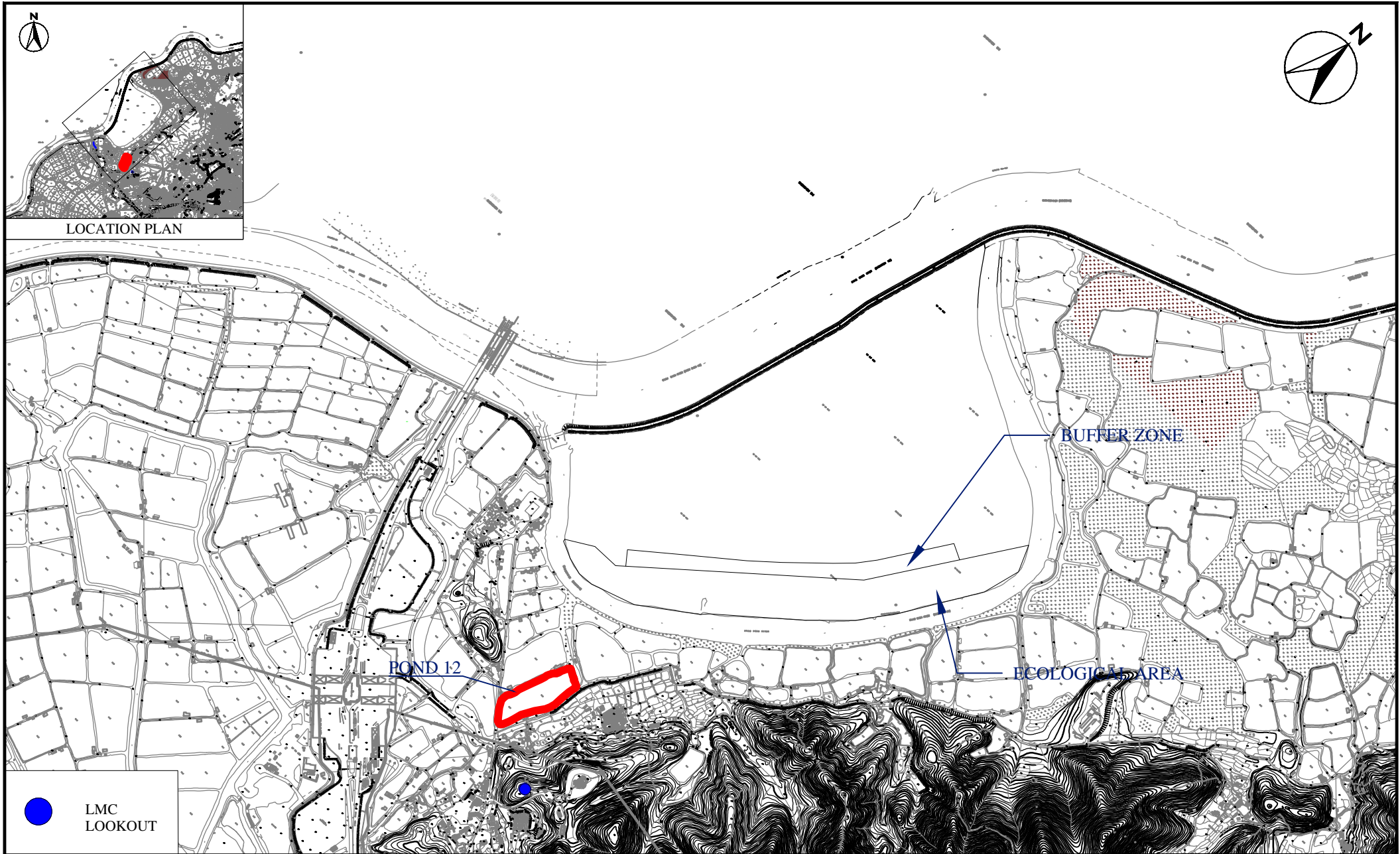


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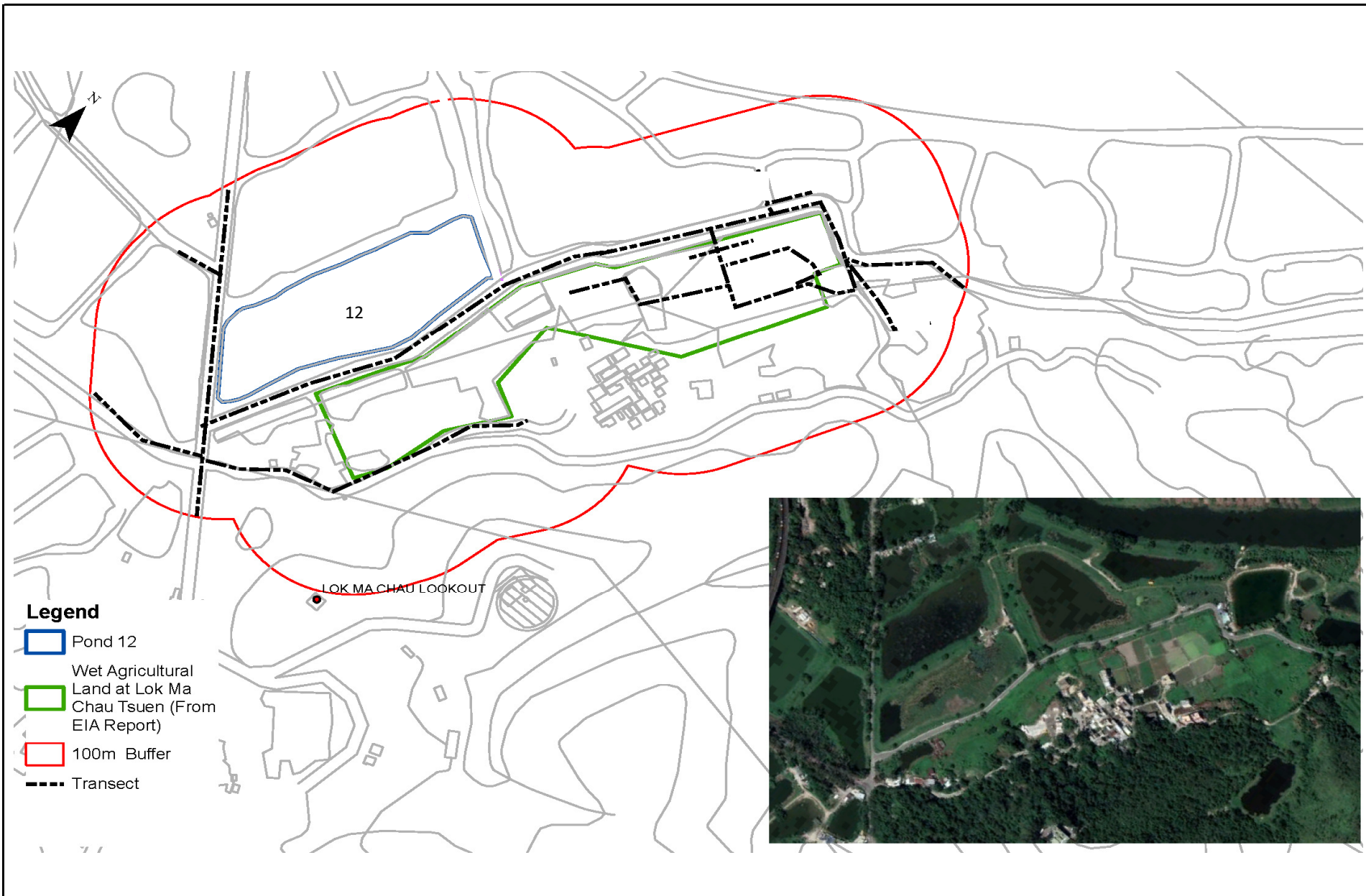
- CS1 WATER QUALITY MONITORING STATION (CONTROL STATION)
- IS1 WATER QUALITY MONITORING STATION (IMPACT STATION)
- BS1 WATER QUALITY MONITORING STATION (BRIDGE STATION)



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

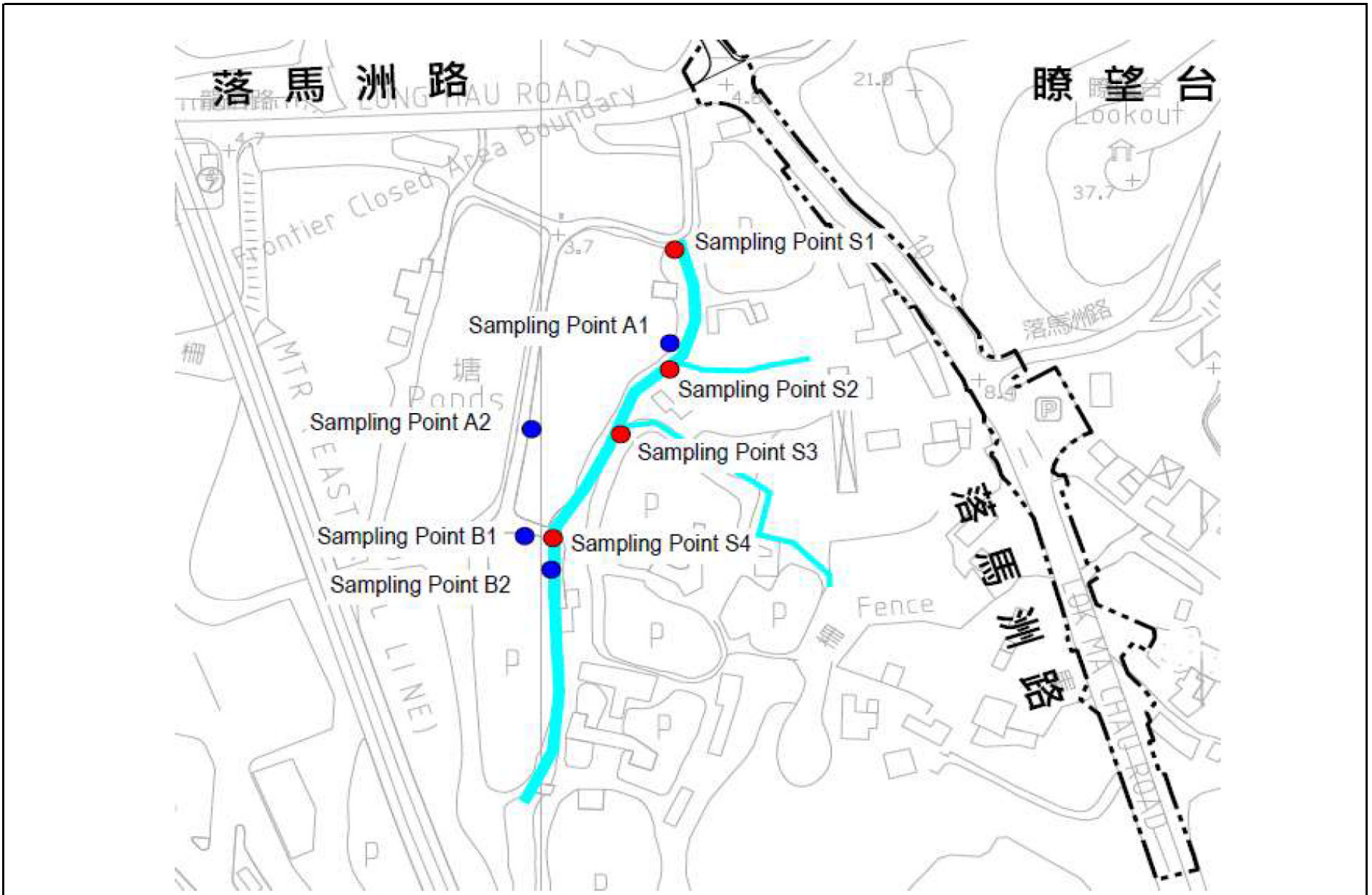


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CHECK	IT	DRAWN	ML
JOB No.	WMA 21009	FIGURE NO.	Fig 5a
		REV	-



Service Contract No. WD/04/2020
 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team
 Locations of Transect for Monitoring of Chinese Bull Frog

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



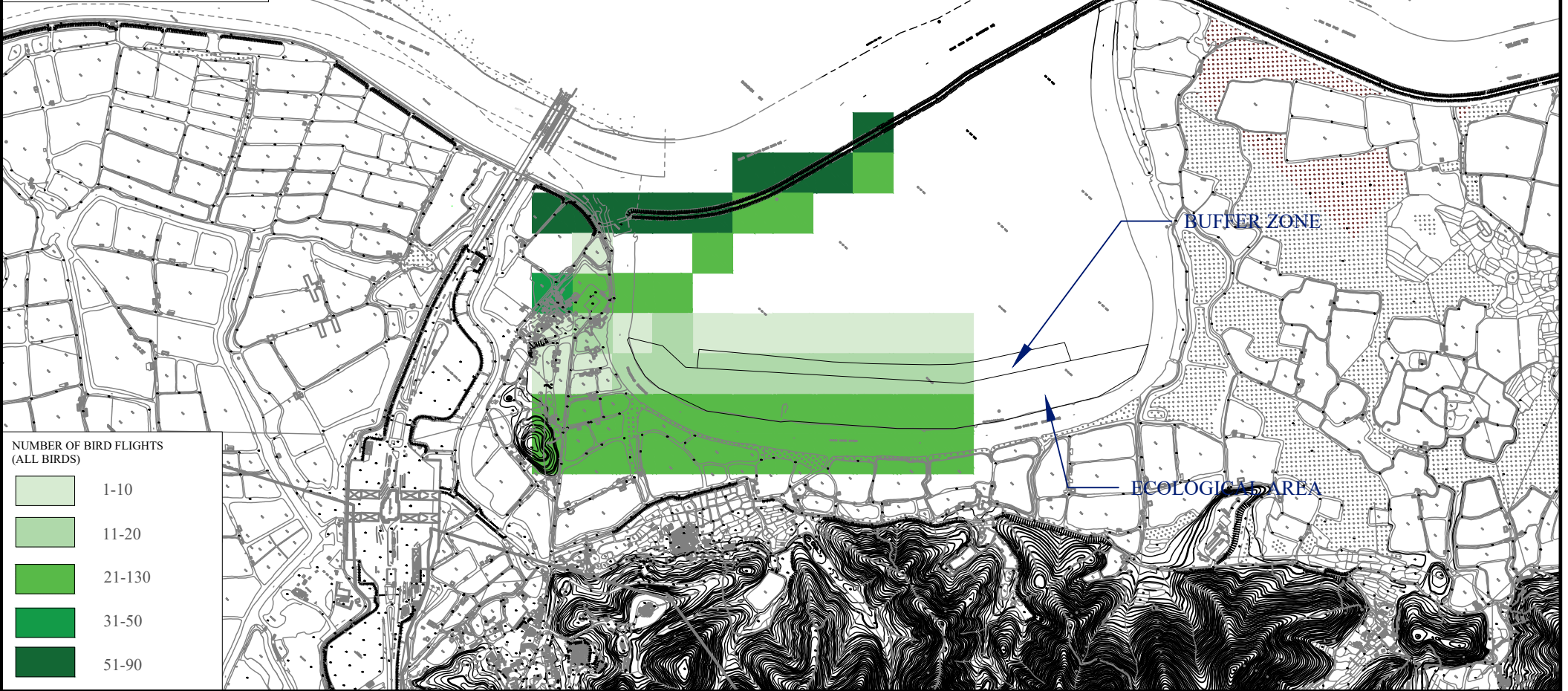
Service Contract No. WD/04/2020
 Development of Lok Ma Chau Loop Main Work Package 1 - Environmental Team

Locations of Rose Bitterling Sampling Points

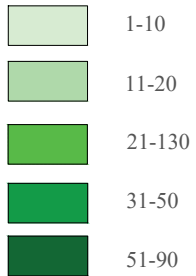
Scale	N.T.S	Project No.	WMA21009	
Date	Mar-22	Figure	5c	



LOCATION PLAN



NUMBER OF BIRD FLIGHTS
(ALL BIRDS)



SCALE	1:14000 @A4	DATE	July 2023
CHECK	IT	DRAWN	ML
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	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area (Visual representation of activity durations and dependencies)																											
PM1150-110	PMI No. 150 - Quotation Preparation and Submission	21	21-Mar-23A	04-Jul-23	14-Jul-23	17-Jul-23	13	PMI No. 150 - Quotation Preparation and Submission																											
PM1150-120	PMI No. 150 - PM Review and Reply	14	05-Jul-23	18-Jul-23	18-Jul-23	31-Jul-23	13	PMI No. 150 - PM Review and Reply																											
PMI No. 159 - Installation of Manhole Connectors for Sewerage Works at Road L1 (CH 1170 - 1430)																																			
PM1159-110	PMI No. 159 - Quotation Preparation and Submission	21	13-Apr-23A	04-Jul-23	17-Jun-22	20-Jun-22	-379	PMI No. 159 - Quotation Preparation and Submission																											
PM1159-120	PMI No. 159 - PM Review and Reply	14	05-Jul-23	18-Jul-23	21-Jun-22	04-Jul-22	-379	PMI No. 159 - PM Review and Reply																											
PMI No. 163 - Additional Manhole adjacent to Box Culvert C (3 Apr 2023)																																			
PM1163-110	PMI No. 163 - Quotation Preparation and Submission	21	05-Apr-23A	04-Jul-23	17-Jun-22	20-Jun-22	-379	PMI No. 163 - Quotation Preparation and Submission																											
PM1163-120	PMI No. 163 - PM Review and Reply	14	05-Jul-23	18-Jul-23	21-Jun-22	04-Jul-22	-379	PMI No. 163 - PM Review and Reply																											
PMI No. 188 - Advance Diversion of DN200 Watermain for DCM7 Construction along TAR1																																			
PM1188-100	PMI No. 188 - Issued (12 May 2023)	0	01-Jun-23A	01-Jun-23A	01-Aug-23	01-Aug-23		PMI No. 188 - Issued (12 May 2023)																											
PMI No. 203 - Civil Provisions for Diversion of Uncharted Watermain WSD																																			
PM1203-100	PMI No. 203 - Issued (13 Jun 2023)	0	14-Jun-23A	14-Jun-23A	12-Nov-26	12-Nov-26		PMI No. 203 - Issued (13 Jun 2023)																											
PMI No. 205 - Civil Provisions for Temporary Relocation of an HKT Telephone Pole																																			
PM1205-100	PMI No. 205 - Issued (15 Jun 2023)	0	16-Jun-23A	16-Jun-23A	12-Nov-26	12-Nov-26		PMI No. 205 - Issued (15 Jun 2023)																											
PMI No. 206 - Civil Provisions for Stage 1 Diversion of Watermains along HWTER by WSD																																			
PM1206-100	PMI No. 206 - Issued (3 Jul 2023)	0	05-Jul-23	05-Jul-23*	04-Jul-23	04-Jul-23	0	PMI No. 206 - Issued (3 Jul 2023)																											
Preliminary and Preparations																																			
Subletting																																			
PRE-310B	Subletting for Drainage and Roadworks for Road D1 (Under Closed Loop Management)	30	01-Sep-23	07-Oct-23	01-Apr-22	12-May-22	-418	Subletting for Drainage and Roadworks																											
PRE-315	Subletting for Pipe Works	30	21-Feb-22A	03-Aug-23	04-Apr-22	12-May-22	-364	Subletting for Pipe Works																											
PRE-325	Subletting for Drainage Work and Roadwork for WCR	30	23-Sep-23	31-Oct-23	25-Apr-22	31-May-22	-421																												
PRE-365	Subletting for Modification and Maintenance of Existing Boundary Patrol Road (Area Under Closed Loop Management)	30	03-Jul-23	05-Aug-23	24-Dec-21	07-Feb-22	-441	Subletting for Modification and Maintenance of Existing Boundary Patrol Road (Area Under Closed Loop Management)																											
PRE-365A	Subletting for Irrigation System (Road D1)	45	22-Sep-23	16-Nov-23	23-Apr-22	17-Jun-22	-421																												
PRE-365B	Subletting for Irrigation System (Road L1 Ch 1170-1430) (PMI103, PMI109)	45	12-Aug-23	05-Oct-23	24-Jan-24	20-Mar-24	135	Subletting for Irrigation System (Road L1)																											
PRE-390B	Subletting for Road Lighting at Road L1 (Ch 1170-1430) (PMI103, PMI109)	45	03-Jul-23	23-Aug-23	12-Jan-24	08-Mar-24	160	Subletting for Road Lighting at Road L1 (Ch 1170-1430) (PMI103, PMI109)																											
PRE-365	Subletting for E&M Works at STW	173	01-Sep-21 A	14-Oct-23	22-Feb-22	02-Apr-22	-452	Subletting for E&M Works at STW																											
PRE-415A	Subletting for Civil Works for Utilities at Road D1 and Road L1	45	22-Sep-23	16-Nov-23	23-Apr-22	17-Jun-22	-421																												
PRE-432	Subletting for Box Culvert (R.C. Works, Occupied Areas)	28	20-Jan-22A	03-Oct-23	27-May-22	27-Aug-22	-324	Subletting for Box Culvert (R.C. Works, Occupied Areas)																											
PRE-433	Subletting for Box Culvert (Piling Works, Occupied Areas)	28	27-Jan-22A	03-Nov-23	31-May-22	10-Jun-22	-416																												
Design Submissions for the Works																																			
PRE-435A	Prepare, Submit, Processing & Approval for Alternative Design for STW (On Hold)	255	31-Aug-21 A	26-Jan-24	12-Jul-22	26-Nov-22	-344																												
PRE-455	Prepare, Submit, Processing & Approval for Noise Barrier for Public Transport on Interchange (PTI) (On Hold)	90	01-Sep-23	18-Dec-23	06-Sep-22	22-Dec-22	-291																												
PRE-460	Prepare, Submit, Processing & Approval for MIC and its Foundation for ADB of STW (On Hold)	90	29-Sep-23	18-Jan-24	14-Jun-22	28-Sep-22	-386																												
PRE-465	Approved Status of E&M Submissions for STW Batch 1	0		24-Oct-23*		16-Apr-22	-556																												
Public Transport Interchange (PTI)																																			
S7-497	PTI - Design for Foundation Temporary Works Preparation & Submission	42	16-Sep-23	07-Nov-23	22-Sep-22	11-Nov-22	-291	PTI - Design for Foundation																											
S7-498	PTI - Design for Foundation Temporary Works PM Review	21	13-Oct-23	07-Nov-23	19-Oct-22	11-Nov-22	-291	PTI - Design for Foundation																											
S7-502	PTI - Design for Noise Barrier Preparation & Submission	21	16-Sep-23	12-Oct-23	22-Sep-22	18-Oct-22	-291	PTI - Design for Noise Barrier																											
S7-503	PTI - Design for Noise Barrier PM Review	21	13-Oct-23	07-Nov-23	19-Oct-22	11-Nov-22	-291	PTI - Design for Noise Barrier																											
TAR3																																			
KD2-105A	TAR 3 - Design Approval	6	29-Mar-22A	14-Jul-23	15-May-23	28-May-23	-47	TAR 3 - Design Approval																											
Meander Bridge																																			
KD7-617	Meander Bridge Superstructure - Design (Temporary Works) Preparation & Submission	30	03-Jul-23	05-Aug-23	29-Nov-22	29-Dec-22	-175	Meander Bridge Superstructure - Design (Temporary Works) Preparation & Submission																											
KD7-618	Meander Bridge Superstructure - Design (Temporary Works) PM Review	21	07-Aug-23	30-Aug-23	30-Dec-22	28-Jan-23	-175	Meander Bridge Superstructure - Design (Temporary Works) PM Review																											
KD7-619	Meander Bridge Superstructure - Design (Temporary Works) Resubmission	14	31-Aug-23	15-Sep-23	30-Jan-23	14-Feb-23	-175	Meander Bridge Superstructure - Design (Temporary Works) Resubmission																											
KD7-620	Meander Bridge Superstructure - Design (Temporary Works) Approval	14	16-Sep-23	04-Oct-23	15-Feb-23	02-Mar-23	-175	Meander Bridge Superstructure - Design (Temporary Works) Approval																											
KD7-650	Meander Bridge (PMI No. 048) Revised Design Resubmission	9	01-Aug-22A	07-Jul-23	10-Oct-22	14-Oct-22	-213	Meander Bridge (PMI No. 048) Revised Design Resubmission																											
KD7-660	Meander Bridge (PMI No. 048) Design Approval	14	30-Aug-22A	07-Jul-23	10-Oct-22	14-Oct-22	-213	Meander Bridge (PMI No. 048) Design Approval																											
Site Office																																			
Innohub / Reception & Atrium Module																																			
PRE-0895	Innohub - Schematic for Approval	12	18-Feb-22A	12-Jul-23	08-Jul-23	18-Jul-23	5	Innohub - Schematic for Approval																											
PRE-0900	Innohub - Steel Structure Detail Design	12	18-Feb-22A	12-Jul-23	08-Jul-23	18-Jul-23	5	Innohub - Steel Structure Detail Design																											
PRE-0910	Innohub - Facade Detail Design	25	18-Feb-22A	27-Jul-23	19-Jul-23	12-Aug-23	14	Innohub - Facade Detail Design																											
PRE-0915	Innohub - MEP Detail Design	25	18-Feb-22A	27-Jul-23	21-Aug-23	14-Sep-23	42	Innohub - MEP Detail Design																											
PRE-1005	Innohub - Interior Detail Design	25	18-Feb-22A	27-Jul-23	21-Aug-23	14-Sep-23	42	Innohub - Interior Detail Design																											
PRE-1045	Innohub - Exterior Staircase Design and Procurement	31	24-Jul-23	28-Aug-23	21-Aug-23	25-Sep-23	24	Innohub - Exterior Staircase Design and Procurement																											
PM Site Office																																			
PRE-1055	PM Office - Exterior Staircase Design and Procurement	31	24-Jul-23	28-Aug-23	21-Aug-23	25-Sep-23	24	PM Office - Exterior Staircase Design and Procurement																											
Sewage Treatment Works																																			
STW - E&M																																			
PRE-EM005	Subletting for E&M Subcontractor at STW	122	01-Sep-21 A	14-Oct-23	18-Feb-22	02-Apr-22	-560	Subletting for E&M Subcontractor at STW																											
PRE-EM010	Submit CV of Treatment Specialist	0	15-Oct-23		07-Apr-22		-566	Submit CV of Treatment Specialist																											
PRE-EM015	Design Team of E&M Subcontractor Move-in to UMCL Site Office	0	15-Oct-23*		29-Apr-22		-533	Design Team of E&M Subcontractor Move-in to UMCL Site Office																											
Design Submission Schedule																																			
PRE-EM020	Preparation & Submission of Design Submission Schedule	10	15-Oct-23	24-Oct-23	07-Apr-22	16-Apr-22	-566	Preparation & Submission of Design Submission Schedule																											
PRE-EM030	Preparation & Submission of Drawing Submission Schedule	10	15-Oct-23	24-Oct-23	07-Apr-22	16-Apr-22	-566	Preparation & Submission of Drawing Submission Schedule																											
Equipment & Material Submission Schedule																																			
PRE-EM040	Preparation & Submission of Equipment & Material Submission Schedule	10	15-Oct-23	24-Oct-23	07-Apr-22	16-Apr-22	-566	Preparation & Submission of Equipment & Material Submission Schedule																											
PRE-EM050	Preparation & Submission of Sample Submission Schedule	10	15-Oct-23	24-Oct-23	07-Apr-22	16-Apr-22	-566	Preparation & Submission of Sample Submission Schedule																											
Inlet Works (Primary Treatment System)																																			
PRE-EM070	Preparation & Submission of Inlet Works (Primary Treatment System)	42	15-Oct-23	25-Nov-23	21-May-22	01-Jul-22	-512	Preparation & Submission of Inlet Works (Primary Treatment System)																											
Primary Sedimentation System																																			
PRE-EM100	Preparation & Submission of Primary Sedimentation System	42	15-Oct-23	25-Nov-23	07-Apr-22	18-May-22	-566	Preparation & Submission of Primary Sedimentation System																											
Box Culverts																																			
Box Culvert A1 (Ch 75-274.779)																																			
12A-102	Box Culvert A1 (Portion 18A) - Design for Temporary Works Preparation and Submission (Area Occupied)	14	01-Sep-23	16-Sep-23	28-Feb-23	15-Mar-23	-151	Box Culvert A1 (Portion 18A) - Design for Temporary Works Preparation and Submission (Area Occupied)																											
12A-103	Box Culvert A1 (Portion 18A) - Design for Temporary Works PM Review	21	18-Sep-23	13-Oct-23	16-Mar-23	13-Apr-23	-151	Box Culvert A1 (Portion 18A) - Design for Temporary Works PM Review																											
12A-104	Box Culvert A1 (Portion 18A) - Design for Temporary Works Resubmission	7	14-Oct-23	21-Oct-23	14-Apr-23	21-Apr-23	-151	Box Culvert A1 (Portion 18A) - Design for Temporary Works Resubmission																											
12A-105	Box Culvert A1 (Portion 18A) - Design for Temporary Works Approval	14	24-Oct-23	08-Nov-23	22-Apr-23	09-May-23	-151	Box Culvert A1 (Portion 18A) - Design for Temporary Works Approval																											



■ Actual Level of Effort
■ Actual Work
■ Remaining Work
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◆ Milestone

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Three Month Rolling Programme			
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30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area																											
12C-107	Box Culvert A1 (Portion 18C) - Design for Temporary Works Preparation and Submission (Area Occupied)	14	01-Sep-23	16-Sep-23	01-Dec-22	16-Dec-22	-220																												
12C-108	Box Culvert A1 (Portion 18C) - Design for Temporary Works PM Review	21	18-Sep-23	13-Oct-23	17-Dec-22	13-Jan-23	-220																												
12C-109	Box Culvert A1 (Portion 18C) - Design for Temporary Works Resubmission	7	14-Oct-23	21-Oct-23	14-Jan-23	26-Jan-23	-220																												
12C-110	Box Culvert A1 (Portion 18C) - Design for Temporary Works Approval	7	24-Oct-23	31-Oct-23	27-Jan-23	03-Feb-23	-220																												
Box Culvert A3								56	01-Sep-23	08-Nov-23	19-Feb-22	29-Apr-22																							
12B-102	Box Culvert A3 (Portion 18B) - Design for Temporary Works Preparation and Submission (Area Occupied)	14	01-Sep-23	16-Sep-23	19-Feb-22	07-Mar-22	-453																												
12B-103	Box Culvert A3 (Portion 18B) - Design for Temporary Works PM Review	21	18-Sep-23	13-Oct-23	08-Mar-22	31-Mar-22	-453																												
12B-104	Box Culvert A3 (Portion 18B) - Design for Temporary Works Resubmission	7	14-Oct-23	21-Oct-23	01-Apr-22	09-Apr-22	-453																												
12B-106	Box Culvert A3 (Portion 18B) - Design for Temporary Works Approval	14	24-Oct-23	08-Nov-23	11-Apr-22	29-Apr-22	-453																												
Retaining Walls								93	16-Jun-23 A	06-Oct-23	29-Dec-22	18-Jul-23																							
RW2								42	15-Aug-23	04-Oct-23	21-Mar-23	13-May-23																							
RW-200	RW2 - Design for Temporary Works Preparation & Submission	14	15-Aug-23	30-Aug-23	21-Mar-23	06-Apr-23	-118																												
RW-210	RW2 - Design for Temporary Works PM Review	14	31-Aug-23	15-Sep-23	11-Apr-23	26-Apr-23	-118																												
RW-220	RW2 - Design for Temporary Works Resubmission	7	16-Sep-23	23-Sep-23	27-Apr-23	05-May-23	-118																												
RW-230	RW2 - Design for Temporary Works Approval	7	25-Sep-23	04-Oct-23	06-May-23	13-May-23	-118																												
RW3								42	15-Aug-23	04-Oct-23	21-Mar-23	13-May-23																							
RW-300	RW3 - Design for Temporary Works Preparation & Submission	14	15-Aug-23	30-Aug-23	21-Mar-23	06-Apr-23	-118																												
RW-310	RW3 - Design for Temporary Works PM Review	14	31-Aug-23	15-Sep-23	11-Apr-23	26-Apr-23	-118																												
RW-320	RW3 - Design for Temporary Works Resubmission	7	16-Sep-23	23-Sep-23	27-Apr-23	05-May-23	-118																												
RW-330	RW3 - Design for Temporary Works Approval	7	25-Sep-23	04-Oct-23	06-May-23	13-May-23	-118																												
RW4								42	16-Jun-23 A	05-Aug-23	06-Apr-23	18-Jul-23																							
RW-410	RW4 - Design for Temporary Works PM Review	21	16-Jun-23 A	12-Jul-23	06-Apr-23	19-Apr-23	-68																												
RW-420	RW4 - Design for Temporary Works Resubmission	7	13-Jul-23	20-Jul-23	23-Jun-23	30-Jun-23	-16																												
RW-430	RW4 - Design for Temporary Works Approval	14	21-Jul-23	05-Aug-23	03-Jul-23	18-Jul-23	-16																												
PW1								72	13-Jul-23	06-Oct-23	29-Dec-22	28-Mar-23																							
RW-540	PW1 - Design for Temporary Works Preparation & Submission	30	13-Jul-23	16-Aug-23	29-Dec-22	07-Feb-23	-155																												
RW-550	PW1 - Design for Temporary Works PM Review	21	17-Aug-23	09-Sep-23	08-Feb-23	03-Mar-23	-155																												
RW-560	PW1 - Design for Temporary Works Resubmission	7	11-Sep-23	18-Sep-23	04-Mar-23	11-Mar-23	-155																												
RW-570	PW1 - Design for Temporary Works Approval	14	19-Sep-23	06-Oct-23	13-Mar-23	28-Mar-23	-155																												
Fabrication and Delivery								320	17-Jan-22 A	24-May-24	01-Jun-23	11-Nov-26																							
Site Office								480	17-Jan-22 A	04-Sep-23	19-Jul-23	11-Nov-26																							
Innohub / Reception & Atrium Module								453	17-Jan-22 A	03-Aug-23	21-Aug-23	11-Nov-26																							
SO-1020	Innohub - Material Procurement and Production Steel Structure	37	17-Jan-22 A	14-Jul-23	30-Oct-26	11-Nov-26	986																												
SO-1050	Innohub - Material Procurement Facade (Window and Cladding)	30	12-Feb-22 A	27-Jul-23	16-Oct-26	11-Nov-26	975																												
SO-1060	Innohub - Material Procurement MEP	30	12-Feb-22 A	27-Jul-23	16-Oct-26	11-Nov-26	975																												
SO-1070	Innohub - Material Procurement Interior Fittings & Flooring	30	12-Feb-22 A	27-Jul-23	16-Oct-26	11-Nov-26	975																												
SO-1400	Innohub - Exterior Staircase Shipment	10	24-Jul-23	03-Aug-23*	21-Aug-23	31-Aug-23	24																												
PM Site Office								55	03-Jul-23	04-Sep-23	19-Jul-23	09-Sep-23																							
SO-1025	PM Office - Preparation Embed Procurement	25	03-Jul-23	31-Jul-23	12-Aug-23	09-Sep-23	35																												
SO-1030	PM Office - Material Procurement and Production Steel Structure	46	13-Jul-23	04-Sep-23	19-Jul-23	09-Sep-23	5																												
SO-1080	PM Office - Material Procurement Facade (Window and Cladding)	38	13-Jul-23	25-Aug-23	19-Jul-23	31-Aug-23	5																												
SO-1090	PM Office - Material Procurement MEP	38	13-Jul-23	25-Aug-23	19-Jul-23	31-Aug-23	5																												
SO-1100	PM Office - Material Procurement Interior Fittings & Flooring	38	13-Jul-23	25-Aug-23	19-Jul-23	31-Aug-23	5																												
SO-1110	PM Office - Material Procurement Toilet	38	13-Jul-23	25-Aug-23*	19-Jul-23	31-Aug-23	5																												
SO-1410	PM Office - Exterior Staircase Shipment	10	24-Jul-23	03-Aug-23*	21-Aug-23	31-Aug-23	24																												
Sewage Treatment Works - Major Equipment Fabrication & Delivery								329	01-Jul-23	24-May-24	01-Jun-23	19-Jul-24																							
STW Inlet Pumps								180	12-Sep-23	09-Mar-24	12-Sep-23	09-Mar-24																							
S8EM-0010	Procurement & Fabrication of Inlet Pumps	180	12-Sep-23*	09-Mar-24	12-Sep-23	09-Mar-24	0																												
STW Aeration Blowers								180	09-Oct-23	05-Apr-24	09-Oct-23	05-Apr-24																							
S8EM-0040	Procurement & Fabrication of Aeration Blowers	180	09-Oct-23*	05-Apr-24	09-Oct-23	05-Apr-24	0																												
STW Membrane Filtration System								210	17-Sep-23	13-Apr-24	17-Sep-23	13-Apr-24																							
S8EM-0070	Procurement & Fabrication of FAT of Membrane Filtration System	210	17-Sep-23	13-Apr-24	17-Sep-23	13-Apr-24	0																												
STW LV Switchboard								180	24-Oct-23	20-Apr-24	24-Oct-23	20-Apr-24																							
S8EM-0100	Procurement & Fabrication of LV Switchboards	180	24-Oct-23	20-Apr-24	24-Oct-23	20-Apr-24	0																												
STW SCADA								210	28-Oct-23	24-May-24	23-Dec-23	19-Jul-24																							
S8EM-0130	Procurement & Fabrication of SCADA	210	28-Oct-23	24-May-24	23-Dec-23	19-Jul-24	56																												
STW Deodorization System								198	01-Jul-23	14-Jan-24	01-Jun-23	15-Dec-23																							
S8EM-160	Procurement & Fabrication of DOU no. 1, 2 & 3	198	01-Jul-23*	14-Jan-24	01-Jun-23	15-Dec-23	-30																												
Site Office and Innohub								488	17-Feb-22 A	15-Sep-23	24-Feb-22	30-Dec-23																							
PM Site Office, Innohub, Reception & Atrium								90	17-May-23 A	01-Sep-23	15-Mar-22	31-Jul-23																							
Preparation								62	17-May-23 A	31-Jul-23	15-Mar-22	31-Jul-23																							
SO-1575	Weld connection plate to the embed	21	17-May-23 A	12-Jul-23	15-Mar-22	24-Mar-22	-381																												
SO-1765	Design Supply and Installation of Modification Works of PM Site Office (PMI No. 191)	54	27-May-23 A	31-Jul-23*	03-Jul-23	31-Jul-23	0																												
Phase 1 - GL 1-14 Including Innohub / Reception & Atrium / PM Office (55 modules)								67	01-Jun-23 A	19-Aug-23	15-Mar-22	21-May-22																							
SO-1585	Module Installation GL 1-10 - 2F (13 nos)	2	01-Jun-23 A	02-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1605	MEP Installation	10	09-Jun-23 A	14-Jun-23 A	28-Mar-22	28-Mar-22																													
SO-1615	Finishing and fitting out installation (including roof)	60	09-Jun-23 A	19-Aug-23*	28-Mar-22	21-May-22	-370																												
Phase 2 - GL 14-26 including PM Site Office (75 modules)								62	03-Jun-23 A	16-Aug-23	15-Mar-22	21-May-22																							
SO-1525	Module Installation GL 14-26 - G/F (25 nos)	5	03-Jun-23 A	09-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1625	Module Installation GL 12-24 - G/F (25 nos)	4	09-Jun-23 A	13-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1635	Module Installation GL 10-22 - G/F (25 nos)	5	14-Jun-23 A	19-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1645	MEP Installation	21	20-Jun-23 A	15-Jul-23	31-Mar-22	14-Apr-22	-367																												
SO-1655	Finishing and fitting out installation (including roof)	42	28-Jun-23 A	16-Aug-23*	31-Mar-22	21-May-22	-367																												
Phase 3 - GL 26-36 including PM Site Office (72 modules)								62	20-Jun-23 A	01-Sep-23	15-Mar-22	21-May-22																							
SO-1535	Module Installation GL 26-36 - G/F (25 nos)	4	20-Jun-23 A	24-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1655	Module Installation GL 24-36 - G/F (25 nos)	4	26-Jun-23 A	29-Jun-23 A	15-Mar-22	15-Mar-22																													
SO-1675	Module Installation GL 22-36 - G/F (25 nos)	6	30-Jun-23 A	07-Jul-23	15-Mar-22	19-Mar-22	-381																												
SO-1685	MEP Installation	21	08-Jul-23	01-Aug-23	21-Mar-22	14-Apr-22	-381																												
SO-1695	Finishing and fitting out installation (including roof)	42	15-Jul-23	01-Sep-23*	28-Mar-22	21-May-22	-381																												
SO-1705	Exterior Staircase Installation (GL 33-35)	7	08-Jul-23	15-Jul-23	05-May-22	13-May-22	-347																												



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◆ Milestone

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Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area																											
SO-1715	Exterior Staircase Installation (GL 5-7)	7	17-Jul-23	24-Jul-23*	14-May-22	21-May-22	-347	Exterior Staircase Installation (GL 5-7)																											
Contractor Site Office								<ul style="list-style-type: none"> SO-1450 Contractor Site Office - Steel Structure Assembly SO-1460 Contractor Site Office - Installation 																											
Interim Site Office for Contractor's Staff and Part of RSS Team								<ul style="list-style-type: none"> SO-1485 Interim Site Office Construction SO-1735 Interim Site Office Temporary Transformer Room SO-1745 Interim Site Office Temporary Transformer Room Installation and T&C SO-1755 Interim Site Office Temporary Transformer Room Energization 																											
Key Date KD1 - Interim Watermain								<ul style="list-style-type: none"> KD1-1055 Issued PMI 197 - Installation of Steel Support Frames for Twin DN300 Fresh Watermains KD1-1085 PMI 197 - Subletting for Steel Support Frames Installation 																											
KD1 - Submissions								<ul style="list-style-type: none"> KD1-1010 Interim Watermain - Shop Drawings PM Review & Approval KD1-1016 Interim Watermain - Material PM Review & Approval KD1-1020 Interim Watermain - Procurement and Delivery of Materials KD1-1065 Interim Watermain - Steel Support Frames Material Submission KD1-1075 Interim Watermain - Steel Support Frames Procurement and Delivery 																											
KD1 - Construction								<ul style="list-style-type: none"> KD1-1025 Interim Watermain - Site Set-up KD1-1030 Interim Watermain - Installation of Steel Supporting Frame KD1-1035 Interim Watermain - Pipe Laying (Twin DN300, 624m at 4m/d) 																											
Key Date KD2 - TAR 3								<ul style="list-style-type: none"> KD2-1060 TAR 3 - UU Construction (11kV Cable) KD2-1070 TAR 3 - UU Construction (Gas main) KD2-1080 TAR 3 - UU Construction (Twin DN300 Water main, as KD1) KD2-1090 TAR 3 - UU Construction (Telecom) 																											
Key Date KD3 - Road D1 and L1								<ul style="list-style-type: none"> KD3-0900 Area Occupied KD3-1000 Road D1 - Subletting of Works for Road D1 KD3-1005 Road D1 - Design & MS Site Formation Prep & Submit(7d), PM Review(21d), Resubmission(6d), Approval(14d) KD3-1010 Road D1 - Design & MS Drainage Prep & Submit(15d), PM Review(21d), Resubmission(10d), Approval(14d) KD3-1015 Road D1 - Design & MS Watermains Prep & Submit(15d), PM Review(21d), Resubmission(10d), Approval(14d) KD3-1035 Road D1 - Material Procurement and Delivery 																											
KD3 - D1 - DCM Works at Portion 7 (Area Occupied - Partial)								<ul style="list-style-type: none"> S7-1425 Portion 7 - Surcharging Works S7-1426 Portion 7 - Subletting S7-1428 Portion 7 - Site Preparation S7-1430 Portion 7 - Commencement of DCM Works S7-1432 Portion 7 - Establishment of Slices S7-1435 Portion 7 - DCM Works S7-1440 Road D1 - Portion 7 DCM Clusters Stage 1 (15.2,15.2b, 200m) 																											
KD3 - D1 - Construction								<ul style="list-style-type: none"> KD3 - Road D1 Stage 1 (Road Next to Portion 15.2 and 15.2b) KD3-2684 Road D1 Stage 1 (15.2,15.2b, 200m) - DCM Complete (15.2,15.2b) 																											
KD3 - ROAD L1 Construction								<ul style="list-style-type: none"> KD3 - L1 - Submissions KD3-0120B PMI No. 099 - Quotation Preparation and Submission KD3-0120C PMI No. 099 - PMI No. 099 - PM Review and Reply KD3-0160B Issued PMI No. 150 - Quotation Preparation and Submission KD3-0160C Issued PMI No. 150 - PM Review and Reply KD3-1190 Road L1 - Method Statement Road Paving & Marking Prep & Submit, PM Review, Resubmission, Approval KD3-1195 Road L1 - Method Statement Street Furniture Prep & Submit, PM Review, Resubmission, Approval 																											
KD3 - L1 - Construction								<ul style="list-style-type: none"> KD3 - Road L1 Stage 1 (Portion 18C, Next to Portion 17B Hammerhead) 260m KD3-5315 Portion 18C Road L1 (CH1170-1430) - Stage 1 (Building 11) KD3-5325 Portion 18C Road L1 (CH1170-1430) - Stage 2 (Building 12) KD3-5327 Portion 18C Road L1 (CH1170-1430) - Stage 3 (Building 8) KD3-5329 Portion 18C Road L1 (CH1170-1430) - Stage 4 (Building 9) KD3-5331 Portion 18C Road L1 (CH1170-1430) - Stage 5 (Building 12, Box C) KD3-5333 Portion 18C Road L1 (CH1170-1430) - Stage 6 (CLPSS) KD3-5345 Section 9 - Box Culvert C (CH 32-00) w/in Road L1 Complete KD3-5350 Portion 18C Road L1 (CH1170-1430) - Footpath KD3-5360 Road L1 (CH1170-1430) - Complete (PM1088) 																											
Key Date KD4 - WCR Carriageway + 1 Footpath								<ul style="list-style-type: none"> KD4-1000 WCR Carriageway - MS Preparation and Submission KD4-1005 WCR Carriageway - MS PM Review KD4-1010 WCR Carriageway - MS Resubmission KD4-1015 WCR Carriageway - MS Approval 																											
Key Date KD5 - Reedbeds Transplanting (Area Occupied)								<ul style="list-style-type: none"> KD5-1000 Reedbeds - Preparation and Procurement Works 																											



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- ▬ Actual Work
- ▬ Remaining Work
- ▬ Critical Remaining Work
- ◆ Milestone

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30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area																											
Key Date KD6 - Box Culverts A2 and A1 in Portion 7																																			
KD6-0400	Area Occupied	566	22-Feb-22 A	31-Aug-23	25-Dec-21	01-Mar-24	-553	Area Occupied																											
KD6 - Box Culvert A1 (Portion 7, CH 0-75) 75m (CSD Scheme)																																			
KD6-5105	Interface Portion 7 - CLP ESS Excavation and ELS Installation (Depth 4m from Existing Level)	110	21-Jul-23	29-Nov-23	17-Oct-23	01-Mar-24	73																												
KD6-5251	Issued PMI No. 092 - Quotation Preparation and Submission	21	13-Jan-23 A	07-Jul-23	29-Jan-23	04-Feb-23	-153	Issued PMI No. 092 - Quotation Preparation and Submission																											
KD6-5252	Issued PMI No. 092 - PM Review and Reply	14	08-Jul-23	21-Jul-23*	05-Feb-23	18-Feb-23	-153	Issued PMI No. 092 - PM Review and Reply																											
Box Culvert A1 (CH 0-75) Foundation (CSD)																																			
Box Culvert A1 (CH 0-75) Loading Test																																			
KD6-5570	Remove loading test	2	31-Mar-23 A	03-Jul-23	02-Dec-22	02-Dec-22	-166	Remove loading test																											
Box Culvert A1 (CH 0-75) ELS Installafion and Structure Construction																																			
KD6-5462	Area Occupied by HH	167	04-May-23 A	21-Nov-23	06-Dec-22	04-May-23	-166	Area Occupied by HH																											
KD6-5470	Excavation and install structure to FEL at CH 55-25	40	04-May-23 A	18-Jul-23	06-Dec-22	19-Dec-22	-166	Excavation and install structure to FEL at CH 55-25																											
KD6-5480	Excavation and install structure to FEL at CH 25-5	30	09-Jun-23 A	25-Aug-23	06-Dec-22	03-Feb-23	-166	Excavation and install structure to FEL at CH 25-5																											
KD6-5490	Box A1 (CH 0-75) - Pile Head Treatment	30	26-Aug-23	29-Sep-23	04-Feb-23	10-Mar-23	-166	Excavation and install structure to FEL at CH 25-5																											
KD6-5500	Box A1 (CH 0-75) - Base Slab Construction	12	03-Oct-23	16-Oct-23	11-Mar-23	24-Mar-23	-166	Box A1 (CH 0-75)																											
KD6 - Box Culvert A2 (Including Border Patrol Road & Portion 7)																																			
KD6-0500	Portion 7 - Application to Border Police for Boundary Patrol Road TTA	256	07-Feb-22 A	29-Dec-23	25-Dec-21	22-Jun-22	-209																												
KD6-1005	Portion 7 - Box Culvert A2 Method Statement Submission and Approval	180	03-Jul-23	29-Dec-23	25-Dec-21	22-Jun-22	-555																												
KD6 - Box Culvert A1 (Portion 7, Road D1, CH 247-274) 27m (Area Occupied)																																			
KD6-1070	Portion 7 - Box Culvert A1 Method Statement Preparation, Review and Approval	18	25-Oct-23	14-Nov-23	31-May-22	21-Jun-22	-416																												
Key Date KD7 - Meander Bridge and CLP Transformer Delivery																																			
KD7 - Submissions																																			
KD7-1185	MS - Bridge Superstructure (Temporary Works) Prep & Submit, PM Review, Resubmit, Approval	230	15-Jan-22 A	04-Oct-23	28-Oct-22	02-Mar-23	-84	MS - Bridge Superstructure (Temporary Works)																											
KD7-2025	AIP Submission and Acceptance on Design Submission for Meander Bridge	60	25-Jul-23	04-Oct-23	15-Dec-22	02-Mar-23	-175																												
KD7-2035	DDA Submission and Acceptance on Design Submission for Meander Bridge	51	15-Jan-22 A	15-Jul-23	02-Nov-22	15-Nov-22	-193	AIP Submission and Acceptance on Design Submission for Meander Bridge																											
KD7-2110	Issued PMI No. 129 - Quotation Preparation and Submission	33	29-Jan-22 A	15-Jul-23	02-Nov-22	15-Nov-22	-193	DDA Submission and Acceptance on Design Submission for Meander Bridge																											
KD7-2115	Issued PMI No. 129 - PM Review and Reply	21	31-Dec-22 A	04-Jul-23	28-Oct-22	31-Oct-22	-246	Issued PMI No. 129 - Quotation Preparation and Submission																											
KD7 - Substructure																																			
Meander Bridge South Side																																			
KD7-2715	Meander Bridge - Forming access platform for South Pier	82	03-Jul-23	07-Oct-23	10-Oct-22	16-Jan-23	-213																												
KD7-2716	Meander Bridge - Predrilling for South Pier (6nr)	34	03-Jul-23	10-Aug-23	10-Oct-22	17-Nov-22	-213	Meander Bridge - Forming access platform for South Pier																											
KD7-2720	Meander Bridge - South Side Bored Piling (Pier) MBP-01A-1 (1 of 6nrs, 8d/nr/rig, 1 rig)	14	26-Jul-23	10-Aug-23	02-Nov-22	17-Nov-22	-213	Meander Bridge - Predrilling for South Pier (6nr)																											
KD7-2730	Meander Bridge - South Side Bored Piling (Pier) MBP-01A-2 (2 of 6nrs, 8d/nr/rig, 1 rig)	8	11-Aug-23	19-Aug-23	18-Nov-22	26-Nov-22	-213	Meander Bridge - South Side Bored Piling (Pier) MBP-01A-1 (1 of 6nrs, 8d/nr/rig, 1 rig)																											
KD7-2740	Meander Bridge - South Side Bored Piling (Pier) MBP-01B-1 (3 of 6nrs, 8d/nr/rig, 1 rig)	8	21-Aug-23	29-Aug-23	28-Nov-22	06-Dec-22	-213	Meander Bridge - South Side Bored Piling (Pier) MBP-01A-2 (2 of 6nrs, 8d/nr/rig, 1 rig)																											
KD7-2750	Meander Bridge - South Side Bored Piling (Pier) MBP-01B-2 (4 of 6nrs, 8d/nr/rig, 1 rig)	8	30-Aug-23	07-Sep-23	07-Dec-22	15-Dec-22	-213	Meander Bridge - South Side Bored Piling (Pier) MBP-01B-1 (3 of 6nrs, 8d/nr/rig, 1 rig)																											
KD7-2760	Meander Bridge - South Side Bored Piling (Pier) MBP-01C-1 (5 of 6nrs, 8d/nr/rig, 1 rig)	8	08-Sep-23	16-Sep-23	16-Dec-22	24-Dec-22	-213	Meander Bridge - South Side Bored Piling (Pier) MBP-01B-2 (4 of 6nrs, 8d/nr/rig, 1 rig)																											
KD7-2770	Meander Bridge - South Side Bored Piling (Pier) MBP-01C-2 (6 of 6nrs, 8d/nr/rig, 1 rig)	8	18-Sep-23	26-Sep-23	28-Dec-22	06-Jan-23	-213	Meander Bridge - South Side Bored Piling (Pier) MBP-01C-1 (5 of 6nrs, 8d/nr/rig, 1 rig)																											
KD7 - Piers and Abutment																																			
MB North Side																																			
KD7-2260	Meander Bridge - RC for North Piers' Caps and Piers	185	03-May-23 A	11-Dec-23	10-Oct-22	23-Jun-23	-142	Meander Bridge - RC for North Piers' Caps and Piers																											
KD7-2265	Meander Bridge - Backfill and removal of ELS for Piers	122	03-May-23 A	25-Sep-23	10-Oct-22	02-Mar-23	-169	Meander Bridge - RC for North Piers' Caps and Piers																											
KD7-2300	Meander Bridge - ELS for North Abutment	6	12-Jun-23 A	17-Jun-23 A	10-Oct-22	10-Oct-22	-213	Meander Bridge - Backfill and removal of ELS for Piers																											
KD7-2310	Meander Bridge - RC for North Abutment	60	05-May-23 A	12-Aug-23	01-Dec-22	13-Jan-23	-169	Meander Bridge - ELS for North Abutment																											
MB South Side																																			
KD7-2135	Meander Bridge - ELS for South Abutment	60	18-Jul-23	25-Sep-23	15-Dec-22	02-Mar-23	-169	Meander Bridge - RC for North Abutment																											
KD7-2136	Meander Bridge - RC for South Abutment	144	21-Jun-23 A	11-Dec-23	17-Jan-23	23-Jun-23	-142	Meander Bridge - ELS for South Abutment																											
KD7-2140	Meander Bridge - ELS for South Piers' Cap	60	21-Jun-23 A	31-Aug-23	06-Feb-23	11-Apr-23	-118	Meander Bridge - RC for South Abutment																											
KD7 - Superstructure																																			
KD7-2325	Meander Bridge - RC for Bridge Deck (North Abutment to North Piers)	54	09-Oct-23	11-Dec-23	17-Jan-23	24-Mar-23	-213	Meander Bridge - ELS for South Piers' Cap																											
KD7 - DCM																																			
KD7-2455	DCM7 Cluster Installation (57 nrs, 4nrs/drig, 1 rig) (WCR, Section 6)	90	05-Oct-23	22-Jan-24	03-Mar-23	23-Jun-23	-175	Meander Bridge - RC for Bridge Deck (North Abutment to North Piers)																											
KD7-2780	DCM7 Cluster Installation (117 nrs, 5nrs/drig, 1 rig) (WCR, Section 6)	90	06-Oct-23	22-Jan-24	09-Mar-23	23-Jun-23	-175	Meander Bridge - RC for Bridge Deck (North Abutment to North Piers)																											
Key Date KD8 - Sewage Treatment Works (STW) Buildings																																			
KD8 - Submissions																																			
KD8-0900	Area Occupied	150	04-Mar-23 A	06-Nov-23	19-Sep-22	11-Aug-23	-71	Area Occupied																											
KD8-1005	STW - Subletting of Works	27	04-Mar-23 A	06-Nov-23	02-Nov-22	11-Aug-23	-71	STW - Subletting of Works																											
KD8-1010	STW - Procurement of Materials	58	27-Jul-23	04-Oct-23	19-Sep-22	25-Mar-23	-155	STW - Procurement of Materials																											
KD8 - Design																																			
KD8-1015	STW - Design IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	238	05-Nov-21 A	18-Jan-24	07-Dec-21	28-Sep-22	-194	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	238	05-Nov-21 A	18-Jan-24	07-Dec-21	28-Sep-22	-194	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-Oct-23	07-Feb-22	11-Mar-22	-464	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	08-Sep-23	17-Nov-23	09-Mar-22	21-May-22	-444	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	08-Sep-23	18-Jan-24	28-Mar-22	09-Aug-22	-428	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	08-Sep-23	18-Jan-24	23-May-22	28-Sep-22	-396	STW - Design DOU No. 3 (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-Oct-23	14-Dec-23	12-Jul-22	17-Sep-22	-368	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-Oct-23	14-Dec-23	12-Jul-22	17-Sep-22	-368	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-Oct-23	14-Dec-23	12-Jul-22	17-Sep-22	-368	STW - Shop Drawings for Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																											
KD8 - Method Statement																																			
KD8-1330	STW - MS IWPTB (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval	81	08-Sep-23	14-Dec-23	09-Mar-22	17-Sep-22	-368	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	08-Sep-23	17-Nov-23	12-Jul-22	17-Sep-22	-345	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-Oct-23	14-Dec-23	21-Mar-22	02-Jun-22	-457	STW - MS Membrane Facilities (Substructure TW) Prep & Submit, PM Review, Resubmit, Approval																											
KD8 - Construction																																			
KD8 - Inlet Works and Primary Treatment Building (IWPTB) (Area Occupied)																																			
KD8-2014	STW - IWPTB Foundation Pre-drilling (approx. 109 nrs)	621	06-Dec-21 A	15-Jan-24	21-Jun-22	11-Nov-23	-52	STW - IWPTB Foundation Pre-drilling (approx. 109 nrs)																											
KD8-2015	STW - IWPTB Foundation Socketed H-piles for IW PTB (109 nrs @ 3d/pile/rig, 4 rigs)	55	06-Dec-21 A	20-Sep-23	21-Jun-22	11-Jul-22	-356	STW - IWPTB Foundation Socketed H-piles for IW PTB (109 nrs @ 3d/pile/rig, 4 rigs)																											



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

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

Project ID : d.YL21-230720
 Layout : YL-02 3MRP
 Date : 20-Jul-23/ Page 5 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36																									
								04		11		18		25		02		09		16		23		30		06		13		20		27		03		10		17		24		01		08		15		22	
S6-9013	Area 2 - DCM6 at Pond 07 (96hrs, 5nr/drig, 1 rig, R1)	20	27-Sep-23	21-Oct-23	08-May-23	31-May-23	-119																																										
S6-9017	Area 2 - Post-DCM Coring	18	21-Apr-23 A	25-Mar-24	10-Oct-22	05-Jul-23	-119																																										
Fig 2 (at Area 3)								144	10-May-23 A	31-Oct-23	27-Aug-22	24-Sep-26	569																																				
Area 3 - DCM at Pond 8,9, & 11								144	10-May-23 A	31-Oct-23	27-Aug-22	24-Sep-26	569																																				
S6-9618	WCR TTA 41 - Road Closure	0	26-Jun-23 A	15-Sep-22	15-Sep-22	15-Sep-22	-	WCR TTA 41 - Road Closure																																									
S6-9619	Area 3 - Diversion of watermain	76	01-Aug-23	31-Oct-23	30-May-23	28-Aug-23	-52																																										
S6-9620	Area 3 - Diversion of CLP cables	58	10-May-23 A	19-Jul-23	27-Aug-22	14-Sep-22	-151	Area 3 - Diversion of CLP cables																																									
S6-9627	Area 3 - DCM6 Pond 09 (177rs, 5nr/drig, 1rig, R2)	50	26-Jun-23 A	23-Aug-23	26-Apr-23	19-Jun-23	-54	Area 3 - DCM6 Pond 09 (177rs, 5nr/drig, 1rig, R2)																																									
S6-9657	Area 3 - DCM6 Pond 08 (120rs, 5nr/drig, 1rig, R2)	25	24-Aug-23	21-Sep-23	20-Jun-23	20-Jul-23	-54	Area 3 - DCM6 Pond 08 (120rs, 5nr/drig, 1rig, R2)																																									
S6-9667	Area 3 - Post-DCM Coring	121	23-May-23 A	16-Oct-23	11-Jun-26	24-Sep-26	581	Area 3 - Post-DCM																																									
Fig 3 (at Area 3)								141	13-Apr-23 A	03-Oct-23	04-Mar-23	31-Oct-23	23																																				
Area 3 - DCM 6 & 7 at Pond 13								141	13-Apr-23 A	03-Oct-23	04-Mar-23	31-Oct-23	23																																				
S6-7540	Area 3 - DCM6 Pond 13 (242hrs, 5nr/drig, 1rig, R3)	50	13-Apr-23 A	31-Jul-23	04-Mar-23	01-Apr-23	-95	Area 3 - DCM6 Pond 13 (242hrs, 5nr/drig, 1rig, R3)																																									
S6-8857	Area 3 - Post-DCM Coring	75	15-Apr-23 A	28-Aug-23	29-Jul-23	23-Sep-23	23	Area 3 - Post-DCM Coring																																									
S6-8867	Area 3 - Post-CPT for DCM	4	27-Sep-23	03-Oct-23	27-Oct-23	31-Oct-23	23	Area 3 - Post-CPT for DCM																																									
Area 3 - DCM6 at Pond 12								86	15-Jun-23 A	25-Sep-23	13-Mar-23	31-Oct-23	28																																				
S6-9657	Area 3 - DCM6 Pond 12 (166hrs, 5nr/drig, 1rig, R3)	35	15-Jun-23 A	27-Jul-23	13-Mar-23	11-Apr-23	-88	Area 3 - DCM6 Pond 12 (166hrs, 5nr/drig, 1rig, R3)																																									
S6-9667	Area 3 - Post-DCM Coring	44	03-Jul-23	22-Aug-23	04-Aug-23	23-Sep-23	28	Area 3 - Post-DCM Coring																																									
S6-9677	Area 3 - Post-CPT for DCM	4	21-Sep-23	25-Sep-23	27-Oct-23	31-Oct-23	28	Area 3 - Post-CPT for DCM																																									
S6 WCR: Instrumentation								358	03-Jul-23	14-May-25	17-Mar-23	19-Jul-24	-144																																				
S6-1040	Portion 6 - Instrument Installation Type C3 (SM & SMM 66 hrs)	358	03-Jul-23	14-May-25	03-Apr-23	19-Jul-24	-144																																										
S6-1110	Portion 6 - Instrument Installation Type C4 (MPX 9hrs, WWP 18hrs, SP 9 hrs, SMM, 9 hrs) 1 rig	116	03-Jul-23*	18-Mar-24	17-Mar-23	08-Aug-23	-84																																										
Area 1 (Road D1 to CH 1900) 216m								173	05-May-23 A	20-Jul-24	07-Oct-22	12-Nov-26	329																																				
S6-5904	Area 1 - Complete DCM7	0		04-Oct-23		06-May-23	-124	Area 1 - Complete DCM7																																									
S6-5905	Area 1 - Complete DCM5	0		04-Oct-23		25-Mar-23	-155	Area 1 - Complete DCM5																																									
S6-5909	Area 1 - Complete DCM8	0		12-Aug-23		28-Aug-23	13	Area 1 - Complete DCM8																																									
Area 1 - Retaining Walls								136	05-May-23 A	17-Apr-24	29-Mar-23	12-Nov-26	365																																				
Area 1 - Pipe Pile Wall PW1								68	05-Oct-23	26-Mar-24	29-Mar-23	22-May-23	-120																																				
S6-5289	Area 1 - DCM7 & DCM8 Curing	28	05-Oct-23	01-Nov-23	29-Mar-23	25-Apr-23	-190																																										
S6-6245	Area 1 - (PW1) Pipe Pile (ave 2d/pile) and Excavation	42	07-Oct-23	26-Mar-24	29-Mar-23	22-May-23	-155																																										
Area 1 - Retaining Wall RW1								49	05-May-23 A	06-Sep-23	27-May-23	12-Nov-26	453																																				
S6-6236	Area 1 - (RW1) Retaining Wall Construction	72	05-May-23 A	31-Jul-23	27-May-23	26-Jun-23	-29	Area 1 - (RW1) Retaining Wall Construction																																									
S6-6236	PMI No. 202 - Amendment to Retaining Wall Top Level at Bay 1 of RW1 (Issued 13 June 2023)	0		14-Jun-23 A		12-Nov-26	-	PMI No. 202 - Amendment to Retaining Wall Top Level at Bay 1 of RW1 (Issued 13 June 2023)																																									
S6-6237	Area 1 - (RW1) Amendment to Retaining Wall Top Level at Bay 11	21	01-Aug-23	21-Aug-23	27-Jun-23	17-Jul-23	-35	Area 1 - (RW1) Amendment to Retaining Wall Top Level at Bay 11																																									
S6-6305	Area 1 - (RW1) Backfilling	14	22-Aug-23	06-Sep-23	18-Jul-23	02-Aug-23	-30	Area 1 - (RW1) Backfilling																																									
Area 1 - Retaining Wall RW2								59	05-Oct-23	17-Apr-24	15-May-23	02-Aug-23	-111																																				
S6-5190	Area 1 - (RW2) Temporary Works and Excavation	14	05-Oct-23	20-Oct-23	15-May-23	31-May-23	-118																																										
S6-5200	Area 1 - (RW2) Retaining Wall Construction	45	21-Oct-23	17-Apr-24	09-Jun-23	02-Aug-23	-111																																										
Area 1 - Retaining Wall RW3								59	05-Oct-23	17-Apr-24	15-May-23	25-Jul-23	-118																																				
S6-5220	Area 1 - (RW3) Temporary Works and Excavation	14	05-Oct-23	20-Oct-23	15-May-23	31-May-23	-118																																										
S6-5230	Area 1 - (RW3) Retaining Wall Construction	45	21-Oct-23	17-Apr-24	01-Jun-23	25-Jul-23	-118																																										
Area 1 - UU & Road Construction								151	29-Jun-23 A	20-Jul-24	07-Oct-22	28-Aug-23	-128																																				
S6-9072	Area 1 - DCM Curing	125	29-Jun-23 A	31-Oct-23	28-Apr-23	28-Aug-23	-64																																										
S6-9077	Area 1 - DN700 Fresh Watermains	130	12-Oct-23	20-Jul-24*	21-Mar-23	28-Aug-23	-166																																										
S6-9087	Area 1 - Drainage (approx. 52hrs manhole, 1,500m pipes)	155	12-Aug-23	20-Jun-24	07-Oct-22	12-Aug-23	-154																																										
Area 2 (CH 1900 to CH 1650) 250m								168	14-May-23 A	30-Jul-24	10-Jul-22	08-Aug-23	-139																																				
S6-6315	Pond 10 Filling Complete	0		19-Aug-23		28-Oct-22	-142	Pond 10 Filling Complete																																									
S6-8855	Area 2 DCM6 at Pond 05	0		31-Aug-23		01-Jun-23	-76	Area 2 DCM6 at Pond 05																																									
S6-8856	Area 2 DCM6 at Pond 06	0		26-Sep-23		29-Jul-23	-50	Area 2 DCM6 at Pond 06																																									
S6-8857	Area 2 DCM7 at Pond 10	0		16-Sep-23		01-Jun-23	-90	Area 2 DCM7 at Pond 10																																									
Area 2 - Retaining Walls								115	03-Jul-23	22-Apr-24	03-Apr-23	08-Aug-23	-100																																				
Area 2 - Pipe Pile Wall PW3								49	21-Oct-23	22-Apr-24	01-Jun-23	29-Jul-23	-118																																				
S6-6612	Area 2 - Fill Slope F5 (102m3 @ 200m3/d)	1	21-Oct-23	21-Oct-23	01-Jun-23	01-Jun-23	-118																																										
S6-6615	Area 2 - (PW3) Pipe Pile (ave 2d/pile) and Excavation	48	24-Oct-23	22-Apr-24	02-Jun-23	29-Jul-23	-118																																										
Area 2 - Retaining Wall RW4								48	03-Jul-23	01-Nov-23	03-Apr-23	08-Aug-23	-33																																				
S6-7364	Area 2 - Fill Slope F10 (749m3 @ 200m3/d)	4	03-Jul-23	06-Jul-23	03-Apr-23	11-Apr-23	-70	Area 2 - Fill Slope F10 (749m3 @ 200m3/d)																																									
S6-7365	Area 2 - (RW4) Sheetpiling and Excavation	18	07-Jul-23	27-Jul-23	12-Apr-23	03-May-23	-70	Area 2 - (RW4) Sheetpiling and Excavation																																									
S6-7375	Area 2 - (RW4) Retaining Wall Construction	62	28-Jul-23	10-Oct-23	04-May-23	18-Jul-23	-70	Area 2 - (RW4) Retaining Wall Construction																																									
S6-7385	Area 2 - (RW4) Backfilling	18	11-Oct-23	01-Nov-23	19-Jul-23	08-Aug-23	-70	Area 2 - (RW4) Backfilling																																									
Area 2 - UU & Road Construction								168	14-May-23 A	30-Jul-24	10-Jul-22	03-Aug-23	-141																																				
S6-6322	Area 2 - DCM6 Curing	386	14-May-23 A	03-Apr-24	10-Jul-22	11-Apr-23	-358																																										
S6-6655	Area 2 - Drainage Construction (50hrs, 1,215m pipes)	150	26-Sep-23	30-Jul-24	03-Oct-22	03-Aug-23	-195																																										
Area 3 (CH 1650 to CH 1350) 300m								154	26-May-23 A	22-Jun-24	01-Sep-22	31-Oct-23	-92																																				
S6-8878	Area 3 - DCM6 at Pond 11	0		03-Jul-23		18-Aug-23	41	Area 3 - DCM6 at Pond 11																																									
S6-8880	Area 3 - DCM6 at Pond 09	0		23-Aug-23		18-Aug-23	-4	Area 3 - DCM6 at Pond 09																																									
S6-8887	Area 3 - DCM6 at Pond 08	0		21-Sep-23		09-Sep-23	-10	Area 3 - DCM6 at Pond 08																																									
Area 3 - Retaining Wall RW5								46	17-Jul-23	13-Nov-23	13-Jun-23	31-Oct-23	-5																																				
S6-7388	Area 3 (RW5) GEO Approval for CSD	0		17-Jul-23*		13-Jun-23	-27	Area 3 (RW5) GEO Approval for CSD																																									
S6-7393	Area 3 - Fill Slope F12:F13:F14 (1,256+749+2,073=4,078m3 @ 200m3/d)	23	18-Jul-23	12-Aug-23	14-Jun-23	12-Jul-23	-27	Area 3 - Fill Slope F12:F13:F14 (1,256+749+2,073=4,078m3 @ 200m3/d)																																									
S6-7395	Area 3 - (RW5) Sheetpiling and Excavation	14	14-Aug-23	29-Aug-23	01-Aug-23	16-Aug-23	-11	Area 3 - (RW5) Sheetpiling and Excavation																																									
S6-7405	Area 3 - (RW5) Retaining Wall Construction	48	30-Aug-23	27-Oct-23	17-Aug-23	13-Oct-23	-11																																										
S6-7415	Area 3 - (RW5) Backfilling	14	28-Oct-23	13-Nov-23	14-Oct-23	31-Oct-23	-11																																										
Area 3 - UU & Road Construction								154	26-May-23 A	22-Jun-24	01-Sep-22	21-Sep-23	-107																																				
S6-8906	Area 3 - DCM6&7 Curing	152	26-May-23 A	23-Nov-23	26-Mar-23	18-Aug-23	-97																																										
S6-8907	Area 3 - DN700 Fresh Watermains	130	13-Sep-23	22-Jun-24	03-Apr-23	09-Sep-23	-132																																										
S6-8917	Area 3 - Drainage Construction (30hrs, 755m pipes)	160	07-Jul-23	20-May-24	01-Sep-22	17-Jul-23	-151																																										
S6-8932	Area 3 - Fill Slope F15 (1,893m3 @ 200m3/d)	45	03-Oct-23*	25-Mar-24	01-Aug-23	21-Sep-23	-52																																										
S6 WCR Pai Lau								167	30-Sep-22 A	07-Dec-23	18-Jan-24	19-Jul-24	88																																				
S6-5638	PL No. 1 - Precast Architectural Appearance Fabrication and Delivery to Site	189	30-Sep-22 A	06-Aug-23	14-Feb-24	21-Mar-24	228	PL No. 1 - Precast Architectural Appearance Fabrication and Delivery to Site																																									
S6-5645B	Issued PMI No. 122 - Quotation Preparation and Submission	21	01-Dec-22 A	14-Jul-23	26-Jan-24	08-Feb-24	209	Issued PMI No. 122 - Quotation Preparation and Submission																																									
S6-5645C	Issued PMI No. 122 - PM Review and Reply	14	01-Mar-23 A	25-Jul-23	26-Jan-24	19-Feb-24	209	Issued PMI No. 122 - PM Review and Reply																																									



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

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

Project ID : d.YL21-230720
 Layout : YL-02 3MRP
 Date : 20-Jul-23/ Page 7 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area																											
Pai Lau No.1 Construction (Location 15, LMC Road)																																			
PL No.1 - Preparation Works																																			
S6-566	PL No.1 - Construct Temporary Road for TTAScheme No.7	11	28-Aug-23	08-Sep-23	22-Mar-24	08-Apr-24	168	PL No.1 - Construct Temporary Road for TTAScheme No.7																											
PL No.1 - Foundation																																			
S6-325	PL No.1 - Erect TTAScheme No.30	1	09-Sep-23	09-Sep-23	09-Apr-24	09-Apr-24	168	PL No.1 - Erect TTAScheme No.30																											
PL1 Foundation - North Part																																			
S6-927	PL No.1 (North) - Install ELS	45	05-Dec-22A	19-Jul-23	22-Jan-24	07-Feb-24	168	PL No.1 (North) - Install ELS																											
S6-937	PL No.1 (North) - Excavate to formation level	60	05-Dec-22A	26-Jul-23	22-Jan-24	19-Feb-24	168	PL No.1 (North) - Excavate to formation level																											
S6-9407	PL No.1 (North) - Place 500mm rock fill on final excavation level	3	27-Jul-23	29-Jul-23	20-Feb-24	22-Feb-24	168	PL No.1 (North) - Place 500mm rock fill on final excavation level																											
S6-9417	PL No.1 (North) - Construct the structural blinding	1	31-Jul-23	31-Jul-23	23-Feb-24	23-Feb-24	168	PL No.1 (North) - Construct the structural blinding																											
S6-9427	PL No.1 (North) - Erect formwork and fix reinforcement	5	01-Aug-23	05-Aug-23	24-Feb-24	29-Feb-24	168	PL No.1 (North) - Erect formwork and fix reinforcement																											
S6-9437	PL No.1 (North) - Concreting for footing and columns to first CJ	1	07-Aug-23	07-Aug-23	01-Mar-24	01-Mar-24	168	PL No.1 (North) - Concreting for footing and columns to first CJ																											
S6-9439	PL No.1 (North) - Erect formwork and fix reinforcement of column	4	08-Aug-23	11-Aug-23	02-Mar-24	06-Mar-24	168	PL No.1 (North) - Erect formwork and fix reinforcement of column																											
S6-9441	PL No.1 (North) - Concreting for column	1	12-Aug-23	12-Aug-23	07-Mar-24	07-Mar-24	168	PL No.1 (North) - Concreting for column																											
S6-9447	PL No.1 (North) - Curing and remove formwork	3	14-Aug-23	16-Aug-23	08-Mar-24	11-Mar-24	168	PL No.1 (North) - Curing and remove formwork																											
S6-9457	PL No.1 (North) - Remove ELS	9	17-Aug-23	26-Aug-23	12-Mar-24	21-Mar-24	168	PL No.1 (North) - Remove ELS																											
S6-9467	PL No.1 (North) - Backfill to existing ground level	9	17-Aug-23	26-Aug-23	12-Mar-24	21-Mar-24	168	PL No.1 (North) - Backfill to existing ground level																											
PL1 Foundation - South Part																																			
S6-9216	PL No.1 (South) - Remove C2 blockwall platform	6	03-Jul-23*	08-Jul-23	18-Jan-24	24-Jan-24	165	PL No.1 (South) - Remove C2 blockwall platform																											
S6-9217	PL No.1 (South) - Excavation of Trial Pit (South Part)	3	10-Jul-23	12-Jul-23	25-Jan-24	27-Jan-24	165	PL No.1 (South) - Excavation of Trial Pit (South Part)																											
S6-9227	PL No.1 (South) - UU Diversion (if necessary)	17	13-Jul-23	01-Aug-23	29-Jan-24	21-Feb-24	165	PL No.1 (South) - UU Diversion (if necessary)																											
S6-9237	PL No.1 (South) - Install ELS	7	02-Aug-23	09-Aug-23	22-Feb-24	29-Feb-24	165	PL No.1 (South) - Install ELS																											
S6-9247	PL No.1 (South) - Excavate to Formation Level	4	10-Aug-23	14-Aug-23	01-Mar-24	05-Mar-24	165	PL No.1 (South) - Excavate to Formation Level																											
S6-9257	PL No.1 (South) - Place 500mm rock fill on final excavation level	2	15-Aug-23	16-Aug-23	06-Mar-24	07-Mar-24	165	PL No.1 (South) - Place 500mm rock fill on final excavation level																											
S6-9267	PL No.1 (South) - Construct structural blinding	2	17-Aug-23	18-Aug-23	09-Mar-24	09-Mar-24	165	PL No.1 (South) - Construct structural blinding																											
S6-9277	PL No.1 (South) - Erect formwork and fix reinforcement	5	19-Aug-23	24-Aug-23	11-Mar-24	15-Mar-24	165	PL No.1 (South) - Erect formwork and fix reinforcement																											
S6-9287	PL No.1 (South) - Concreting for footing and columns to first CJ	1	25-Aug-23	25-Aug-23	16-Mar-24	16-Mar-24	165	PL No.1 (South) - Concreting for footing and columns to first CJ																											
S6-9297	PL No.1 (South) - Curing and remove formwork	3	26-Aug-23	29-Aug-23	18-Mar-24	20-Mar-24	165	PL No.1 (South) - Curing and remove formwork																											
S6-9317	PL No.1 (South) - Backfill and remove ELS	7	30-Aug-23	06-Sep-23	21-Mar-24	28-Mar-24	165	PL No.1 (South) - Backfill and remove ELS																											
S6-9327	PL No.1 (South) - Reinstale the road surface	6	07-Sep-23	13-Sep-23	02-Apr-24	09-Apr-24	165	PL No.1 (South) - Reinstale the road surface																											
PL1 Foundation - TTA																																			
S6-3685	PL No.1 - Erect TTAScheme No.30	1	14-Sep-23	14-Sep-23	10-Apr-24	10-Apr-24	165	PL No.1 - Erect TTAScheme No.30																											
PL No.1 - Superstructure																																			
S6-3635	PL No.1 - Erect falsework by metal scaffolding	4	15-Sep-23	19-Sep-23	11-Apr-24	15-Apr-24	165	PL No.1 - Erect falsework by metal scaffolding																											
S6-3705	PL No.1 - Erect formwork and fix reinforcement for remaining column	4	20-Sep-23	23-Sep-23	16-Apr-24	19-Apr-24	165	PL No.1 - Erect formwork and fix reinforcement for remaining column																											
S6-3715	PL No.1 - Concreting for remaining column	1	25-Sep-23	25-Sep-23	20-Apr-24	20-Apr-24	165	PL No.1 - Concreting for remaining column																											
S6-3725	PL No.1 - Erect formwork and fix reinforcement for beam and roof	7	26-Sep-23	05-Oct-23	22-Apr-24	29-Apr-24	165	PL No.1 - Erect formwork and fix reinforcement for beam and roof																											
S6-3735	PL No.1 - Concreting for beam and roof	1	06-Oct-23	06-Oct-23	30-Apr-24	30-Apr-24	165	PL No.1 - Concreting for beam and roof																											
S6-3745	PL No.1 - Remove formwork and falsework	4	07-Oct-23	11-Oct-23	02-May-24	06-May-24	165	PL No.1 - Remove formwork and falsework																											
S6-3755	PL No.1 - Construct the architectural appearance	48	12-Oct-23	07-Dec-23	07-May-24	04-Jul-24	165	PL No.1 - Construct the architectural appearance																											
Pai Lau No.2 Construction (Location 11, HWT Road)																																			
PL No.2 - Superstructure																																			
S6-5946	PL No.2 - Erect formwork and fix reinforcement for remaining column	14	25-Mar-23A	26-Jul-23	05-Mar-24	28-Mar-24	201	PL No.2 - Erect formwork and fix reinforcement for remaining column																											
S6-5956	PL No.2 - Concreting for remaining column	1	27-Jul-23	27-Jul-23	02-Apr-24	02-Apr-24	201	PL No.2 - Concreting for remaining column																											
S6-5966	PL No.2 - Erect formwork and fix reinforcement for beam and roof	10	28-Jul-23	08-Aug-23	03-Apr-24	15-Apr-24	201	PL No.2 - Erect formwork and fix reinforcement for beam and roof																											
S6-5976	PL No.2 - Concreting for beam and roof	1	09-Aug-23	09-Aug-23	16-Apr-24	16-Apr-24	201	PL No.2 - Concreting for beam and roof																											
S6-5986	PL No.2 - Remove formwork and falsework	8	10-Aug-23	18-Aug-23	17-Apr-24	25-Apr-24	201	PL No.2 - Remove formwork and falsework																											
S6-5996	PL No.2 - Construct the architectural appearance	51	19-Aug-23	19-Oct-23	26-Apr-24	27-Jun-24	201	PL No.2 - Construct the architectural appearance																											
S6-6006	PL No.2 - Remove the working platform	6	20-Oct-23	27-Oct-23	28-Jun-24	05-Jul-24	201	PL No.2 - Remove the working platform																											
PL No.2 - Reinstatement of HWT Road																																			
S6-5806	PL No.2 - Reinstale the Road Surface	12	28-Oct-23	10-Nov-23	06-Jul-24	19-Jul-24	201	PL No.2 - Reinstale the Road Surface																											
Section 7 - Ground Treatment Works and Site Formation at Portion 7 (Area Occupied)																																			
S7 Civil Structures																																			
S7-001	Available area occupied by Temporary Office	433	22-Feb-22A	30-Aug-23	31-May-22	30-Jul-22	-396	Available area occupied by Temporary Office																											
S7-3810	Issue PMI & PMN to commence works	0		30-Aug-23		30-Jul-22	-321	Issue PMI & PMN to commence works																											
S7-3820	Preparation & Submissions	60	31-Aug-23	11-Nov-23	01-Aug-22	12-Oct-22	-321	Preparation & Submissions																											
S7 - Ground Improvement - DCM																																			
S7-1182	WCR - Area 2 DCM complete	0		26-Sep-23		12-Oct-22	-284	WCR - Area 2 DCM complete																											
S7-1185	Portion 7 - Application for SPL license (if necessary)	45	18-Sep-23	11-Nov-23	18-Aug-22	12-Oct-22	-321	Portion 7 - Application for SPL license (if necessary)																											
S7 - Box Culvert B																																			
S7-1220	Portion 7 - Application to Border Police for Boundary Patrol Road TTA	180	03-Jul-23	29-Dec-23	15-Jun-23	11-Dec-23	-18	Portion 7 - Application to Border Police for Boundary Patrol Road TTA																											
S7 Ground Improvement - DCM																																			
S7-1165	Area Occupied	554	24-Feb-22A	31-Aug-23	17-Oct-21	17-Dec-21	-622	Area Occupied																											
S7-1180A	Portion 7 - Subletting	25	03-Jul-23*	31-Jul-23	12-Oct-21	10-Nov-21	-504	Portion 7 - Subletting																											
S7-1180B	Portion 7 - Site Preparation	7	01-Aug-23	08-Aug-23	11-Nov-21	18-Nov-21	-504	Portion 7 - Site Preparation																											
S7-1180C	Portion 7 - Commencement of DCM Works	0	09-Aug-23		19-Nov-21		-504	Portion 7 - Commencement of DCM Works																											
S7-1180D	Portion 7 - Establishment of Silo Plants	25	09-Aug-23	06-Sep-23	19-Nov-21	17-Dec-21	-504	Portion 7 - Establishment of Silo Plants																											
S7-1190	Portion 7 - Construct DCM Clusters Stage 1 (152,152b, 200m) 28,790 of 194,330 @ 180m3/cluster - 3 auger	52	26-Jan-22A	31-Oct-23	18-Dec-21	16-Feb-22	-504	Portion 7 - Construct DCM Clusters Stage 1 (152,152b, 200m) 28,790 of 194,330 @ 180m3/cluster - 3 auger																											
S7 Ground Improvement - PVD/Surcharge (Area Occupied)																																			
S7-1090	Portion 7 - PVD Installation (184,500m @ 2,000m/day/rig - 2 rig)	45	03-Jan-22A	08-Sep-23	06-Jun-22	13-Jun-22	-369	Portion 7 - PVD Installation (184,500m @ 2,000m/day/rig - 2 rig)																											
S7-1100	Portion 7 - General Fill to Surcharge 2m High (23,780m3 @ 600m3/d)	28	25-Sep-23	30-Oct-23	19-Jul-22	19-Aug-22	-353	Portion 7 - General Fill to Surcharge 2m High (23,780m3 @ 600m3/d)																											
S7-1110	Portion 7 - Time Risk Allowance for Earthworks	6	31-Oct-23	06-Nov-23	20-Aug-22	26-Aug-22	-353	Portion 7 - Time Risk Allowance for Earthworks																											
S7-1140	Portion 7 - Surcharge Period (9 months) (23,900m3)	270	23-Oct-23	18-Jul-24	13-Aug-22	09-May-23	-436	Portion 7 - Surcharge Period (9 months) (23,900m3)																											
S7 Civil Structures (Area Occupied)																																			
S7 - Public Transport Interchange (PTI)																																			
S7 - PTI Preliminary Submissions																																			
PRE-700	Confirmation of Specialist Steelworks Subcontractor	0	31-Oct-23*	31-Oct-23	23-Dec-22	23-Dec-22	-312	Confirmation of Specialist Steelworks Subcontractor																											
Section 8 - Ground Treatment Works and Site Formation at Portion 8 (Area Occupied)																																			
S8 STW - Site Formation																																			
S8 STW - Site Formation																																			



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

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

Project ID : d.YL21-230720
Layout : YL-02 3MRP
Date : 20-Jul-23/ Page 8 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36											
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22							
								Gantt Chart Area																											
S8-1105	Area Occupied	554	24-Feb-22 A	31-Aug-23	05-Dec-21	04-Feb-22	-573	Area Occupied																											
S8-1110	Portion 8 - Stage 3 - General Fill to Surcharge 2m High (26,615m3 @ 360m3/d)	68	24-Feb-22 A	22-Nov-23	07-Mar-22	28-Apr-22	-573																												
S8-1140	Portion 8 - Stage 3 - Surcharge Period (9 months) (33,040m3)	273	01-Oct-23	29-Jun-24	07-Mar-22	04-Dec-22	-573																												
Section 9 - Box Culvert Construction at Portion 20																																			
S9 Box Culvert C - (CSD Scheme)																																			
S9 Box Culvert C - ELS Installation & Structure Construction																																			
Box Culvert C (CH 0 to 48)																																			
S9-6300	Box C (CH0-48) - Base Slab Construction	22	05-Jun-23 A	30-Jun-23 A	17-Jun-22	17-Jun-22																													
S9-6305	Box C (CH0-48) - CH0-10 (Bay 1) to be incorporated with L1 Roadwork	35	05-Jul-23	14-Aug-23	21-Jun-22	01-Aug-22	-306	Box C (CH0-48) - CH0-10 (Bay 1) to be incorporated with L1 Roadwork																											
S9-6340	Box C (CH0-48) - Walls and Top Slab Construction (pour in one go)	38	03-Jul-23	15-Aug-23	17-Jun-22	01-Aug-22	-307	Box C (CH0-48) - Walls and Top Slab Construction (pour in one go)																											
S9-6341	PMI No. 210 - End Wall for Box Culvert C at Chainage 0.0 (Issued 21 June 2023)	0		21-Jun-23 A		02-Aug-22		◆ PMI No. 210 - End Wall for Box Culvert C at Chainage 0.0 (Issued 21 June 2023)																											
S9-6342	Box C (CH0-48) - End Wall for Box Culvert C at Chainage 0.0	12	16-Aug-23	29-Aug-23	02-Aug-22	15-Aug-22	-307	Box C (CH0-48) - End Wall for Box Culvert C at Chainage 0.0																											
S9-6350	Box C (CH0-48) - Formwork Removal	12	30-Aug-23	12-Sep-23	16-Aug-22	29-Aug-22	-307	Box C (CH0-48) - Formwork Removal																											
S9-6360	Box C (CH0-48) - Backfilling and Strut Removal	21	13-Sep-23	09-Oct-23	30-Aug-22	23-Sep-22	-307	Box C (CH0-48) - Backfilling and Strut Removal																											
Box Culvert C (CH 48 to 80)																																			
S9-6380	Box C (CH48-80) - Excavation and ELS Installation	80	19-Apr-23 A	25-Jul-23	13-May-22	06-Jun-22	-336	Box C (CH48-80) - Excavation and ELS Installation																											
S9-6390	Box C (CH48-80) - Steel Capping Plates Installation	11	03-Jul-23	14-Jul-23	16-Jun-22	28-Jun-22	-308	Box C (CH48-80) - Steel Capping Plates Installation																											
S9-6400	Box C (CH48-80) - Base Slab Construction	30	03-Jul-23	05-Aug-23	16-Jun-22	21-Jul-22	-308	Box C (CH48-80) - Base Slab Construction																											
S9-6410	Box C (CH48-80) - Walls and Top Slab Construction (pour in one go)	42	07-Aug-23	23-Sep-23	22-Jul-22	08-Sep-22	-308	Box C (CH48-80) - Walls and Top Slab Construction (pour in one go)																											
S9-6420	Box C (CH48-80) - Formwork Removal	12	25-Sep-23	10-Oct-23	09-Sep-22	23-Sep-22	-308	Box C (CH48-80) - Formwork Removal																											
S9-6430	Box C (CH48-80) - Backfilling and Strut Removal	21	11-Oct-23	04-Nov-23	24-Sep-22	20-Oct-22	-308	Box C (CH48-80) - Backfilling and Strut Removal																											
Box Culvert C (CH 80 to Outfall)																																			
S9-6440	Box C (CH80-Outfall) - Sheetpile Installation	42	03-Jul-23	19-Aug-23	13-May-22	02-Jul-22	-336	Box C (CH80-Outfall) - Sheetpile Installation																											
S9-6450	Box C (CH80-Outfall) - Excavation and ELS Installation	30	21-Aug-23	23-Sep-23	04-Jul-22	06-Aug-22	-336	Box C (CH80-Outfall) - Excavation and ELS Installation																											
S9-6460	Box C (CH80-Outfall) - Outfall Construction	42	25-Sep-23	15-Nov-23	08-Aug-22	26-Sep-22	-336	Box C (CH80-Outfall) - Outfall Construction																											
Section 12B - Box Culvert A3 at Portion 18B (Over Underpass of HSITP)																																			
Section 12B - Construction																																			
Section 12B - Box Culvert A3 (Portion 18B, CH 158-191) 33m (Area Occupied)																																			
S12B-1060	Portion 18B - MS Box Culvert A3 Preparation & Submit (14d), PM Review (28d), Resubmit (14d), Approval (28d)	28	24-Oct-23	24-Nov-23	11-Apr-22	18-May-22	-453																												
Section 12C - Road L1 and Box Culvert A1 at Portion 18C																																			
Section 12C - Construction																																			
Section 12C - Road L1 - Portion 18C (CH 1170 to 1430) 260m																																			
S12C-PC10	Complete Road L1 (PMI088)	0		31-Jul-23*		31-Jul-23	0	◆ Complete Road L1 (PMI088)																											
S12C Road L1 - Submissions																																			
Road L1 - PMIs																																			
S12C-1100B	Issued PMI No. 150 - Quotation Preparation and Submission	21	21-Mar-23A	04-Jul-23	01-Jul-23	04-Jul-23	0	Issued PMI No. 150 - Quotation Preparation and Submission																											
S12C-1100C	Issued PMI No. 150 - PM Review and Reply	14	05-Jul-23	18-Jul-23	05-Jul-23	18-Jul-23	0	Issued PMI No. 150 - PM Review and Reply																											
S12C-6450	Road L1 Flexible Pavement - Subletting	24	25-Apr-23 A	11-Jul-23	15-Jun-23	24-Jun-23	-13	Road L1 Flexible Pavement - Subletting																											
S12C-6460	Road L1 Flexible Pavement - Material Procurement and Delivery	8	12-Jul-23	20-Jul-23	26-Jun-23	05-Jul-23	-13	Road L1 Flexible Pavement - Material Procurement and Delivery																											
Road L1 - Design and Method Statement																																			
S12C-5680	Method Statement PM Review and Acceptance (Precast Concrete Pipe and Fittings)	21	21-Sep-22 A	03-Jul-23	31-Jul-23	03-Aug-23	31	Method Statement PM Review and Acceptance (Precast Concrete Pipe and Fittings)																											
S12C-5710	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 2m,3m depth)	21	03-Oct-22 A	05-Jul-23	21-Jun-22	25-Jun-22	-375	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 2m,3m depth)																											
S12C-5720	Temporary Works Design Submission (Road L1 Trench Excavation 4m,5m depth)	15	19-Sep-22 A	02-Jul-23	21-Jun-22	22-Jun-22	-375	Temporary Works Design Submission (Road L1 Trench Excavation 4m,5m depth)																											
S12C-5730	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 4m,5m depth)	21	04-Oct-22 A	05-Jul-23	21-Jun-22	25-Jun-22	-375	Temporary Works Design PM Review and Acceptance (Road L1 Trench Excavation 4m,5m depth)																											
S12C Road L1 - Stage 1 (Building 11)																																			
S12C Road L1 - Stage 1B (Building 11) - Drainage & Sewage, Watermain & Flushing																																			
S12C-6660	Stage 1B 18C Road L1 (Building 11) - Irrigation works	15	01-Aug-23	17-Aug-23	26-Oct-26	11-Nov-26	957	Stage 1B 18C Road L1 (Building 11) - Irrigation works																											
S12C Road L1 - Stage 1 (Building 11) - UU Installation and Enabling Works (by Others)																																			
S12C-5660	Stage 1A 18C Road L1 (Building 11) - UU enabling works (132kV)	6	13-Jul-23	19-Jul-23	29-Dec-23	05-Jan-24	140	Stage 1A 18C Road L1 (Building 11) - UU enabling works (132kV)																											
S12C-5660	Stage 1A 18C Road L1 (Building 11) - UU enabling works (11kV)	6	20-Jul-23	26-Jul-23	06-Jan-24	12-Jan-24	140	Stage 1A 18C Road L1 (Building 11) - UU enabling works (11kV)																											
S12C-5670	Stage 1A 18C Road L1 (Building 11) - UU enabling works (telecom)	14	27-Jul-23	11-Aug-23	13-Jan-24	29-Jan-24	140	Stage 1A 18C Road L1 (Building 11) - UU enabling works (telecom)																											
S12C Road L1 - Stage 1 (Building 11) - Roadworks and Lighting																																			
S12C-5756	Stage 1 18C Road L1 (Building 11) - Road works (Carriageway)	34	20-Jun-23 A	31-Jul-23	05-Jul-23	31-Jul-23	0	Stage 1 18C Road L1 (Building 11) - Road works (Carriageway)																											
S12C-5757	Stage 1 18C Road L1 (Building 11) - Road works (entrances)	14	12-Aug-23	28-Aug-23	27-Oct-26	11-Nov-26	948	Stage 1 18C Road L1 (Building 11) - Road works (entrances)																											
S12C-5759	Stage 1 18C Road L1 (Building 11) - Road works (Lighting)	15	14-Aug-23	30-Aug-23	12-Jan-24	29-Jan-24	124	Stage 1 18C Road L1 (Building 11) - Road works (Lighting)																											
S12C-5762	Stage 1 18C Road L1 (Building 11) - Road works (Footpath)	15	31-Aug-23	16-Sep-23	30-Jan-24	20-Feb-24	124	Stage 1 18C Road L1 (Building 11) - Road works (Footpath)																											
S12C Road L1 - Stage 2 (Building 12)																																			
S12C Road L1 - Stage 2 (Building 12) - Drainage & Sewage, Watermain & Flushing																																			
S12C-5750	Stage 2 18C Road L1 (Building 12) - Drainage and Sewage	27	17-May-23 A	13-Jul-23	21-Jun-22	29-Jun-22	-306	Stage 2 18C Road L1 (Building 12) - Drainage and Sewage																											
S12C-6700	Stage 2 18C Road L1 (Building 12) - Watermain (crossroad)	6	14-Jul-23	20-Jul-23	04-Jan-24	10-Jan-24	143	Stage 2 18C Road L1 (Building 12) - Watermain (crossroad)																											
S12C-6710	Stage 2 18C Road L1 (Building 12) - Construction of Oil Interceptors (1 no.)	13	03-Jul-23	17-Jul-23	08-Jul-23	22-Jul-23	5	Stage 2 18C Road L1 (Building 12) - Construction of Oil Interceptors (1 no.)																											
S12C Road L1 - Stage 2 (Building 12) - UU Installation and Enabling Works (by Others)																																			
S12C-6665	Stage 2 18C Road L1 (Building 12) - UU enabling works (11kV cross road ducts)	5	14-Jul-23	19-Jul-23	10-Jan-24	15-Jan-24	148	Stage 2 18C Road L1 (Building 12) - UU enabling works (11kV cross road ducts)																											
S12C-6670	Stage 2 18C Road L1 (Building 12) - UU enabling works (132kV)	7	26-Jul-23	02-Aug-23	16-Jan-24	23-Jan-24	143	Stage 2 18C Road L1 (Building 12) - UU enabling works (132kV)																											
S12C-6680	Stage 2 18C Road L1 (Building 12) - UU enabling works (11kV)	6	03-Aug-23	09-Aug-23	24-Jan-24	30-Jan-24	143	Stage 2 18C Road L1 (Building 12) - UU enabling works (11kV)																											
S12C-6690	Stage 2 18C Road L1 (Building 12) - UU enabling works (telecom)	14	10-Aug-23	25-Aug-23	31-Jan-24	20-Feb-24	143	Stage 2 18C Road L1 (Building 12) - UU enabling works (telecom)																											
S12C Road L1 - Stage 2 (Building 12) - Roadworks and Lighting																																			
S12C-5758A	Stage 2 18C Road L1 (Building 12) - Road works (Carriageway)	7	18-Jul-23	25-Jul-23	24-Jul-23	31-Jul-23	5	Stage 2 18C Road L1 (Building 12) - Road works (Carriageway)																											
S12C-5980	Stage 2 18C Road L1 (Building 12) - Road works (Lighting)	15	14-Aug-23	30-Aug-23	30-Jan-24	20-Feb-24	139	Stage 2 18C Road L1 (Building 12) - Road works (Lighting)																											
S12C-5990	Stage 2 18C Road L1 (Building 12) - Road works (Footpath)	15	31-Aug-23	16-Sep-23	30-Jan-24	20-Feb-24	124	Stage 2 18C Road L1 (Building 12) - Road works (Footpath)																											
S12C Road L1 - Stage 3 (Building 8)																																			
S12C Road L1 - Stage 3A (Building 8) - Drainage & Sewage, Watermain & Flushing																																			
S12C-5790	Stage 3A 18C Road L1 (Bldg 8) - Drainage and Sewage	117	01-Mar-23 A	22-Jul-23	05-Jul-23	08-Dec-23	116	Stage 3A 18C Road L1 (Bldg 8) - Drainage and Sewage																											
S12C-5795	Stage 3A 18C Road L1 (Bldg 8) - Watermain and Flushing	33	13-Jun-23 A	22-Jul-23	29-Nov-23	08-Dec-23	0	Stage 3A 18C Road L1 (Bldg 8) - Watermain and Flushing																											
S12C Road L1 - Stage 3B (Building 8) - Drainage & Sewage, Watermain & Flushing																																			
S12C-6600	Stage 3B 18C Road L1 (Bldg 8) - Drainage and Sewage	30	07-Aug-23	09-Sep-23	23-Dec-23	30-Jan-24	116	Stage 3B 18C Road L1 (Bldg 8) - Drainage and Sewage																											
S12C-6612	Stage 3B Road L1 (Bldg 8) - Irrigation	15	09-Sep-23	26-Sep-23	30-Jan-24	20-Feb-24	116	Stage 3B Road L1 (Bldg 8) - Irrigation																											
S12C Road L1 - Stage 3 (Building 8) - UU Installation and Enabling Works (by Others)																																			
S12C-5760	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (towers)	66	14-Feb-23 A	03-Jul-23	05-Jul-23	05-Jul-23	2	Stage 3A 18C Road L1 (Bldg 8) - UU enabling works (towers)																											



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

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

Project ID : d.YL21-230720
Layout : YL-02 3MRP
Date : 20-Jul-23/ Page 9 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-23	MPR No. 24		

Activity ID	Activity Name	Orig Dur	Early Start	Early Finish	Late Start	Late Finish	Total Float	June 32				July 33				August 34				September 35				October 36														
								04	11	18	25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15	22										
								Gantt Chart Area																														
S15.3-1110	Portion 15.3 - Instrumentation Installation Type C3 (SM1&2-7hrs, SMM-7hrs)	4	12-Oct-23	16-Oct-23	15-Oct-22	19-Oct-22	-233	[Gantt Bar]																														
S15.3-1115	Portion 15.3 - Formation (6,732m3 @ ave 900m3/d)	7	17-Oct-23	25-Oct-23	20-Oct-22	27-Oct-22	-233	[Gantt Bar]																														
Section 15.4 - Ground Treatment Works and Site Formation at Portion 15.4 (Area O)								258	20-Dec-21 A	21-Nov-23	14-Dec-21	28-Jun-22	-132	[Gantt Bar]																								
S15.4-1035	Area Occupied	554	22-Feb-22 A	31-Aug-23	14-Dec-21	13-Feb-22	-564	[Gantt Bar]																														
S15.4-1040	Portion 15.4 - Level Ground (13,260m3)	42	03-Oct-23	21-Nov-23	10-May-22	28-Jun-22	-416	[Gantt Bar]																														
S15.4-1050	Portion 15.4 - CPT (7 hrs @ ave 10hrs/d/rig, 1 rig)	48	28-Dec-21 A	09-Oct-23	10-May-22	16-May-22	-416	[Gantt Bar]																														
S15.4-1060	Portion 15.4 - Instrumentation Installation Type C1 (MPX 30 hrs @ ave 3dhr/rig, 12 rigs)	68	23-Dec-21 A	25-Oct-23	10-Mar-22	07-Apr-22	-457	[Gantt Bar]																														
S15.4-1070	Portion 15.4 - Instrumentation Installation Type C1 (VMP 60 hrs @ ave 6dhr/rig, 12 rigs)	71	20-Dec-21 A	25-Oct-23	10-Mar-22	07-Apr-22	-457	[Gantt Bar]																														
S15.4-1080	Portion 15.4 - Instrumentation Installation Type C1 (SP 30 hrs @ ave 3dhr/rig, 12 rigs)	79	22-Dec-21 A	06-Nov-23	10-Mar-22	22-Apr-22	-457	[Gantt Bar]																														
Section 15.5 - Ground Treatment Works and Site Formation at Portion 15.5 (Area O)								239	23-Dec-21 A	22-Dec-23	16-Dec-21	16-Jun-22	-208	[Gantt Bar]																								
S15.5-1025	Area Occupied	554	24-Feb-22 A	31-Aug-23	16-Dec-21	15-Feb-22	-562	[Gantt Bar]																														
S15.5-1030	Portion 15.5 - MS Earthwork Preparation, Submission, & Approval	60	13-Oct-23	22-Dec-23	31-Mar-22	16-Jun-22	-453	[Gantt Bar]																														
S15.5-1080	Portion 15.5 - Instrumentation Installation Type C1 (SP 13hrs @ ave 3dhr/rig, 8 rigs)	49	23-Dec-21 A	06-Oct-23	02-Mar-22	21-Mar-22	-456	[Gantt Bar]																														
S15.5-1090	Portion 15.5 - Instrumentation Installation Type C1 (SSM 13hrs)	5	29-Sep-23	06-Oct-23	16-Mar-22	21-Mar-22	-456	[Gantt Bar]																														
S15.5-1095	Portion 15.5 - Formation (40,356 m3 @ ave 900m3/d)	10	07-Oct-23	18-Oct-23	22-Mar-22	01-Apr-22	-456	[Gantt Bar]																														
S15.5-1100	Portion 15.5 - Granular Fill (17,400m3 @ 1,800m3/d)	12	19-Oct-23	02-Nov-23	02-Apr-22	20-Apr-22	-456	[Gantt Bar]																														
Section 15.6a - Ground Treatment Works and Site Formation at Portion 15.6a (Area O)								554	24-Feb-22 A	31-Aug-23	13-Sep-22	13-Nov-22	-291	[Gantt Bar]																								
S15.6a-0900	Area Occupied	554	24-Feb-22 A	31-Aug-23	13-Sep-22	13-Nov-22	-291	[Gantt Bar]																														
Section 15.7a - Ground Treatment Works and Site Formation at Portion 15.7a (Area O)								236	24-Feb-22 A	25-Nov-23	15-Nov-22	10-May-23	-78	[Gantt Bar]																								
S15.7a-0900	Area Occupied	554	24-Feb-22 A	31-Aug-23	15-Nov-22	15-Jan-23	-228	[Gantt Bar]																														
S15.7a-1000	Portion 15.7a - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	03-Oct-23	09-Oct-23	15-Feb-23	21-Feb-23	-187	[Gantt Bar]																														
S15.7a-1040	Portion 15.7a - Level Ground (64,890m3)	40	10-Oct-23	25-Nov-23	20-Mar-23	10-May-23	-165	[Gantt Bar]																														
S15.7a-1050	Portion 15.7a - CPT (4 hrs @ ave 10hrs/d/rig, 1 rig)	1	10-Oct-23	10-Oct-23	20-Mar-23	20-Mar-23	-165	[Gantt Bar]																														
S15.7a-1060	Portion 15.7a - Instrumentation Installation Type C1 (MPX 16 hrs @ ave 3dhr/rig, 8 rigs)	6	10-Oct-23	16-Oct-23	22-Feb-23	28-Feb-23	-187	[Gantt Bar]																														
S15.7a-1070	Portion 15.7a - Instrumentation Installation Type C1 (VMP 32 hrs @ ave 6dhr/rig, 8 rigs)	24	10-Oct-23	07-Nov-23	22-Feb-23	21-Mar-23	-187	[Gantt Bar]																														
Section 15.7b - Ground Treatment Works and Site Formation at Portion 15.7b (Area O)								229	24-Feb-22 A	06-Nov-23	22-Nov-22	30-Mar-23	-86	[Gantt Bar]																								
S15.7b-0900	Area Occupied	554	24-Feb-22 A	31-Aug-23	22-Nov-22	22-Jan-23	-221	[Gantt Bar]																														
S15.7b-1000	Portion 15.7b - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	31-Oct-23	06-Nov-23	24-Mar-23	30-Mar-23	-178	[Gantt Bar]																														
Section 15.8 - Reed Bed Area								270	24-Feb-22 A	20-Feb-24	07-Feb-24	23-Sep-22	-198	[Gantt Bar]																								
PRE-335	Portion 15.8 - Prepare, Submit & Coordination for Reed Transplant	90	31-Oct-23	20-Feb-24	09-Jun-22	23-Sep-22	-414	[Gantt Bar]																														
S15.8-1000	Area Occupied	554	24-Feb-22 A	31-Aug-23	07-Feb-22	09-Apr-22	-509	[Gantt Bar]																														
Section 16 - Works Not Covered by Other Sections of the Works (Area Occupied)								383	09-Nov-21 A	28-Aug-24	22-Oct-23	31-Oct-25	167	[Gantt Bar]																								
S16 Portion 9 of the Site - North Meander								243	09-Nov-21 A	18-Nov-23	22-Oct-23	11-Mar-24	44	[Gantt Bar]																								
S16-1035	Area Occupied	556	22-Feb-22 A	31-Aug-23	22-Oct-23	22-Dec-23	113	[Gantt Bar]																														
S16-1050	Portion 9 - Instrumentation Installation Type C2 (INC 9 hrs @ 3dhr/rig, 1 rig)	99	09-Nov-21 A	18-Nov-23	21-Feb-24	11-Mar-24	90	[Gantt Bar]																														
S16 Portion 15.6b of the Site								344	24-Feb-22 A	28-Aug-24	05-Jan-25	31-Oct-25	167	[Gantt Bar]																								
S16-1011	Area Occupied	554	24-Feb-22 A	31-Aug-23	05-Jan-25	08-Mar-25	554	[Gantt Bar]																														
S16-1015	Interface - Portion 10 FSAD Excavation and ELS (Depth 2m from Existing Level)	148	31-Oct-23	28-Aug-24	07-May-25	31-Oct-25	251	[Gantt Bar]																														
Section 20 - Ground Treatment Works and Site Formation at Portion 15.6b (Area O)								226	24-Feb-22 A	31-Oct-23	22-Mar-23	21-Jul-23	-40	[Gantt Bar]																								
Section 20 - Ground Treatment Works at Portion 15.6b								226	24-Feb-22 A	31-Oct-23	22-Mar-23	21-Jul-23	-40	[Gantt Bar]																								
S20-0900	Area Occupied	554	24-Feb-22 A	31-Aug-23	22-Mar-23	22-May-23	-101	[Gantt Bar]																														
S20-1000	Portion 15.6b - Site Clearance and Preparation Works (Ecological survey, Tree Survey)	6	01-Sep-23	07-Sep-23	23-May-23	30-May-23	-84	[Gantt Bar]																														
S20-1010	Portion 15.6b - Level Ground (7,780m3)	36	08-Sep-23	21-Oct-23	31-May-23	13-Jul-23	-84	[Gantt Bar]																														
S20-1020	Portion 15.6b - CPT (5 hrs @ ave 10hrs/d/rig, 1 rig)	1	08-Sep-23	08-Sep-23	31-May-23	31-May-23	-84	[Gantt Bar]																														
S20-1030	Portion 15.6b - Instrumentation Installation Type C1 (MPX 14 hrs @ ave 3dhr/rig, 8 rigs)	7	08-Sep-23	15-Sep-23	31-May-23	07-Jun-23	-84	[Gantt Bar]																														
S20-1040	Portion 15.6b - Instrumentation Installation Type C1 (VMP 28 hrs @ ave 6dhr/rig, 8 rigs)	23	16-Sep-23	14-Oct-23	08-Jun-23	06-Jul-23	-84	[Gantt Bar]																														
S20-1050	Portion 15.6b - Instrumentation Installation Type C1 (SP 14 hrs @ ave 3dhr/rig, 8 rigs)	7	07-Oct-23	14-Oct-23	28-Jun-23	06-Jul-23	-84	[Gantt Bar]																														
S20-1060	Portion 15.6b - Instrumentation Installation Type C1 (SSM 14 hrs)	7	07-Oct-23	14-Oct-23	28-Jun-23	06-Jul-23	-84	[Gantt Bar]																														
S20-1070	Portion 15.6b - Granular Fill (19,010m3 @ 1,500m3/d)	13	16-Oct-23	31-Oct-23	07-Jul-23	21-Jul-23	-84	[Gantt Bar]																														



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

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

Project ID : d.YL21-230720
Layout : YL-02 3MRP
Date : 20-Jul-23/ Page 11 of 11

Three Month Rolling Programme			
Date	Revision	Checked	Approved
30-Jun-23	MPR No. 24		

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 – Contract 2 Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and Direct Road Link Phase 1

Activity ID	Activity Name	BL Project Start	BL Project Finish	Actual Duration	Remaining Duration	Start	Finish	Variance - BL Project Finish Date	Physical % Complete	Total Float	2023																	
											July					August					September					October		
												25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15
Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and																												
Key Date and Section of the Works																												
Contractual Required Key Dates																												
KDD1010	KD 2 -Complete the laying of interim water main along Temporary Access Road TAR1 in Portion 2A&2B		28-May-23	0	0	08-Jul-23	08-Jul-23*	-40	0%	-40	◆ KD 2 -Complete the laying of interim water main along Temporary Access Road TAR1 in Portion 2A&2B																	
Contractual Required Date for Section of the Works																												
SEW1040	Section 5- Comprises the works within Portion 6 of the Site	14-Mar-23	14-Mar-23	0	0	29-Aug-23	29-Aug-23*	-168	0%	-168	◆ Section 5- Comprises the works within Portion 6 of the Site																	
Planned Achievement Date for Section of the Works																												
SEW1100	Section 5- Comprises the works within Portion 6 of the Site	11-Mar-23	11-Mar-23	0	0	29-Aug-23	29-Aug-23	-171	0%	-168	◆ Section 5- Comprises the works within Portion 6 of the Site																	
General Submission,Preliminaries, Contractor's Design,Method Statement Submission																												
Contractor's Design Submission and Approval																												
Major Permanent Works Design																												
MPW1010-10	Acceptance of design for noise barriers at Western Connection Road	13-Sep-22	10-Oct-22	65	6	24-Apr-23 A	14-Jul-23	-238	0%	848	Acceptance of design for noise barriers at Western Connection Road																	
MPW1015-10	Acceptance of design for security fences	27-Jan-24	23-Feb-24	58	6	02-May-23 A	14-Jul-23	192	0%	396	Acceptance of design for security fences																	
MPW1020-10	Acceptance of design and shop drawings for covered walkways at Cycle Track cum Footbridge with staircases	22-Apr-23	19-May-23	69	6	19-Apr-23 A	14-Jul-23	-48	0%	114	Acceptance of design and shop drawings for covered walkways at Cycle Track cum Footbridge with staircases																	
MPW1035	Submission and acceptance for road lighting system	27-Jun-23	09-Oct-23	0	90	08-Jul-23	20-Oct-23	-10	0%	366																		
MPW1095	Submission for glass balustrades	08-May-23	19-Aug-23	0	90	14-Jul-23	26-Oct-23	-58	0%	61																		
MSS1320	Shop Drawings submission and approval for noise barrier steelworks and panels	22-Oct-22	03-Feb-23	0	90	27-Jul-23	08-Nov-23	-238	0%	848																		
Major Temporary Works Design																												
MTW1165	ELS design for construction of Retaining Wall RW8a, RW8b & RW8c	24-Mar-22	07-Jun-22	78	7	08-Apr-23 A	15-Jul-23	-346	0%	-207	ELS design for construction of Retaining Wall RW8a, RW8b & RW8c																	
MTW1175	ELS design for construction of Retaining Wall RW6	08-Jun-22	29-Jul-22	58	7	02-May-23 A	15-Jul-23	-301	0%	-207	ELS design for construction of Retaining Wall RW6																	
MTW1140	ELS design for construction of noise barrier along Lok Ma Chau Road	29-Apr-22	07-Jul-22	78	14	08-Apr-23 A	24-Jul-23	-327	0%	1325	ELS design for construction of noise barrier along Lok Ma Chau Road																	
MTW1160	Steel mould design for precast segments	04-Apr-22	17-Jun-22	78	14	08-Apr-23 A	24-Jul-23	-344	0%	-101	Steel mould design for precast segments																	
MTW1230	ELS Design for Drainage Works Incl. Manholes and Catchpits	23-May-22	30-Jul-22	78	14	08-Apr-23 A	24-Jul-23	-307	0%	1280	ELS Design for Drainage Works Incl. Manholes and Catchpits																	
MTW1225	ELS design for construction of Retaining Wall RW10	25-Feb-23	05-May-23	78	14	08-Apr-23 A	24-Jul-23	-68	0%	-4	ELS design for construction of Retaining Wall RW10																	
MTW1210	ELS design for construction of DN600 and Associated Valve Chambers/bend blocks	08-May-23	28-Jun-23	0	45	08-Jul-23	29-Aug-23	-53	0%	231	ELS design for construction of DN600 and Associated Valve Chambers/bend blocks																	
MTW1185	ELS design for construction of Retaining Wall RW12	30-Jul-22	20-Sep-22	0	45	17-Jul-23	06-Sep-23	-301	0%	-207	ELS design for construction of Retaining Wall RW12																	
MTW1220	ELS design for construction of DN700 and Associated Valve Chambers/bend blocks	29-Jun-23	19-Aug-23	0	45	30-Aug-23	20-Oct-23	-53	0%	306	ELS design for construction of DN700 and Associated Valve Chambers/bend blocks																	
MTW1195	ELS design for construction of Retaining Wall RW13	21-Sep-22	11-Nov-22	0	45	07-Sep-23	28-Oct-23	-301	0%	-207	ELS design for construction of Retaining Wall RW13																	
MTW1205	ELS design for construction of Retaining Wall RW14	12-Nov-22	03-Jan-23	0	45	07-Sep-23	28-Oct-23	-256	0%	-207	ELS design for construction of Retaining Wall RW14																	
MTW1215	ELS design for construction of Retaining Wall RW7	04-Jan-23	24-Feb-23	0	45	07-Sep-23	28-Oct-23	-211	0%	-83	ELS design for construction of Retaining Wall RW7																	
WAWSD Statutory Vetting and Approval																												
CSD1000	Submission & Approval of Appointed Plumber	11-Nov-22	15-Dec-22	58	5	02-May-23 A	13-Jul-23	-180	0%	536	Submission & Approval of Appointed Plumber																	
CSD1010	Prepare and submit WWO 46 Part I & Part II	16-Dec-22	12-Jan-23	0	24	14-Jul-23	10-Aug-23	-180	0%	536	Prepare and submit WWO 46 Part I & Part II																	
CSD1020	Review and Approval Process - WA issue form WW046 Part III	13-Jan-23	06-Mar-23	0	45	11-Aug-23	02-Oct-23	-180	0%	536	Review and Approval Process - WA issue form WW046 Part III																	
Subcontracting																												
SUC1170	Design, supply and installation of glass balustrades	30-Mar-23	03-May-23	78	5	08-Apr-23 A	13-Jul-23	-61	0%	61	Design, supply and installation of glass balustrades																	
SUC1190	Design, supply and installation of steelworks and noise barrier panels and covered walkway	14-Apr-22	18-May-22	78	5	08-Apr-23 A	13-Jul-23	-361	0%	375	Design, supply and installation of steelworks and noise barrier panels and covered walkway																	
SUC1210	Flexible pavement	17-Apr-23	20-May-23	66	17	22-Apr-23 A	27-Jul-23	-58	0%	38	Flexible pavement																	
SUC1150	Subcon for Erection of precast segment (Submitted Recommendation on 27Feb2023 pending for RE Approval)	24-Sep-22	02-Dec-22	78	21	08-Apr-23 A	01-Aug-23	-207	0%	16	Subcon for Erection of precast segment (Submitted Recommendation on 27Feb2023 pending for RE Approval)																	

Three Month Rolling Programme (Data Date : 08-Jul-23)

Period: 09 Jun 23 to 08 Jul 23

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

3 Months Rolling Programme

Date	Revision	Checked	Approved
08-Jan-23	Rev.2.1k	Daniel Lims...	RP/RS

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

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											July							August							September							October									
												25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15													
SUC1180	Design, supply and installation of security fences	13-Jul-23	16-Aug-23	0	30	19-Jul-23	22-Aug-23	-5	0%	341	Design, supply and installation of security fences																														
Method Statement Submission and Approval for Major Construction Works		11-May-22	31-Aug-23	91	125	08-Apr-23 A	09-Nov-23	-70		1445																															
MSS1260	Method statement submission and approval for fabrication of precast segments	22-Jul-22	31-Aug-22	91	5	08-Apr-23 A	12-Jul-23	-315	0%	-106	Method statement submission and approval for fabrication of precast segments																														
MSS1340	Method Statement submission & approval for modification of Existing Chau Tau Main Channel	11-May-22	09-Jul-22	91	7	08-Apr-23 A	14-Jul-23	-370	0%	-346	Method Statement submission & approval for modification of Existing Chau Tau Main Channel																														
MSS1470	Method statement submission and approval for Construction of Slope Works	31-Aug-22	29-Oct-22	91	7	08-Apr-23 A	14-Jul-23	-258	0%	-44	Method statement submission and approval for Construction of Slope Works																														
MSS1300	Method statement submission and approval for construction of deck for the cycle track cum footbridge	10-Nov-22	18-Jan-23	91	14	08-Apr-23 A	21-Jul-23	-184	0%	17	Method statement submission and approval for construction of deck for the cycle track cum footbridge																														
MSS1450	Method Statement submission & approval for Construction of Retaining Wall - RW6	30-Jul-22	02-Sep-22	0	35	08-Jul-23	11-Aug-23	-343	0%	1535	Method Statement submission & approval for Construction of Retaining Wall - RW6																														
MSS1460	Method statement submission and approval for Construction of Noise Barrier	08-Jul-22	05-Sep-22	74	47	25-Apr-23 A	23-Aug-23	-352	0%	1523	Method statement submission and approval for Construction of Noise Barrier																														
MSS1280	Method statement submission and approval for erection of precast segments for ST01	05-Nov-22	13-Jan-23	0	60	13-Jul-23	10-Sep-23	-240	0%	11	Method statement submission and approval for erection of precast segments for ST01																														
MSS1370	Method Statement submission & approval for Construction of Retaining Wall - RW8a, RW8b & RW8c	08-Jun-22	06-Aug-22	0	60	16-Jul-23	13-Sep-23	-403	0%	-215	Method Statement submission & approval for Construction of Retaining Wall - RW8a, RW8b & RW8c																														
MSS1420	Method Statement submission & approval for Construction of Retaining Wall - RW10	03-Jul-23	31-Aug-23	0	60	25-Jul-23	22-Sep-23	-22	0%	-5	Method Statement submission & approval for Construction of Retaining Wall - RW10																														
MSS1430	Method statement submission and approval for Construction of Drainage, Manholes & Catchpits	31-Jul-22	28-Sep-22	0	60	25-Jul-23	22-Sep-23	-359	0%	1493	Method statement submission and approval for Construction of Drainage, Manholes & Catchpits																														
MSS1380	Method Statement submission & approval for Construction of Retaining Wall - RW12	21-Sep-22	25-Oct-22	0	35	14-Sep-23	18-Oct-23	-358	0%	-215	Method Statement submission & approval for Construction of Retaining Wall - RW12																														
MSS1310	Method statement submission and approval for erection of precast segments for Direct Road Link	19-Jan-23	29-Mar-23	0	60	11-Sep-23	09-Nov-23	-225	0%	11	Method statement submission and approval for erection of precast segments for Direct Road Link																														
Preliminaries		12-Oct-22	10-Dec-22	91	14	08-Apr-23 A	21-Jul-23	-223		7																															
TMLG and Major TTA Scheme		12-Oct-22	10-Dec-22	91	14	08-Apr-23 A	21-Jul-23	-223		7																															
PRE1090	Preparation and approval of TTA scheme for the pier and pierhead segments	12-Oct-22	10-Dec-22	91	14	08-Apr-23 A	21-Jul-23	-223	0%	7	Preparation and approval of TTA scheme for the pier and pierhead segments																														
Prefabrication of Precast Units		20-Aug-22	09-Aug-23	91	277	08-Apr-23 A	09-Apr-24	-244		1293																															
FPS1010	Fabrication of precast segments	22-Nov-22	09-Aug-23	0	210	25-Jul-23	09-Apr-24	-196	0%	-93	Fabrication of precast segments																														
Water Pipes, Valves & Fittings		20-Aug-22	17-Nov-22	91	7	08-Apr-23 A	14-Jul-23	-239		1563																															
PMD1010	Procurement, Manufacture and Delivery of Water Pipes, Valves & Fittings (DN700 Water Main at LMC/CP Roads)	20-Aug-22	17-Nov-22	91	7	08-Apr-23 A	14-Jul-23	-239	0%	1563	Procurement, Manufacture and Delivery of Water Pipes, Valves & Fittings (DN700 Water Main at LMC/CP Roads)																														
Section 1 of the Works- Completion of the Works within Portion 1,2A,2B,3,5,7,8,9&10 of ST01		13-Aug-22	04-Jul-24	47	162	22-May-23 A	16-Dec-23	201		1407																															
Superstructure for Bridge ST01		12-May-23	31-May-23	0	29	18-Sep-23	24-Oct-23	-120		66																															
Construction of Pierhead Segment		12-May-23	31-May-23	0	29	18-Sep-23	24-Oct-23	-120		66																															
Construction of Pierhead Segment at Pier ST01-P02		12-May-23	31-May-23	0	16	05-Oct-23	24-Oct-23	-120		22																															
S010400	Installation of falsework / Temporary Platform System	12-May-23	31-May-23	0	16	05-Oct-23*	24-Oct-23	-120	0%	22	Installation of falsework / Temporary Platform System																														
Construction of Pierhead Segment at Pier ST01-P03 (based on Contractor's propose)				0	16	18-Sep-23	07-Oct-23			79																															
S60330	Installation of falsework / Temporary Platform and Stabilisation System			0	16	18-Sep-23*	07-Oct-23		0%	79	Installation of falsework / Temporary Platform and Stabilisation System																														
Existing Cycle Track Subway Modification		13-Aug-22	30-Nov-22	1	91	07-Jul-23 A	25-Oct-23	-265		-227																															
Construction of Subway		13-Aug-22	30-Nov-22	1	91	07-Jul-23 A	25-Oct-23	-265		-227																															
Bay 12		13-Aug-22	21-Nov-22	1	83	07-Jul-23 A	14-Oct-23	-265		-219																															
S014690.10	Rockfill, Blinding & Waterproofing	13-Aug-22	16-Aug-22	1	3	07-Jul-23 A	11-Jul-23	-265	0%	-235	Rockfill, Blinding & Waterproofing																														
S014690.20	Formworks, Rebar and Cast Base Slab - Cycle Track & Foot Path	17-Aug-22	30-Aug-22	0	12	12-Jul-23	25-Jul-23	-265	0%	-235	Formworks, Rebar and Cast Base Slab - Cycle Track & Foot Path																														
S014690.30	Formworks, Rebar and Cast Walls	29-Sep-22	19-Oct-22	0	16	23-Aug-23	09-Sep-23	-265	0%	-235	Formworks, Rebar and Cast Walls																														
S014690.40	Falseworks, Formworks, Rebar and Cast Top Slab	20-Oct-22	09-Nov-22	0	18	11-Sep-23	03-Oct-23	-265	0%	-235	Falseworks, Formworks, Rebar and Cast Top Slab																														
S014690.90	Backfill & Remove Sheet Pile	10-Nov-22	21-Nov-22	0	10	04-Oct-23	14-Oct-23	-265	0%	-219	Backfill & Remove Sheet Pile																														
Bay 13		20-Aug-22	30-Nov-22	0	91	14-Jul-23 A	25-Oct-23	-265		-235																															
S014690.50	Rockfill, Blinding & Waterproofing	20-Aug-22	23-Aug-22	0	3	14-Jul-23 A	11-Jul-23	-259	0%	-223	Rockfill, Blinding & Waterproofing																														
S014690.60	Formworks, Rebar and Cast Base Slab - Cycle Track & Foot Path	31-Aug-22	14-Sep-22	0	12	26-Jul-23	08-Aug-23	-265	0%	-235	Formworks, Rebar and Cast Base Slab - Cycle Track & Foot Path																														
S014690.70	Formworks, Rebar and Cast Walls	20-Oct-22	07-Nov-22	0	16	11-Sep-23	28-Sep-23	-265	0%	-233	Formworks, Rebar and Cast Walls																														

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- Actual Work
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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

Activity ID	Activity Name	BL Project Start	BL Project Finish	Actual Duration	Remaining Duration	Start	Finish	Variance - BL Project Finish Date	Physical % Complete	Total Float	2023																	
											July					August					September					October		
												25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15
S014690.80	Falseworks, Formworks, Rebar and Cast Top Slab	10-Nov-22	30-Nov-22	0	18	04-Oct-23	25-Oct-23	-265	0%	-235																		
Bay14		27-Aug-22	25-Nov-22	0	87	21-Jul-23 A	19-Oct-23	-265		-231																		
S014690.100	Rockfill, Blinding & Waterproofing	27-Aug-22	30-Aug-22	0	3	21-Jul-23 A	11-Jul-23	-253	0%	-211																		
S014690.110	Formworks, Rebar and Cast Base Slab - Cycle Track & Foot Path	15-Sep-22	28-Sep-22	0	12	09-Aug-23	22-Aug-23	-265	0%	-235																		
S014690.120	Formworks, Rebar and Cast Walls	08-Nov-22	25-Nov-22	0	16	29-Sep-23	19-Oct-23	-265	0%	-231																		
Retaining Walls		12-Jan-23	04-Jul-24	47	162	22-May-23 A	16-Dec-23	201		1407																		
Retaining Wall RW9		12-Jan-23	15-Mar-23	38	84	22-May-23 A	16-Oct-23	-174		1190																		
Stage 1 - RW9 Bay 16-5				10	15	26-Jun-23 A	25-Jul-23			-26																		
Backfilling & Parapet				10	15	26-Jun-23 A	25-Jul-23			-26																		
S014745.40	Backfilling and removal of sheetpile Bay 16-5			10	15	26-Jun-23 A	25-Jul-23		0%	-41																		
S014745.50	Construct Parapet Bay 16-5 (3 days per bay x 12 bays)			9	15	27-Jun-23 A	25-Jul-23		0%	-26																		
Stage 2 - Bay 4-1		12-Jan-23	15-Mar-23	38	84	22-May-23 A	16-Oct-23	-174		1190																		
Bay Slab		12-Jan-23	11-Feb-23	38	6	22-May-23 A	14-Jul-23	-123		1268																		
S014740.50	Formworks, Rebar fixing and Cast Base Slab Bay 4	12-Jan-23	18-Jan-23	38	5	22-May-23 A	13-Jul-23	-140	0%	1268																		
S014740.60	Formworks, Rebar fixing and Cast Base Slab Bay 3	19-Jan-23	28-Jan-23	38	5	22-May-23 A	13-Jul-23	-134	0%	56																		
S014740.70	Formworks, Rebar fixing and Cast Base Slab Bay 2	30-Jan-23	04-Feb-23	0	6	08-Jul-23	14-Jul-23	-129	0%	1268																		
S014740.80	Formworks, Rebar fixing and Cast Base Slab Bay 1	06-Feb-23	11-Feb-23	0	6	08-Jul-23	14-Jul-23	-123	0%	56																		
Wall Stem		30-Jan-23	25-Feb-23	0	28	15-Jul-23	16-Aug-23	-139		56																		
S014740.140	Formworks, Rebar fixing and Cast Wall Stem Bay 4	30-Jan-23	04-Feb-23	0	14	15-Jul-23	31-Jul-23	-143	0%	56																		
S014740.160	Formworks, Rebar fixing and Cast Wall Stem Bay 2	13-Feb-23	18-Feb-23	0	14	15-Jul-23	31-Jul-23	-131	0%	56																		
S014740.150	Formworks, Rebar fixing and Cast Wall Stem Bay 3	06-Feb-23	11-Feb-23	0	14	01-Aug-23	16-Aug-23	-151	0%	56																		
S014740.170	Formworks, Rebar fixing and Cast Wall Stem Bay 1	20-Feb-23	25-Feb-23	0	14	01-Aug-23	16-Aug-23	-139	0%	56																		
Backfill and Parapet		03-Feb-23	15-Mar-23	0	50	17-Aug-23	16-Oct-23	-174		56																		
S014745.20	Backfilling and removal of sheetpile Bay 4-1	03-Feb-23	15-Mar-23	0	38	17-Aug-23	29-Sep-23	-162	0%	56																		
S014745.60	Construct Parapet Bay 4-1			0	12	03-Oct-23	16-Oct-23		0%	56																		
Retaining Wall RW10		10-Apr-24	04-Jul-24	0	145	25-Jul-23	16-Dec-23	201		-5																		
Preparation Works RW10 - Stage 1		10-Apr-24	04-Jul-24	0	145	25-Jul-23	16-Dec-23	201		-5																		
S015205	Implement TTA			0	1	25-Jul-23	25-Jul-23		0%	54																		
S015185	Excavate and expose existing UUs / Shift or Hang UUs Clashing with Permanent Works	10-Apr-24	04-Jul-24	0	70	23-Sep-23	16-Dec-23	158	0%	-5																		
Slope Works		15-Feb-23	24-Apr-23	0	55	15-Jul-23	16-Sep-23	-121		-36																		
Slope F26		15-Feb-23	24-Apr-23	0	55	15-Jul-23	16-Sep-23	-121		-36																		
S015260.10	Slope Benching Bay 10-16	15-Feb-23	21-Mar-23	0	30	15-Jul-23	18-Aug-23	-121	0%	-36																		
S015260.20	Fill slope to required profile, incl.associated works	04-Mar-23	12-Apr-23	0	30	02-Aug-23	05-Sep-23	-121	0%	-36																		
S015260.30	Geo Survey and Slope Protection Measures - Geo Mat / Hydroseeding	13-Apr-23	24-Apr-23	0	10	06-Sep-23	16-Sep-23	-121	0%	-36																		
Slope F23		16-Mar-23	31-Mar-23	0	14	19-Aug-23	04-Sep-23	-126		-25																		
S015250.10	Slope Benching (F23)	16-Mar-23	17-Mar-23	0	2	19-Aug-23	21-Aug-23	-126	0%	-25																		
S015250.20	Fill slope to required profile, incl.associated works	18-Mar-23	29-Mar-23	0	10	22-Aug-23	01-Sep-23	-126	0%	-25																		
S015250.30	Geo Survey and Slope Protection Measures - Geo Mat / Hydroseeding	30-Mar-23	31-Mar-23	0	2	02-Sep-23	04-Sep-23	-126	0%	-25																		
Road & Drainage Works		16-Mar-23	26-Jul-23	0	87	26-Jul-23	07-Nov-23	-86		56																		
D101 - Drainage SMH70010 to SMH70060, SMH70100-SMH70110 & Catchpits CP301-C		16-Mar-23	26-Jul-23	0	87	26-Jul-23	07-Nov-23	-86		56																		
S015420	Implement TTA	16-Mar-23	16-Mar-23	0	1	26-Jul-23	26-Jul-23	-105	0%	-41																		



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Legend:
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											July			August			September			October								
												25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15
S015400	Portion 1 - Road Formation & Drainage works (DN450 SMH70050 to SMH70010)	17-Mar-23	19-Jun-23	0	50	27-Jul-23	22-Sep-23	-80	0%	-41	Portion 1 - Road Formation & Drainage works (DN450 SMH70050 to SMH70010)																	
S015505	Concrete Maintenance Stairway and 800mm Maintenance Access	20-Jun-23	26-Jul-23	0	30	18-Sep-23	25-Oct-23	-75	0%	-36	Concrete Maintenance Stairway and 800mm Maintenance Access																	
S015410	Backfill Drainage Trench (DN450 SMH70050 to SMH70010) in Portion 1	20-Jun-23	26-Jul-23	0	30	23-Sep-23	31-Oct-23	-80	0%	-41	Backfill Drainage Trench (DN450 SMH70050 to SMH70010) in Portion 1																	
S015430	Portion 2 - Drainage Works (DN300 SMH70050 to SMH70100 + CP303 & CP304) + crossing to SMH70060			0	30	03-Oct-23	07-Nov-23		0%	56	Portion 2 - Drainage Works (DN300 SMH70050 to SMH70100 + CP303 & CP304) + crossing to SMH70060																	
Section 2A of the Works-Completion of the Works at Lok Ma Chau Road within Portion 1																												
Portion A - Ch.0-100 (100m)																												
Stage 1 - BPW1 / CS1 & CS2 Slopes																												
Slope Excavation, Shotcrete Wall & Skin Wall and Capping Beam																												
Ch.0 to Ch.23																												
S2A.PA.1060	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)			24	14	08-Jun-23 A	24-Jul-23		0%	1260	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)																	
Ch.23 to Ch.48																												
S2A.PA.1110	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)			16	14	17-Jun-23 A	24-Jul-23		0%	1260	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)																	
Ch.48 to Ch.65																												
S2A.PA.1130	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)			8	14	28-Jun-23 A	03-Aug-23		0%	18	Formworks, Rebar and Concrete Capping Beam (formworks & rebar 24/7 operation)																	
S2A.PA.1140	Clear Area and TTA on F/P			0	8	25-Jul-23	02-Aug-23		0%	18	Clear Area and TTA on F/P																	
S2A.PA.1150	Complete Works at BPW1 / Commence UU Works			0	0	03-Aug-23			0%	18	Complete Works at BPW1 / Commence UU Works																	
CS1 Slope Formation																												
S2A.Z1.1430	Survey and Setting out	02-Dec-23	05-Dec-23	0	3	06-Oct-23	09-Oct-23	48	0%	68	Survey and Setting out																	
CS2 Slope Formation																												
S2A.Z1.1330	Construction of haul road to CS1 & CS2	07-Aug-23	22-Aug-23	0	14	03-Aug-23	18-Aug-23	3	0%	61	Construction of haul road to CS1 & CS2																	
S2A.Z1.1370	Survey and Setting out	23-Aug-23	25-Aug-23	0	3	19-Aug-23	22-Aug-23	3	0%	61	Survey and Setting out																	
S2A.Z1.1340	Cut Slope to Required Profile	26-Aug-23	29-Sep-23	0	30	23-Aug-23	26-Sep-23	3	0%	61	Cut Slope to Required Profile																	
S2A.Z1.1350	Slope Survey/Mapping Out/Slope Protection Measures	03-Oct-23	09-Oct-23	0	6	27-Sep-23	05-Oct-23	3	0%	61	Slope Survey/Mapping Out/Slope Protection Measures																	
S2A.Z1.1360	Soil nail and Soil Nail Head installation at CS2	10-Oct-23	01-Dec-23	0	45	06-Oct-23	28-Nov-23	3	0%	61	Soil nail and Soil Nail Head installation at CS2																	
Stage 2 - Water Main, Drainage & UU Installation (F/P & C/T)																												
S2A.PA.1160	Implement TTA (F/P)			0	1	03-Aug-23	03-Aug-23		0%	18	Implement TTA (F/P)																	
S2A.PA.1170	Trial Pit to existing F/P to locate & shift existing UUs			0	12	04-Aug-23	17-Aug-23		0%	18	Trial Pit to existing F/P to locate & shift existing UUs																	
S2A.PA.1190	Install CLP Ducts 132kv			0	24	21-Aug-23	16-Sep-23		0%	18	Install CLP Ducts 132kv																	
S2A.PA.1200	Install CLP Ducts 11kv			0	24	29-Aug-23	25-Sep-23		0%	18	Install CLP Ducts 11kv																	
S2A.PA.1180	Excavate and Lay DN700 & NS315 Water Main			0	50	04-Aug-23	03-Oct-23		0%	18	Excavate and Lay DN700 & NS315 Water Main																	
S2A.PA.1220	Backfill and Shift F/P on completed works			0	8	22-Sep-23	03-Oct-23		0%	18	Backfill and Shift F/P on completed works																	
S2A.PA.1210	Install Telecom Ducts			0	21	15-Sep-23	11-Oct-23		0%	41	Install Telecom Ducts																	
S2A.PA.1230	Construct MHs and Lay DN750 Drain			0	30	04-Oct-23	08-Nov-23		0%	18	Construct MHs and Lay DN750 Drain																	
Portion B - Ch.100-200 (100m)																												
Stage 1 - Water Main, Drainage & UU Installation (F/P & C/T)																												
S2A.PB.1010	Implement TTA (F/P)			0	1	08-Jul-23*	08-Jul-23		0%	-30	Implement TTA (F/P)																	
S2A.PB.1020	Excavate Trench			0	3	10-Jul-23	12-Jul-23		0%	-30	Excavate Trench																	
S2A.PB.1040	Install CLP Ducts 132kv			0	8	13-Jul-23	21-Jul-23		0%	-23	Install CLP Ducts 132kv																	
S2A.PB.1030	Install DN700 & NS315 Water Main			0	10	13-Jul-23	24-Jul-23		0%	-23	Install DN700 & NS315 Water Main																	
S2A.PB.1050	Install CLP Ducts 11kv			0	6	22-Jul-23	28-Jul-23		0%	-23	Install CLP Ducts 11kv																	

Three Month Rolling Programme (Data Date : 08-Jul-23)
 Period: 09 Jun 23 to 08 Jul 23
 Page : 4 of 10

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

3 Months Rolling Programme			
Date	Revision	Checked	Approved
08-Jan-23	Rev.2.1k	Daniel Lims...	RP/RS



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

Activity ID	Activity Name	BL Project Start	BL Project Finish	Actual Duration	Remaining Duration	Start	Finish	Variance - BL Project Finish Date	Physical % Complete	Total Float	2023																						
											25	02	09	16	23	30	06	13	20	27	03	10	17	24	01	08	15						
Part 1 - Ch.640-740																																	
S2A.PF.1040	Laying CLP 132kv (100m) Cable Works			0	24	08-Jul-23	04-Aug-23		0%	-10																							
S2A.PF.1050	Laying Telecom Cable Ducts Works			0	24	08-Jul-23	04-Aug-23		0%	-10																							
S2A.PF.1060	Backfill and Install CLP 11kv Ducts			0	24	05-Aug-23	01-Sep-23		0%	-10																							
S2A.PF.1065	Install Gas Main, Irrigation Lines and P.L. Duct			0	34	05-Aug-23	13-Sep-23		0%	-10																							
S2A.PF.1070	Backfill and Reinstate Road / Working Area			0	18	14-Sep-23	06-Oct-23		0%	-10																							
Part 2 - Ch.740-840																																	
S2A.PF.1080	Implement TTA - Close 100m of SB lane for UU installation			0	1	07-Oct-23	07-Oct-23		0%	-10																							
Stage 2 - Water Main & Gas Main, Backfill and Road Construction (NB)																																	
Part 1 - Ch.640-740																																	
S2A.PF.2060	Design and application for consent / Statutory Requirement (WSD/DSD)			0	90	08-Jul-23*	05-Oct-23		0%	-44																							
S2A.PF.2010	Consent approved from WSD/DSD			0	0	06-Oct-23*			0%	-36																							
S2A.PF.2020	Construct Working Platform			0	12	06-Oct-23	19-Oct-23		0%	-36																							
Other Works - Retaining Wall , CTFB U-Trough, and Drainage Works																																	
Additional Retaining Wall adjacent to U-Trough (20 bays @ 10m/bay)																																	
Bay 1-5 (10m/bay)																																	
Preparation Works - Sheet Piling and ELS Works																																	
S2A.RW.101	Commence Construction of Retaining Wall Bay 1-5			0	0	08-Jul-23*			0%	-30																							
S2A.RW.102	Sheet Piling and ELS Works + Dewatering System (50m) - Bay 1-5			0	36	08-Jul-23	18-Aug-23		0%	-30																							
Base Slab																																	
S2A.RW.104	Form, Rebar and Cast Base Slab - Bay 1			0	8	19-Aug-23	28-Aug-23		0%	-10																							
S2A.RW.106	Form, Rebar and Cast Base Slab - Bay 3			0	8	19-Aug-23	28-Aug-23		0%	-10																							
S2A.RW.105	Form, Rebar and Cast Base Slab - Bay 2			0	8	29-Aug-23	06-Sep-23		0%	-10																							
S2A.RW.107	Form, Rebar and Cast Base Slab - Bay 4			0	8	29-Aug-23	06-Sep-23		0%	-10																							
S2A.RW.108	Form, Rebar and Cast Base Slab - Bay 5			0	8	07-Sep-23	15-Sep-23		0%	-10																							
Stem Wall																																	
S2A.RW.109	Form, Rebar and Cast Stem Wall Bay 1			0	8	07-Sep-23	15-Sep-23		0%	-10																							
S2A.RW.111	Form, Rebar and Cast Stem Wall Bay 3			0	8	07-Sep-23	15-Sep-23		0%	-10																							
S2A.RW.110	Form, Rebar and Cast Stem Wall Bay 2			0	8	16-Sep-23	25-Sep-23		0%	-10																							
S2A.RW.112	Form, Rebar and Cast Stem Wall Bay 4			0	8	16-Sep-23	25-Sep-23		0%	-10																							
S2A.RW.113	Form, Rebar and Cast Stem Wall Bay 5			0	8	26-Sep-23	06-Oct-23		0%	-10																							
Bay 6-10 (10m/bay)																																	
Preparation Works - Sheet Piling and ELS Works																																	
S2A.RW.115	Sheet Piling and ELS Works + Dewatering System (50m)			0	36	19-Aug-23	29-Sep-23		0%	-30																							
Base Slab																																	
S2A.RW.116	Form, Rebar and Cast Base Slab - Bay 6			0	8	03-Oct-23	11-Oct-23		0%	-22																							
S2A.RW.118	Form, Rebar and Cast Base Slab - Bay 8			0	8	03-Oct-23	11-Oct-23		0%	-6																							
Bay 11-15 (10m/Bay)																																	
Preparation Works - Sheet Piling and ELS Works																																	
S2A.RW.127	Sheet Piling and ELS Works + Dewatering System (50m)			0	36	03-Oct-23	14-Nov-23		0%	-30																							
CTFB U-Trough																																	
				0	8	07-Oct-23	16-Oct-23		0%	-10																							



Three Month Rolling Programme (Data Date : 08-Jul-23)
 Period: 09 Jun 23 to 08 Jul 23
 Page : 6 of 10

- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

3 Months Rolling Programme			
Date	Revision	Checked	Approved
08-Jan-23	Rev.2.1k	Daniel Lims...	RP/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	File No.	WMA21009/07/0014
Date:	27-Jun-23	Operator:	HL
Equipment No.:	WA-12-07	Next Due Date:	26-Aug-23
		Serial No.	1801

Ambient Condition			
Temperature, Ta (K)	301.2	Pressure, Pa (mmHg)	758.6

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

Calibration of TSP Sampler					
Calibration Point	Orifice			HVS	
	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	12.7	3.54	62.40	7.3	2.68
2	10.3	3.19	56.27	6.2	2.47
3	8.2	2.85	50.29	5.0	2.22
4	6.7	2.57	45.53	4.3	2.06
5	3.6	1.89	33.57	2.8	1.66

By Linear Regression of Y on X
 Slope, mw = 0.0357 Intercept, bw = 0.4487
 Correlation coefficient* = 0.9990
 *If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Remarks: _____

Conducted by: [Signature] Signature: _____ Date: 27/6/23
 Checked by: [Signature] Signature: _____ Date: 27/6/23

Certificate of Calibration

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

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

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

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

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

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

TEST REPORT

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

Test Report No.:	38174
Date of Issue:	2023-05-08
Date Received:	2023-05-05
Date Tested:	2023-05-05
Date Completed:	2023-05-08
Next Due Date:	2023-07-07

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.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

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)	1.119
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PREPARED AND CHECKED BY:

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



PATRICK TSE
General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-01	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23807	2203
Calibration Date:	5-May-23	5-May-23
Location:	Wellab Office (Calibration Room)	

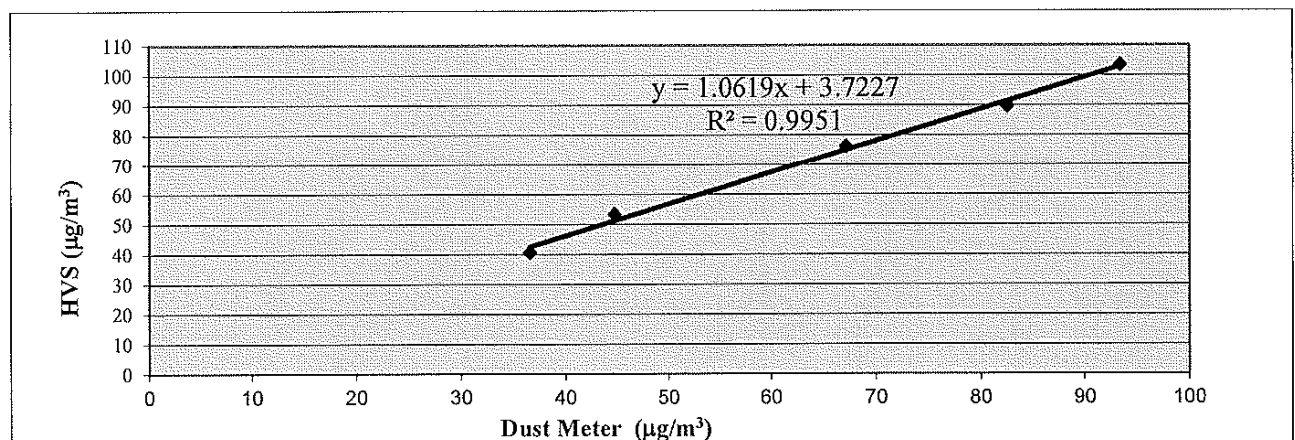
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	37	41
2	45	53
3	67	76
4	83	90
5	93	103
Average	64.9	72.7

By Linear Regression of Y on X
 Slope, $m_w =$ 1.0619 Intercept, $b_w =$ 3.7227
 Correlation coefficient* = 0.9976

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	72.7
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	64.9
Measuring time, (min)	60

Set Correlation Factor, SCF
 $\text{SCF} = [K = \text{High Volume Sampler} / \text{Dust Meter}, (\mu\text{g}/\text{m}^3)]$ 1.119



QC Reviewer: LEE MAN HAN Signature: Lee Date: 5/5/2023

TEST REPORT

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

Test Report No.:	38570
Date of Issue:	2023-07-10
Date Received:	2023-07-08
Date Tested:	2023-07-08
Date Completed:	2023-07-10
Next Due Date:	2023-09-09

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.	: X23807
Flow rate	: 0.1 cfm
Zero Count Test	: 0 count per 1 minute
Equipment No.	: WA-01-01

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)	1.128
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PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-01	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23807	2203
Calibration Date:	8-Jul-23	8-Jul-23
Location:	Wellab Office (Calibration Room)	

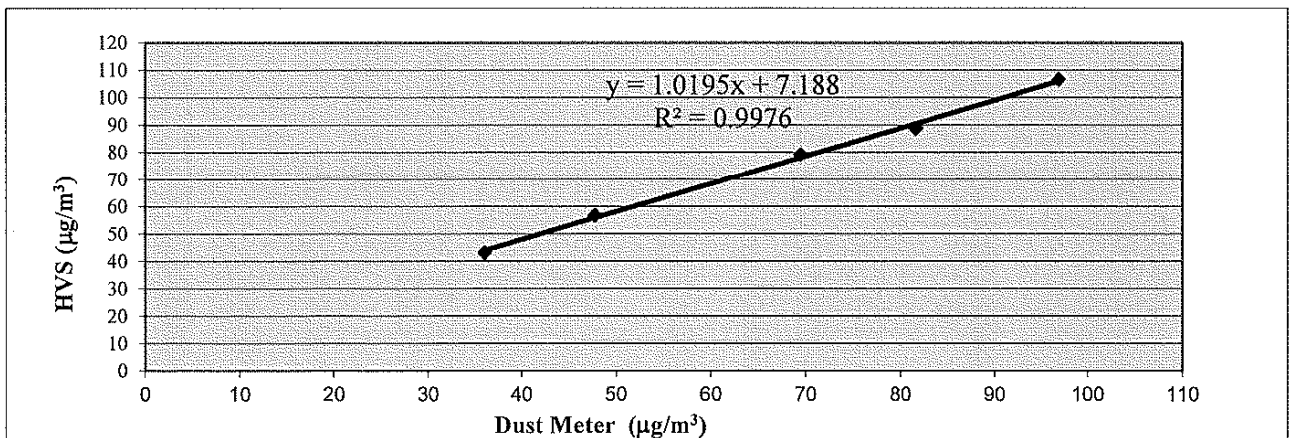
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	36	43
2	48	57
3	70	79
4	82	89
5	97	107
Average	66.4	74.9

By Linear Regression of Y on X
 Slope, mw = 1.0195 Intercept, bw = 7.1880
 Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	74.9
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	66.4
Measuring time, (min)	60

Set Correlation Factor, SCF
 SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)] 1.128



QC Reviewer: LEE HAN WEI Signature: Lee Date: 8/7/23

TEST REPORT

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

Test Report No.:	38174B
Date of Issue:	2023-05-08
Date Received:	2023-05-05
Date Tested:	2023-05-05
Date Completed:	2023-05-08
Next Due Date:	2023-07-07

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.147
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PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**


PATRICK TSE
General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-03	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23809	2203
Calibration Date:	5-May-23	5-May-23
Location:	Wellab Office (Calibration Room)	

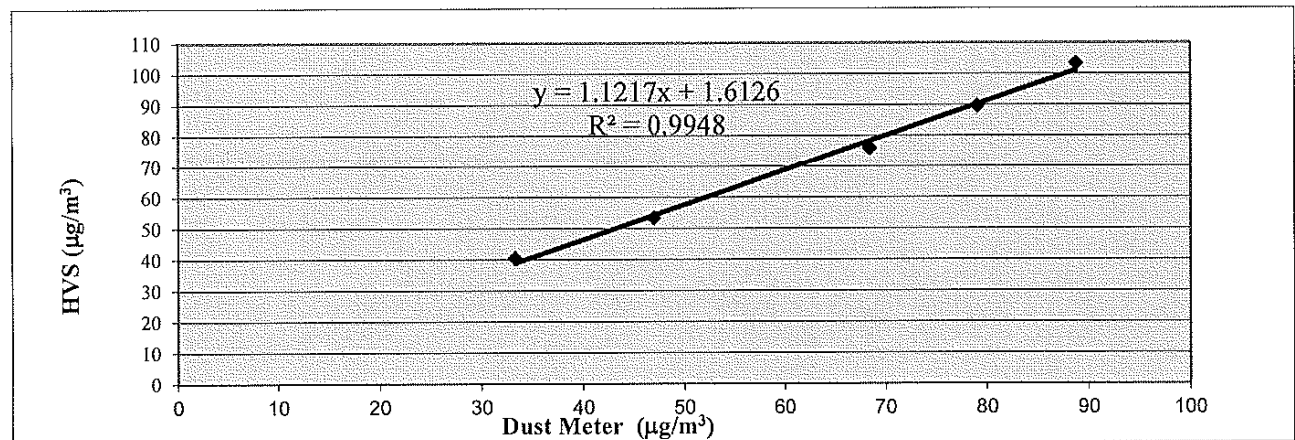
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	33	41
2	47	53
3	69	76
4	79	90
5	89	103
Average	63.3	72.7

By Linear Regression of Y on X
 Slope, mw = 1.1217 Intercept, bw = 1.6126
 Correlation coefficient* = 0.9974

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	72.7
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	63.3
Measuring time, (min)	60

Set Correlation Factor, SCF
 SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)] 1.147



QC Reviewer: LEE MAM HGV Signature: he Date: 5/5/2023

TEST REPORT

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

Test Report No.:	38570B
Date of Issue:	2023-07-10
Date Received:	2023-07-08
Date Tested:	2023-07-08
Date Completed:	2023-07-10
Next Due Date:	2023-09-09

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.186
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
 General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-03	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23809	2203
Calibration Date:	8-Jul-23	8-Jul-23
Location:	Wellab Office (Calibration Room)	

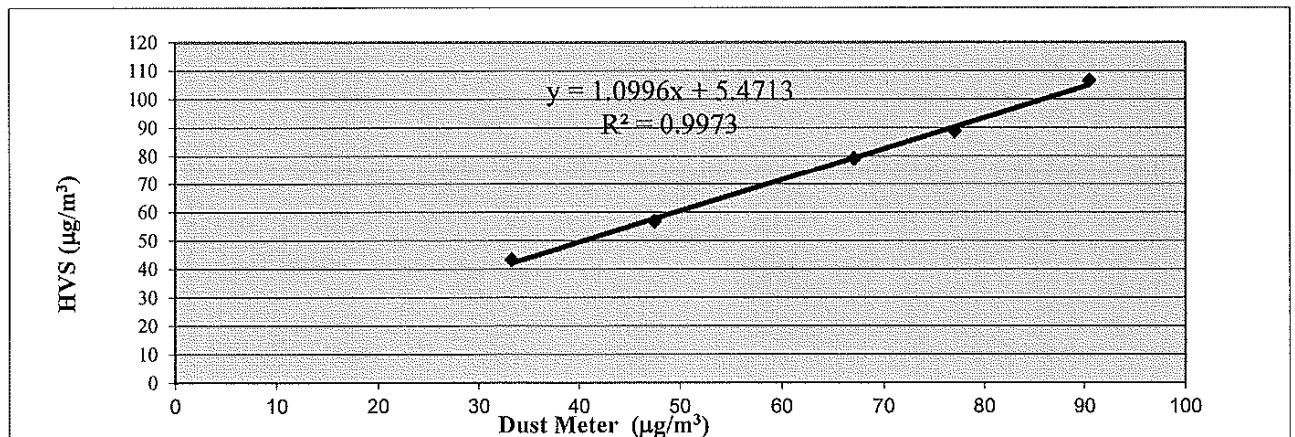
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	33	43
2	48	57
3	67	79
4	77	89
5	91	107
Average	63.1	74.9

By Linear Regression of Y on X
 Slope, $m_w =$ 1.0996 Intercept, $b_w =$ 5.4713
 Correlation coefficient* = 0.9987

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	74.9
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	63.1
Measuring time, (min)	60

Set Correlation Factor, SCF
 $\text{SCF} = | K = \text{High Volume Sampler} / \text{Dust Meter, } (\mu\text{g}/\text{m}^3) |$ 1.186



QC Reviewer: LEE MAN HEV Signature: lei Date: 8/7/23

TEST REPORT

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

Test Report No.:	38174C
Date of Issue:	2023-05-08
Date Received:	2023-05-05
Date Tested:	2023-05-05
Date Completed:	2023-05-08
Next Due Date:	2023-07-07

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.108
-------------------------	-------

PREPARED AND CHECKED BY:

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


PATRICK TSE
General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-04	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23810	2203
Calibration Date:	5-May-23	5-May-23
Location:	Wellab Office (Calibration Room)	

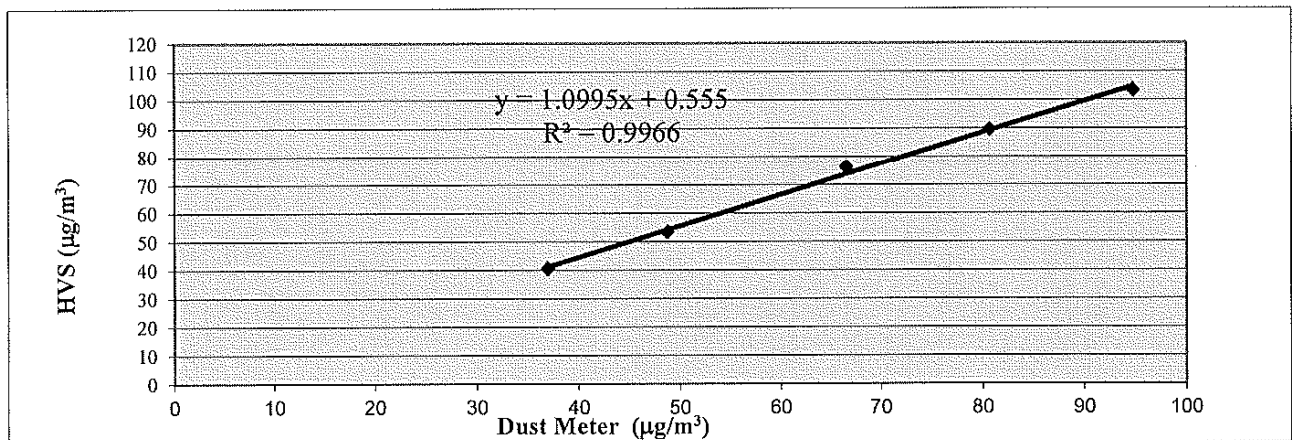
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	37	41
2	49	53
3	67	76
4	81	90
5	95	103
Average	65.6	72.7

By Linear Regression of Y on X
 Slope, mw = 1.0995 Intercept, bw = 0.5550
 Correlation coefficient* = 0.9983

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	72.7
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	65.6
Measuring time, (min)	60

Set Correlation Factor, SCF
 SCF = | K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$) | 1.108



QC Reviewer: LEE MAN HUI Signature: lee Date: 5/5/2023

TEST REPORT

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

Test Report No.:	38570
Date of Issue:	2023-07-10
Date Received:	2023-07-08
Date Tested:	2023-07-08
Date Completed:	2023-07-10
Next Due Date:	2023-09-09

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.123
-------------------------	-------

PREPARED AND CHECKED BY:

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



PATRICK TSE
General Manager

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

Dust Meter	Dust Meter	High Volume Sampler
Equipment No.:	WA-01-04	WA-12-09
Model No. :	AEROCET-831	TE-5170
Serial No.	X23810	2203
Calibration Date:	8-Jul-23	8-Jul-23
Location:	Wellab Office (Calibration Room)	

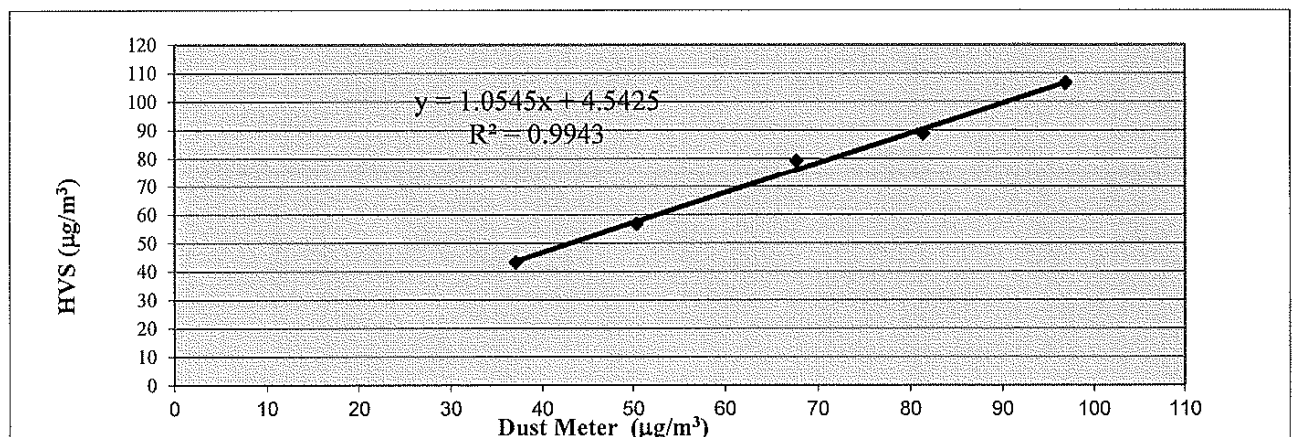
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	37	43
2	50	57
3	68	79
4	81	89
5	97	107
Average	66.7	74.9

By Linear Regression of Y on X
 Slope, mw = 1.0545 Intercept, bw = 4.5425
 Correlation coefficient* = 0.9971

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	74.9
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	66.7
Measureing time, (min)	60

Set Correlation Factor, SCF
 SCF = | K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$) | 1.123



QC Reviewer: LEE MAN YU Signature: hei Date: 8/7/23

TEST REPORT

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

Test Report No.:	38469
Date of Issue:	2023-06-26
Date Received:	2023-06-23
Date Tested:	2023-06-23
Date Completed:	2023-06-26
Next Due Date:	2023-08-25

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for Calibration:

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

Test Conditions:

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

Test Specifications & Methodology:

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

Results:

Correlation Factor (CF)	1.145
-------------------------	-------

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


PATRICK TSE
General Manager

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

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

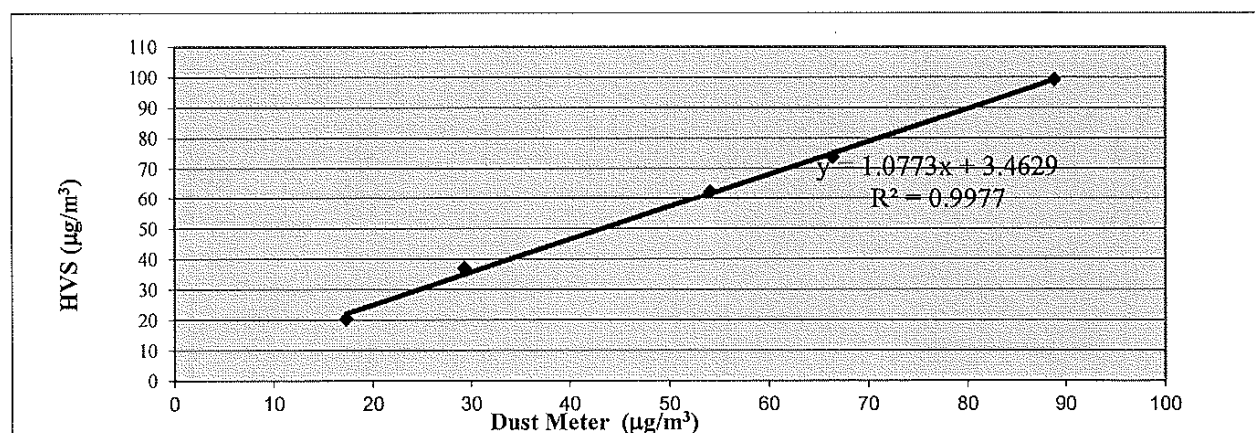
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	17	20
2	29	37
3	54	62
4	66	74
5	89	99
Average	51.2	58.6

By Linear Regression of Y on X
 Slope, mw = 1.0773 Intercept, bw = 3.4629
 Correlation coefficient* = 0.9988

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	58.6
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	51.2
Measuring time, (min)	60

Set Correlation Factor, SCF
 SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)] 1.145



QC Reviewer: LEE MAN HAN Signature: Lee Date: 24/6/23

TEST REPORT

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

Test Report No.:	38469A
Date of Issue:	2023-06-26
Date Received:	2023-06-23
Date Tested:	2023-06-23
Date Completed:	2023-06-26
Next Due Date:	2023-08-25
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.	: 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)	1.129
-------------------------	-------

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


PATRICK TSE
General Manager

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

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

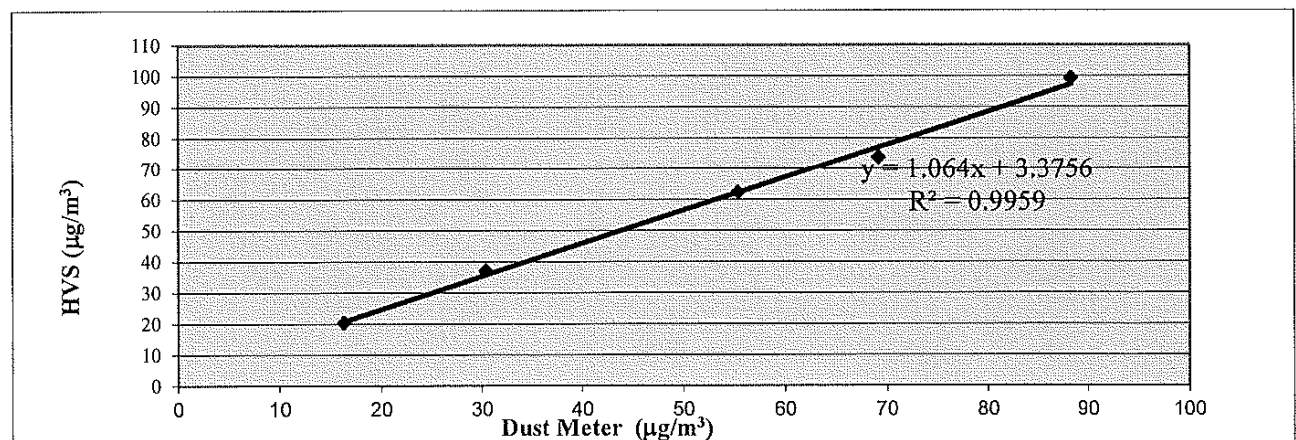
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	16	20
2	30	37
3	55	62
4	69	74
5	88	99
Average	51.9	58.6

By Linear Regression of Y on X
 Slope , mw = 1.0640 Intercept, bw = 3.3756
 Correlation coefficient* = 0.9980

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	58.6
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	51.9
Measuring time, (min)	60

Set Correlation Factor , SCF
 SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)] 1.129



QC Reviewer: LBW MOW MWV Signature: hes Date: 24/6/23

TEST REPORT

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

Test Report No.:	38469D
Date of Issue:	2023-06-26
Date Received:	2023-06-23
Date Tested:	2023-06-23
Date Completed:	2023-06-26
Next Due Date:	2023-08-25

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)	1.214
-------------------------	-------

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


PATRICK TSE
General Manager

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

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

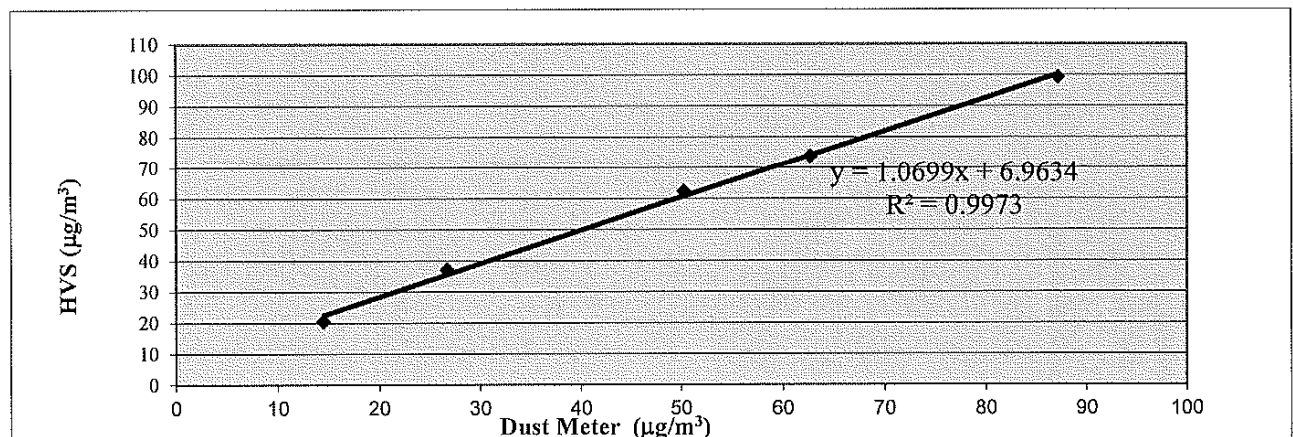
Calibration of 1 hr TSP		
Calibration Point	Dust Meter	HVS
	Mass Concentration ($\mu\text{g}/\text{m}^3$) X-axis	Mass concentration ($\mu\text{g}/\text{m}^3$) Y-axis
1	15	20
2	27	37
3	50	62
4	63	74
5	87	99
Average	48.3	58.6

By Linear Regression of Y on X
 Slope, mw = 1.0699 Intercept, bw = 6.9634
 Correlation coefficient* = 0.9986

*If Correlation Coefficient < 0.90, check and recalibrate.

Set Correlation Factor	
Particulate Concentration by High Volume Sampler ($\mu\text{g}/\text{m}^3$)	58.6
Particulate Concentration by Dust Meter ($\mu\text{g}/\text{m}^3$)	48.3
Measuring time, (min)	60

Set Correlation Factor, SCF
 SCF = [K=High Volume Sampler / Dust Meter, ($\mu\text{g}/\text{m}^3$)] 1.214



QC Reviewer: LBW MAN HBZ Signature: he Date: 24/6/23

TEST REPORT

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

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

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

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



PATRICK TSE
General Manager

TEST REPORT

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

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

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

Test Specifications:

Performance checking at 94 and 114 dB

Methodology:

In-house method, according to manufacturer instruction manual

Results:

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

PREPARED AND CHECKED BY:

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


PATRICK TSE
General Manager

TEST REPORT

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

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

Page: 1 of 1

ATTN: Ms. Meiling Tang

Certificate of Calibration

Item for calibration:

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

Test conditions:

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

Methodology:

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

Results:

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

PREPARED AND CHECKED BY:

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



PATRICK TSE
General Manager

TEST REPORT

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

Test Report No.:	38469D
Date of Issue:	2023-06-26
Date Received:	2023-06-24
Date Tested:	2023-06-24
Date Completed:	2023-06-26
Next Due Date:	2023-12-25

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.	: AK130520006

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
Laboratory Manager

TEST REPORT

Test Report No.:	38469D
Date of Issue:	2023-06-26
Date Received:	2023-06-24
Date Tested:	2023-06-24
Date Completed:	2023-06-26
Next Due Date:	2023-12-25
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
90.3	90	0.3
135.1	135	0.1
180	180	0
225.1	225	0.1
270	270	0
315.2	315	0.2
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.:	38605
Date of Issue:	2023-05-31
Date Received:	2023-05-30
Date Tested:	2023-05-30 to 2023-05-31
Date Completed:	2023-05-31

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-21	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J100882
- EXO Optical DO Sensor, Ti	599100-01	17B102223
- EXO conductivity/Temperature Sensor, Ti	599870	17B100797
- EXO Turbidity Sensor, Ti	599101-01	17B100797
- EXO pH Sensor Assembly, Guarded, Ti	599701	17B103628

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.:	38605
Date of Issue:	2023-05-31
Date Received:	2023-05-30
Date Tested:	2023-05-30 to 2023-05-31
Date Completed:	2023-05-31
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

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

Temperature performance checking

	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	4.06	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.89	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.20	9.18 ± 0.10	Pass

D.O. performance checking

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

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Winkler Titration value (mg/L)			
8.26	8.12	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	10.24	9.0-11.0	Pass
50 NTU	51.07	45.0-55.0	Pass
100 NTU	103.5	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.:	38423
Date of Issue:	2023-06-21
Date Received:	2023-06-20
Date Tested:	2023-06-20 to 2023-06-21
Date Completed:	2023-06-21

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.: SW-08-42	
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	16J102314
- EXO Optical DO Sensor, Ti	599100-01	16J100949
- EXO conductivity/Temperature Sensor, Ti	599870	17A105111
- EXO Turbidity Sensor, Ti	599101-01	16J101144
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J101306

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.:	38423
Date of Issue:	2023-06-21
Date Received:	2023-06-20
Date Tested:	2023-06-20 to 2023-06-21
Date Completed:	2023-06-21
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 $\mu\text{S}/\text{cm}$)	13100	12246-13534	Pass

Temperature performance checking

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

pH performance checking

	Instrument Readings (pH unit)	Acceptance Criteria	Comment
pH QC buffer 4.00	4.02	4.00 ± 0.10	Pass
pH QC buffer 6.86	6.88	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.20	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)			
8.18	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	10.04	9.0-11.0	Pass
50 NTU	50.22	45.0-55.0	Pass
100 NTU	101.5	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.:	38605B
Date of Issue:	2023-05-31
Date Received:	2023-05-30
Date Tested:	2023-05-30 to 2023-05-31
Date Completed:	2023-05-31

ATTN: Miss Mei Ling Tang

Page: 1 of 2

Certificate of Calibration

Item for calibration:

YSI EXO1 Multiparameter Sondes	Equipment No.:	SW-08-148
Manufacturer:	YSI Incorporated, a Xylem brand	
Description:	Model No.	Serial No.
- EXO1 Sonde, 100 meter Depth, 4 Sensor ports	599502-24	17B103389
- EXO Optical DO Sensor, Ti	599100-01	16J100993
- EXO conductivity/Temperature Sensor, Ti	599870	17B100782
- EXO Turbidity Sensor, Ti	599101-01	17B101578
- EXO pH Sensor Assembly, Guarded, Ti	599701	16J101318

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.:	38605B
Date of Issue:	2023-05-31
Date Received:	2023-05-30
Date Tested:	2023-05-30 to 2023-05-31
Date Completed:	2023-05-31
Page:	2 of 2

Certificate of Calibration

Results:

Conductivity performance checking

	Instrument Readings (µS/cm)	Acceptance Criteria	Comment
KCl stock solution (12890 µS/cm)	12700	12246-13534	Pass

Temperature performance checking

Reference thermometer- E431 Readings (°C)	Instrument Readings (°C)	Correction (°C)	Comment
20.0	19.998	+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	6.86	6.86 ± 0.10	Pass
pH QC buffer 9.18	9.21	9.18 ± 0.10	Pass

D.O. performance checking

	Instrument Readings (mg/L)	Acceptance Criteria	Comment
Zero DO solution	0.09	<0.1mg/L	Pass

Winkler Titration value (mg/L)	Instrument Readings (mg/L)	Acceptance Criteria	Comment
8.26	8.14	Difference between Titration value and instrument reading <0.2mg/L	Pass

Turbidity performance checking

Turbidity stock solution	Instrument Readings (NTU)	Acceptance Criteria	Comment
10 NTU	10.06	9.0-11.0	Pass
50 NTU	51.83	45.0-55.0	Pass
100 NTU	104.2	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*****

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

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

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

* Due to Typhoon signal no. 8 was in force, water quality monitoring was cancelled. Aquatic fauna survey (water quality monitoring only), Herpetofauna survey and avifauna survey (Pond 12) were rescheduled.

Air Quality Monitoring Station

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

Noise Monitoring Station

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

Water Quality Monitoring Station

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

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

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

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

Air Quality Monitoring Station

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

Noise Monitoring Station

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

Water Quality Monitoring Station

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

**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 ($\mu\text{g}/\text{m}^3$)
3-Jul-23	8:30	Cloudy	63.0
3-Jul-23	9:30	Cloudy	22.7
3-Jul-23	10:30	Cloudy	35.6
7-Jul-23	8:00	Sunny	28.1
7-Jul-23	9:00	Sunny	53.6
7-Jul-23	10:00	Sunny	70.3
13-Jul-23	8:40	Sunny	25.3
13-Jul-23	9:40	Sunny	23.5
13-Jul-23	10:40	Sunny	29.1
19-Jul-23	8:00	Cloudy	36.0
19-Jul-23	9:00	Cloudy	44.9
19-Jul-23	10:00	Cloudy	30.9
25-Jul-23	8:00	Sunny	22.7
25-Jul-23	9:00	Sunny	20.0
25-Jul-23	10:00	Sunny	31.7
31-Jul-23	8:00	Cloudy	25.7
31-Jul-23	9:00	Cloudy	22.6
31-Jul-23	10:00	Cloudy	25.6
		Minimum	20.0
		Maximum	70.3
		Average	34.0

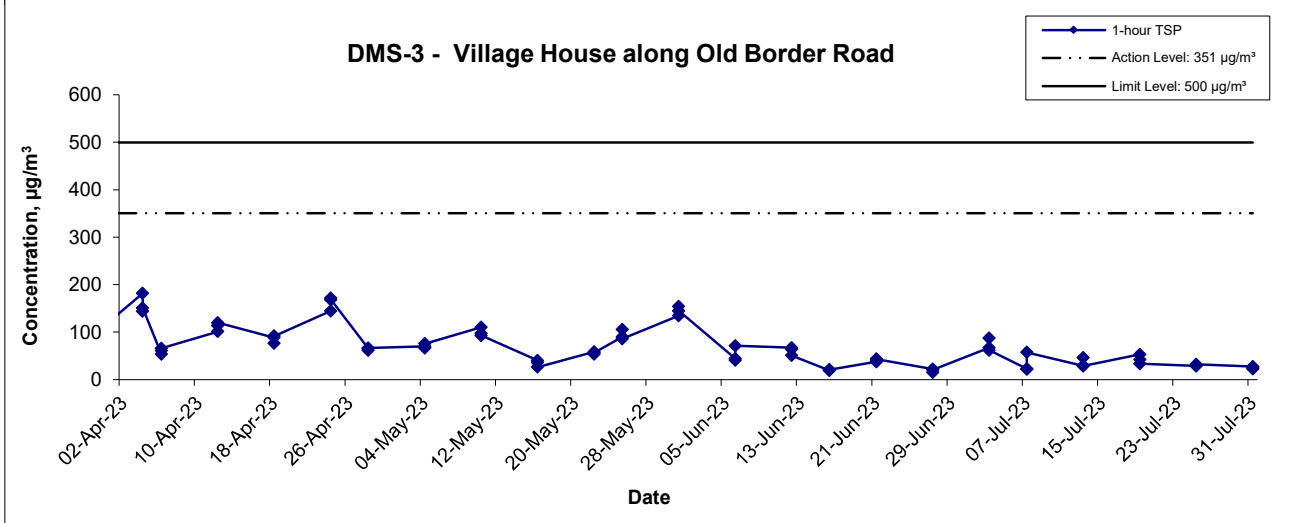
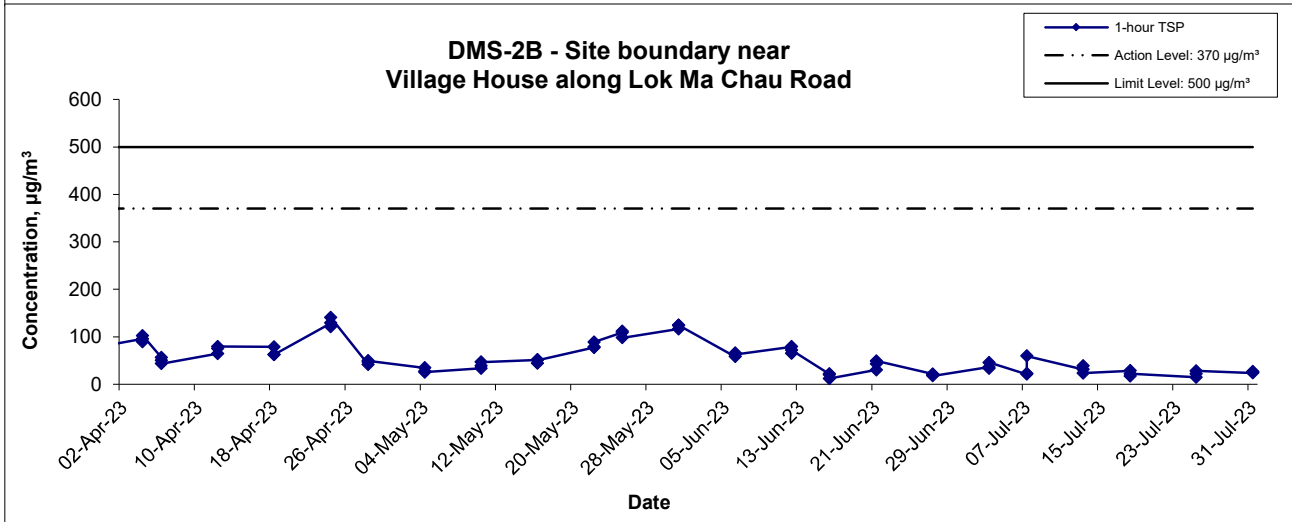
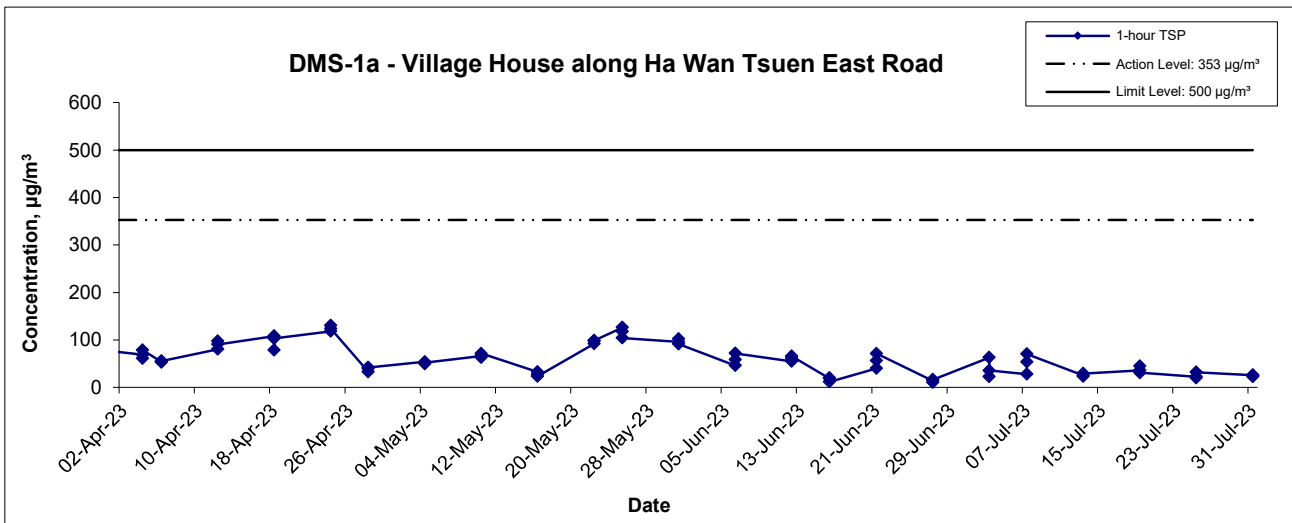
Location DMS-2B - Site boundary near Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
3-Jul-23	8:45	Cloudy	36.2
3-Jul-23	9:45	Cloudy	33.7
3-Jul-23	10:45	Cloudy	45.8
7-Jul-23	8:00	Sunny	21.1
7-Jul-23	9:00	Sunny	22.6
7-Jul-23	10:00	Sunny	59.5
13-Jul-23	8:45	Sunny	31.1
13-Jul-23	9:45	Sunny	38.6
13-Jul-23	10:45	Sunny	23.4
18-Jul-23	8:00	Cloudy	28.4
18-Jul-23	9:00	Cloudy	17.2
18-Jul-23	10:00	Cloudy	22.0
25-Jul-23	8:00	Sunny	14.8
25-Jul-23	9:00	Sunny	21.8
25-Jul-23	10:00	Sunny	28.0
31-Jul-23	8:00	Cloudy	23.8
31-Jul-23	9:00	Cloudy	25.0
31-Jul-23	10:00	Cloudy	26.9
		Minimum	14.8
		Maximum	59.5
		Average	28.9


Appendix E - 1-hour TSP Monitoring Results

Location DMS-3 - Village House along Old Border Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
3-Jul-23	8:10	Cloudy	67.4
3-Jul-23	9:10	Cloudy	87.5
3-Jul-23	10:10	Cloudy	61.9
7-Jul-23	8:10	Sunny	22.5
7-Jul-23	9:10	Sunny	22.2
7-Jul-23	10:10	Sunny	57.4
13-Jul-23	13:15	Sunny	29.0
13-Jul-23	14:15	Sunny	46.3
13-Jul-23	15:15	Sunny	28.7
19-Jul-23	8:00	Cloudy	53.2
19-Jul-23	9:00	Cloudy	42.2
19-Jul-23	10:00	Cloudy	33.6
25-Jul-23	8:00	Sunny	28.6
25-Jul-23	9:00	Sunny	29.6
25-Jul-23	10:00	Sunny	32.3
31-Jul-23	13:00	Cloudy	27.2
31-Jul-23	14:00	Cloudy	22.9
31-Jul-23	15:00	Cloudy	25.6
		Minimum	22.2
		Maximum	87.5
		Average	39.9

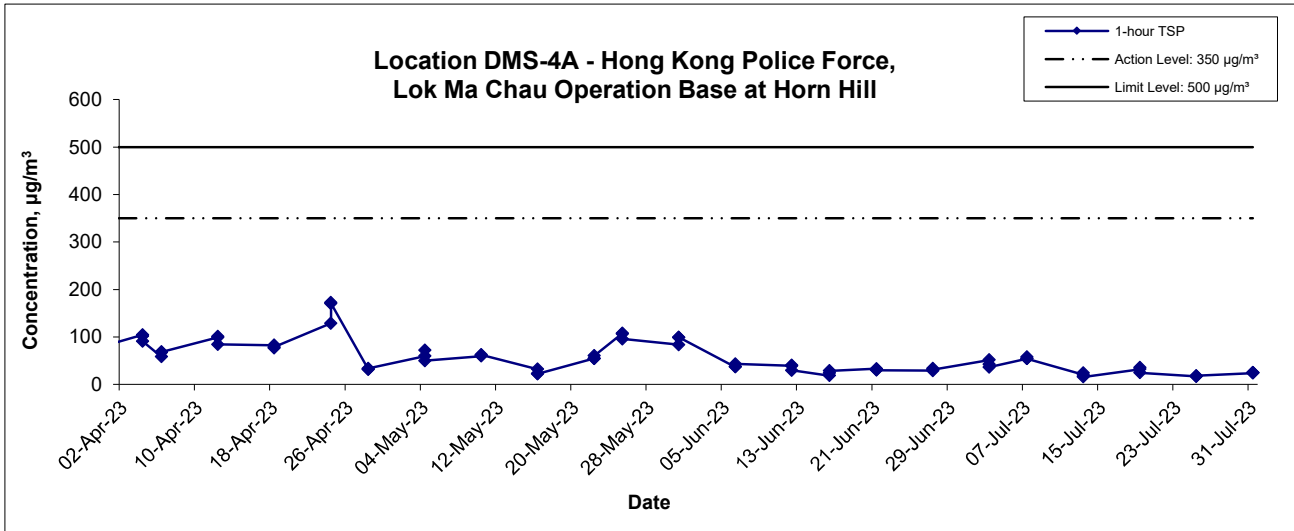
Location DMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
3-Jul-23	8:00	Cloudy	51.3
3-Jul-23	9:00	Cloudy	42.2
3-Jul-23	10:00	Cloudy	36.3
7-Jul-23	13:00	Sunny	54.2
7-Jul-23	14:00	Sunny	57.6
7-Jul-23	15:00	Sunny	54.0
13-Jul-23	8:30	Sunny	20.1
13-Jul-23	9:30	Sunny	24.0
13-Jul-23	10:30	Sunny	15.9
19-Jul-23	13:00	Cloudy	32.1
19-Jul-23	14:00	Cloudy	35.7
19-Jul-23	15:00	Cloudy	24.5
25-Jul-23	13:00	Sunny	16.7
25-Jul-23	14:00	Sunny	17.4
25-Jul-23	15:00	Sunny	18.2
31-Jul-23	8:50	Sunny	23.8
31-Jul-23	9:50	Sunny	24.7
31-Jul-23	10:50	Sunny	24.4
		Minimum	15.9
		Maximum	57.6
		Average	31.8


1-hour TSP Concentration Levels



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

1-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 1-hour TSP Monitoring Results	Scale N.T.S	Project No. WMA21009	 consulting . testing . research
	Date Jul 23	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 ($\mu\text{g}/\text{m}^3$)
6-Jul-23	8:40	Sunny	23.3
12-Jul-23	8:25	Sunny	24.2
18-Jul-23	8:15	Cloudy	37.8
24-Jul-23	8:00	Sunny	20.9
28-Jul-23	9:00	Cloudy	40.8
		Minimum	20.9
		Maximum	40.8
		Average	29.4

Location DMS-2B - Site boundary near Village House along Lok Ma Chau Road			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
6-Jul-23	8:30	Sunny	20.4
12-Jul-23	8:30	Sunny	16.1
18-Jul-23	8:00	Cloudy	31.1
24-Jul-23	8:00	Sunny	22.7
28-Jul-23	9:45	Cloudy	21.0
		Minimum	16.1
		Maximum	31.1
		Average	22.3

Appendix F - 24-hour TSP Monitoring Results

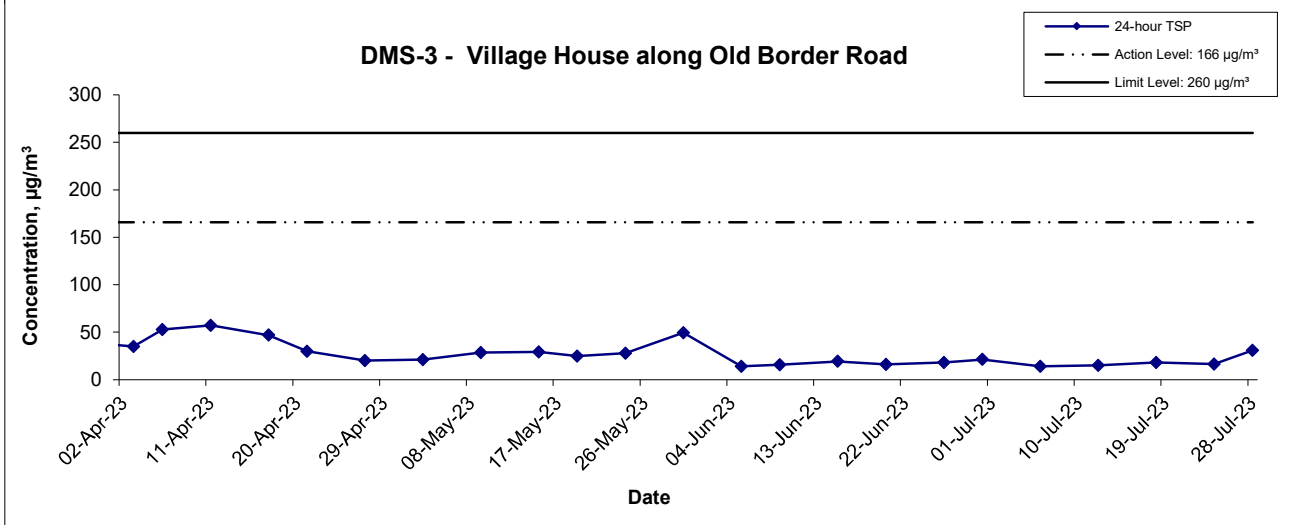
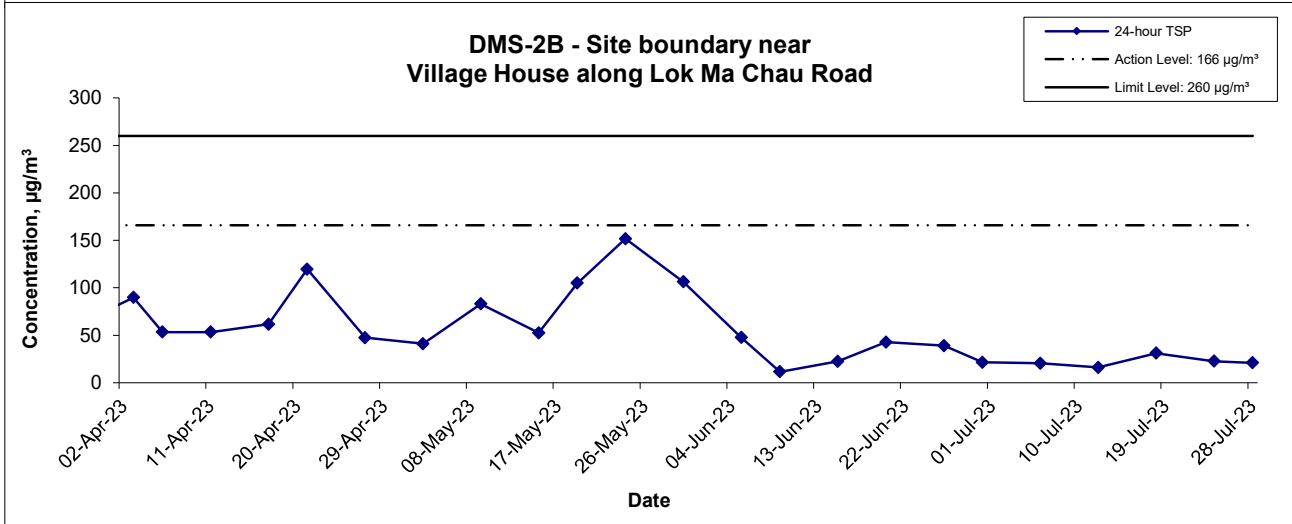
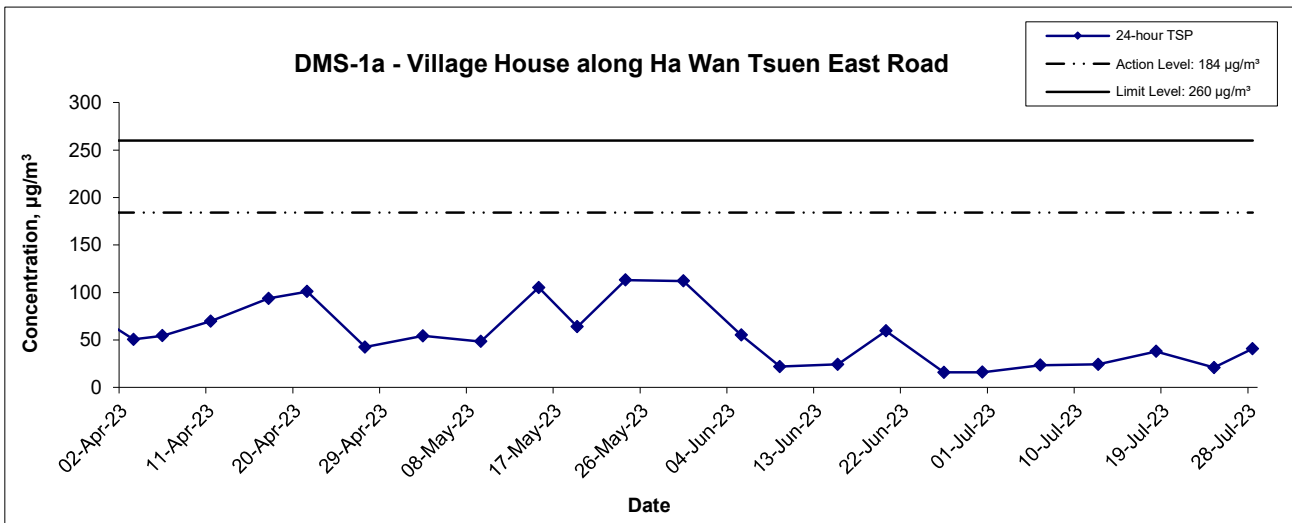
Location DMS-3 - Village House along Old Border Road

Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Jul-23	Sunny	300.4	759.2	2.9085	2.9333	0.0248	4333.2	4357.2	24.0	1.224	1.219	1.222	1759.3	14.1
12-Jul-23	Sunny	302.0	758.7	2.8907	2.9172	0.0265	4357.2	4381.2	24.0	1.216	1.220	1.218	1753.9	15.1
18-Jul-23	Cloudy	301.3	755.9	2.9475	2.9790	0.0315	4381.2	4405.2	24.0	1.220	1.214	1.217	1752.7	18.0
24-Jul-23	Sunny	300.6	759.8	2.9076	2.9365	0.0289	4405.2	4429.2	24.0	1.224	1.220	1.222	1759.4	16.4
28-Jul-23	Cloudy	302.1	751.3	2.9201	2.9740	0.0539	4429.2	4453.2	24.0	1.211	1.213	1.212	1744.6	30.9
													Min	14.1
													Max	30.9
													Average	18.9

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

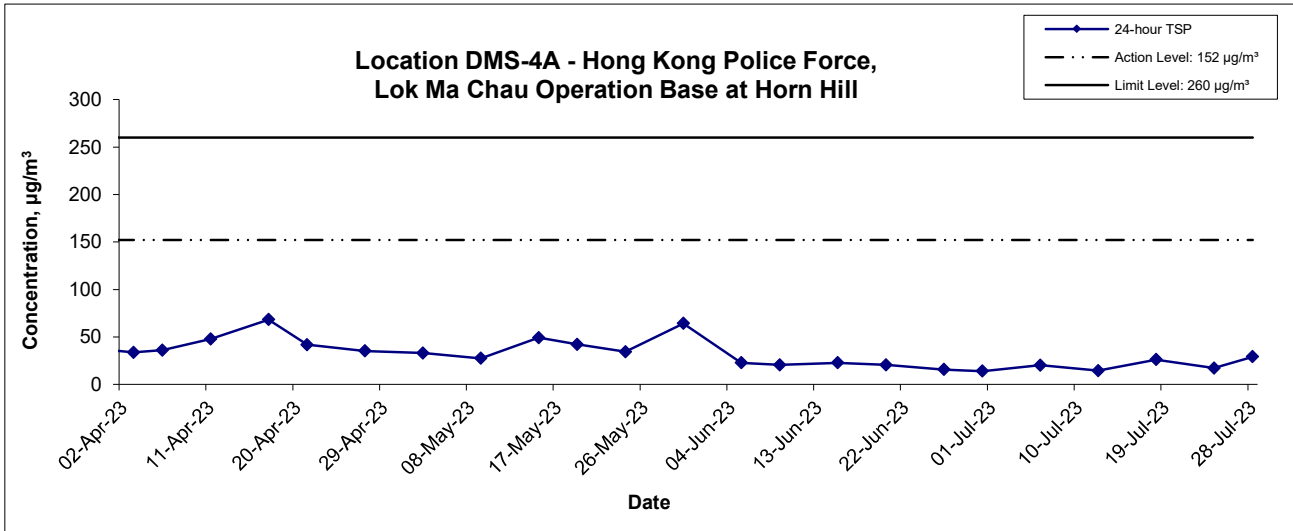
Start Date	Weather Condition	Air Temp. (K)	Atmospheric Pressure, Pa (mmHg)	Filter Weight (g)		Particulate weight (g)	Elapse Time		Sampling Time(hrs.)	Flow Rate (m ³ /min.)		Av. flow (m ³ /min)	Total vol. (m ³)	Conc. (µg/m ³)
				Initial	Final		Initial	Final		Initial	Final			
6-Jul-23	Sunny	300.4	759.2	2.9716	3.0070	0.0354	33794.6	33818.6	24.0	1.226	1.220	1.223	1760.6	20.1
12-Jul-23	Sunny	302.0	758.7	2.9109	2.9363	0.0254	33818.6	33842.6	24.0	1.215	1.221	1.218	1753.8	14.5
18-Jul-23	Cloudy	301.3	755.9	3.0198	3.0653	0.0455	33842.6	33866.6	24.0	1.220	1.214	1.217	1752.3	26.0
24-Jul-23	Sunny	300.6	759.8	2.9349	2.9650	0.0301	33866.6	33890.6	24.0	1.225	1.220	1.223	1760.8	17.1
28-Jul-23	Cloudy	302.1	751.3	2.9487	2.9995	0.0508	33890.7	33914.7	24.0	1.209	1.211	1.210	1742.2	29.2
													Min	14.5
													Max	29.2
													Average	21.4

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	consulting . testing . research
	Date	Jul 23	Appendix	F	

24-hour TSP Concentration Levels



Title Service Contract No. WD/04/2020 Development of Lok Ma Chau Loop: Main Works Package 1 - Environmental Team Graphical Presentation of 24-hour TSP Monitoring Results	Scale	N.T.S	Project No.	WMA21009	匯力 consulting . testing . research
	Date	Jul 23	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}
3-Jul-23	Sunny	08:35	51.9	53.2	50.6	53.2	47.3
		08:40	51.2	52.5	49.7		
		08:45	52.1	53.5	50.4		
		08:50	53.6	55.5	51.5		
		08:55	55.5	58.2	52.4		
09:00	53.6	55.5	51.8				
13-Jul-23	Sunny	08:30	50.7	52.4	48.8	53.0	
		08:35	50.5	52.0	49.0		
		08:40	51.3	53.1	49.4		
		08:45	52.2	53.2	51.0		
		08:50	55.8	58.5	50.2		
08:55	54.4	57.1	51.0				
19-Jul-23	Cloudy	08:30	53.3	54.7	52.0	53.8	
		08:35	53.3	54.6	52.1		
		08:40	54.7	55.8	52.2		
		08:45	52.5	53.6	51.3		
		08:50	53.5	55.5	51.8		
08:55	55.2	59.0	51.5				
25-Jul-23	Sunny	08:30	66.8	67.9	55.0	60.3	
		08:35	60.1	61.8	52.0		
		08:40	49.5	50.7	47.3		
		08:45	51.3	53.6	47.7		
		08:50	50.6	52.5	48.8		
08:55	55.4	55.6	50.1				
31-Jul-23	Sunny	09:55	57.5	61.6	52.2	56.1	
		10:00	54.7	56.8	52.2		
		10:05	53.5	55.6	51.3		
		10:10	53.9	56.2	51.2		
		10:15	58.9	57.9	52.9		
10:20	55.0	57.5	52.3				

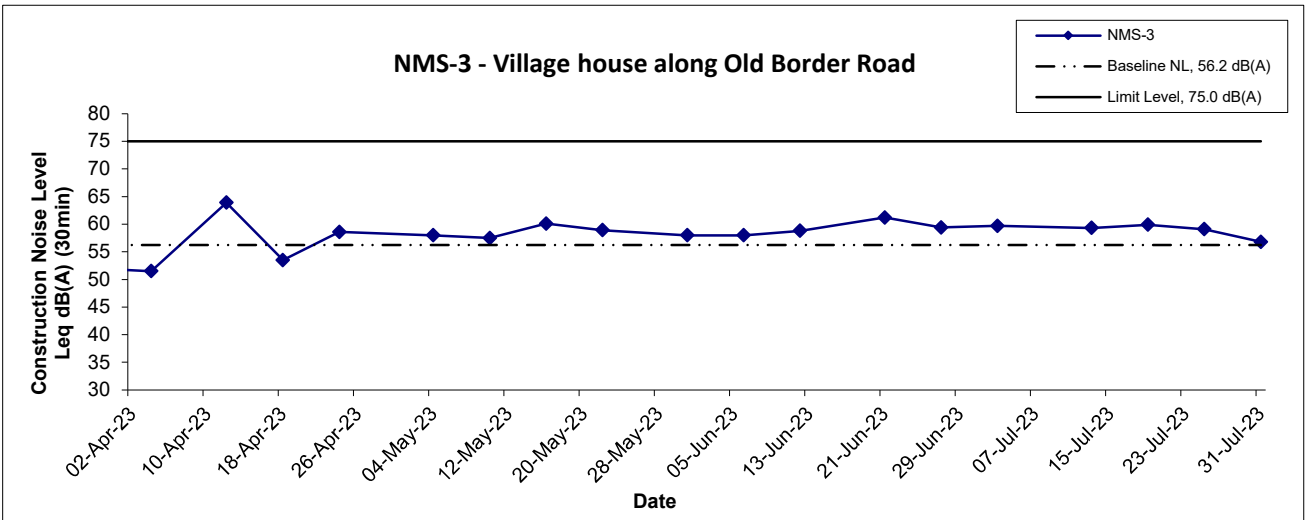
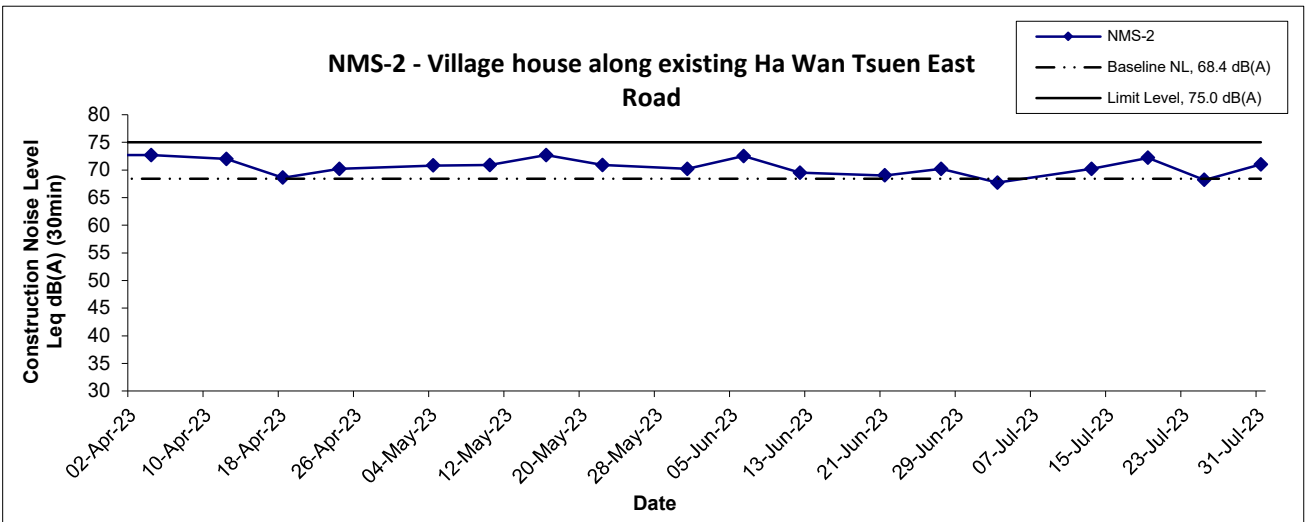
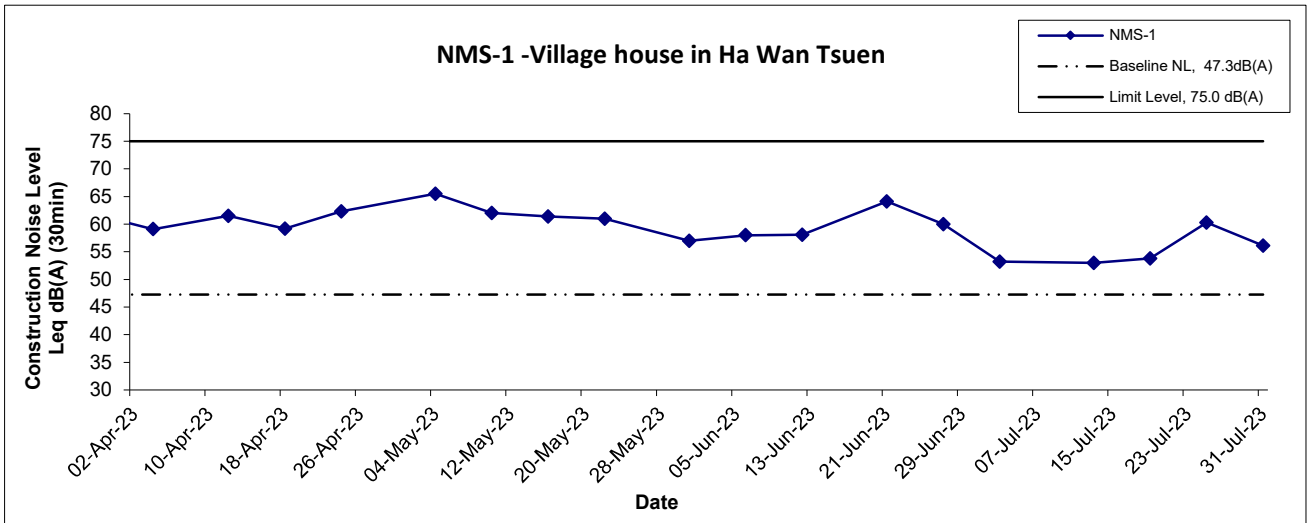
Location NMS-2 - Village house along existing Ha Wan Tsuen East Road							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Jul-23	Cloudy	16:35	68.0	69.9	60.9	67.7	68.4
		16:40	68.3	70.8	61.2		
		16:45	64.8	68.6	56.9		
		16:50	69.3	71.0	59.2		
		16:55	68.8	71.4	60.6		
17:00	65.4	68.9	57.1				
13-Jul-23	Sunny	09:20	71.9	75.8	56.8	70.2	
		09:25	70.0	73.3	58.0		
		09:30	68.6	72.5	56.7		
		09:35	70.4	74.0	60.7		
		09:40	70.3	73.6	59.3		
09:45	69.5	72.1	59.3				
19-Jul-23	Cloudy	10:55	73.0	75.9	61.3	72.2	
		11:00	73.8	77.3	59.7		
		11:05	72.5	76.3	55.9		
		11:10	70.5	73.6	55.2		
		11:15	71.2	75.6	62.5		
11:20	71.5	74.9	61.4				
25-Jul-23	Sunny	13:00	67.7	68.3	57.8	68.2	
		13:05	68.0	71.9	57.7		
		13:10	68.8	72.3	57.7		
		13:15	66.5	70.4	57.9		
		13:20	70.1	74.2	57.5		
13:25	67.1	71.5	54.7				
31-Jul-23	Sunny	10:40	69.7	73.2	54.3	71.0	
		10:45	70.2	71.5	54.8		
		10:50	72.7	75.6	61.8		
		10:55	68.6	72.5	59.0		
		11:00	72.4	74.6	58.9		
11:05	71.2	75.0	57.1				

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}
3-Jul-23	Cloudy	10:30	58.8	59.8	57.9	59.7	56.2
		10:35	59.0	59.8	57.7		
		10:40	59.7	60.3	57.7		
		10:45	60.0	61.5	58.0		
		10:50	60.9	64.3	57.1		
10:55	59.5	61.0	54.8				
13-Jul-23	Sunny	13:25	61.0	64.2	56.1	59.3	
		13:30	62.4	63.1	56.2		
		13:35	57.5	57.9	56.0		
		13:40	58.7	63.4	55.9		
		13:45	56.3	56.8	55.8		
13:50	56.4	57.3	55.5				
19-Jul-23	Cloudy	09:35	59.4	61.0	58.1	59.9	
		09:40	58.7	60.2	57.6		
		09:45	59.0	59.9	58.0		
		09:50	63.1	67.4	58.1		
		09:55	58.0	58.5	57.4		
10:00	59.0	60.7	57.6				
25-Jul-23	Sunny	08:30	58.2	58.5	57.5	59.1	
		08:35	58.2	58.7	57.3		
		08:40	59.4	59.8	57.3		
		08:45	61.3	64.1	57.5		
		08:50	58.3	58.8	56.4		
08:55	58.2	58.6	57.4				
31-Jul-23	Cloudy	14:40	56.4	56.6	54.7	56.8	
		14:45	55.4	56.2	54.6		
		14:50	55.1	55.5	54.4		
		14:55	56.1	56.4	54.3		
		15:00	60.1	56.7	54.4		
15:05	55.6	56.3	54.2				

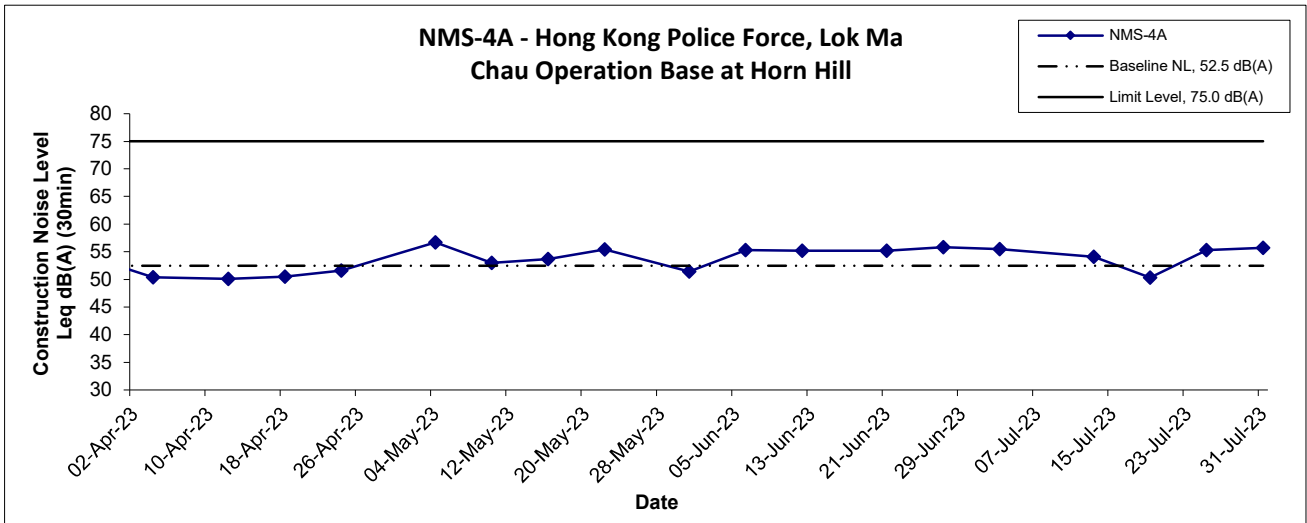
Location NMS-4A - Hong Kong Police Force, Lok Ma Chau Operation Base at Horn Hill							
Date	Weather	Time	Unit: dB (A) (5-min)			Average	Baseline Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
3-Jul-23	Cloudy	11:20	54.8	55.5	53.8	55.5	52.5
		11:25	54.5	55.4	53.5		
		11:30	55.4	56.8	53.9		
		11:35	54.8	55.7	53.8		
		11:40	55.7	57.0	54.2		
11:45	57.2	57.4	54.1				
13-Jul-23	Sunny	10:20	53.1	54.0	52.2	54.1	
		10:25	53.4	54.2	52.3		
		10:30	53.2	54.4	51.7		
		10:35	56.8	62.9	52.3		
		10:40	53.8	54.7	52.9		
10:45	52.9	53.9	51.7				
19-Jul-23	Cloudy	13:30	50.7	51.7	48.9	50.3	
		13:35	50.1	51.0	48.8		
		13:40	50.3	51.2	48.5		
		13:45	50.4	51.4	48.7		
		13:50	49.9	50.9	48.3		
13:55	50.3	51.2	49.0				
25-Jul-23	Sunny	15:40	60.4	60.1	50.4	55.3	
		15:45	52.1	53.7	49.5		
		15:50	52.6	54.9	49.9		
		15:55	52.5	54.2	49.5		
		16:00	52.0	54.3	49.7		
16:05	54.1	54.7	53.5				
31-Jul-23	Sunny	08:50	54.3	55.1	53.0	55.7	
		08:55	54.0	55.0	52.9		
		09:00	53.8	54.6	52.5		
		09:05	53.8	54.8	52.8		
		09:10	54.6	56.0	52.8		
09:15	59.8	66.8	52.5				

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	Jul 23	Appendix	G
				 consulting . testing . research

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 Jul 23	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
3-Jul-23	Cloudy	Calm	12:14	Middle	0.5	32.4	32.4	7.5	7.5	1.2	1.2	67.6	67.6	4.9	4.9	9.7	9.6	12	13.0
						32.4		7.5		1.2		67.5		4.9		9.4		14	
5-Jul-23	Sunny	Calm	09:43	Middle	0.6	31.2	31.2	7.4	7.4	1.2	1.2	80.4	80.3	5.9	5.9	11.3	11.3	14	14.5
						31.2		7.4		1.2		80.1		5.9		11.2		15	
7-Jul-23	Sunny	Calm	09:16	Middle	0.5	31.1	31.1	7.7	7.7	1.4	1.4	93.8	93.8	6.9	6.9	16.6	16.6	24	24.0
						31.1		7.7		1.4		93.8		6.9		16.6		24	
10-Jul-23	Sunny	Calm	12:02	Middle	0.5	34.2	34.2	7.8	7.8	1.7	1.7	110.4	110.5	7.7	7.7	9.9	10.0	13	13.5
						34.2		7.8		1.7		110.6		7.7		10.0		14	
12-Jul-23	Sunny	Calm	09:43	Middle	0.5	32.9	32.9	7.9	7.9	2.0	2.0	89.8	89.7	6.4	6.4	17.9	18.0	30	29.0
						32.9		7.9		2.0		89.6		6.4		18.0		28	
14-Jul-23	Sunny	Calm	12:25	Middle	0.5	36.2	36.2	8.7	8.7	2.2	2.2	171.8	172.3	11.6	11.6	15.3	15.3	25	25.5
						36.2		8.7		2.2		172.8		11.6		15.3		26	
19-Jul-23	Cloudy	Calm	10:39	Middle	0.6	29.6	29.6	7.4	7.4	1.5	1.5	85.2	85.2	6.4	6.4	10.4	10.5	21	20.5
						29.6		7.4		1.5		85.2		6.4		10.5		20	
24-Jul-23	Sunny	Calm	08:51	Middle	0.5	31.8	31.8	7.4	7.4	1.6	1.6	69.4	69.4	5.1	5.1	12.6	12.7	21	22.0
						31.8		7.4		1.6		69.3		5.0		12.7		23	
26-Jul-23	Sunny	Calm	14:47	Middle	0.5	35.5	35.6	7.5	7.5	1.7	1.7	75.0	75.0	5.1	5.1	9.1	9.1	23	21.0
						35.6		7.5		1.7		74.9		5.1		9.1		19	
28-Jul-23	Sunny	Calm	09:35	Middle	0.5	32.3	32.3	7.5	7.5	0.9	0.9	73.1	73.0	5.3	5.3	22.2	22.2	33	31.5
						32.3		7.5		0.9		72.8		5.3		22.1		30	
31-Jul-23	Cloudy	Calm	14:29	Middle	0.5	31.2	31.2	6.7	6.8	1.4	1.4	58.3	58.1	4.3	4.3	5.1	5.1	8	9.0
						31.2		6.8		1.4		57.8		4.3		5.0		10	
21-Jul-23	Cloudy	Calm	11:14	Middle	0.2	32.4	32.4	8.1	8.1	1.5	1.5	130.0	130.0	9.4	9.4	11.6	11.5	14	14.5
						32.4		8.1		1.5		130.0		9.4		11.4		15	

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
3-Jul-23	Cloudy	Calm	11:07	Middle	0.2	28.5	28.5	7.2	7.2	0.2	0.2	59.8	60.1	4.6	4.7	58.6	58.4	48	45.5
						28.5		7.2		0.2		60.3		4.7		58.2		43	
5-Jul-23	Sunny	Calm	09:01	Middle	0.1	28.4	28.5	7.7	7.7	0.4	0.4	87.6	87.6	6.8	6.8	2.5	2.5	<2.5	<2.5
						28.5		7.7		0.4		87.5		6.8		2.5			
7-Jul-23	Sunny	Calm	08:23	Middle	0.1	28.2	28.2	7.8	7.8	0.4	0.4	87.1	87.0	6.8	6.8	9.3	9.1	8	8.5
						28.2		7.8		0.4		86.8		6.8		8.9		9	
10-Jul-23	Sunny	Calm	11:13	Middle	0.1	31.8	31.8	8.5	8.5	0.4	0.4	138.6	138.7	10.1	10.1	3.1	3.2	6	6.0
						31.8		8.5		0.4		138.7		10.1		3.2		6	
12-Jul-23	Sunny	Calm	08:43	Middle	0.1	28.9	28.9	7.5	7.5	0.4	0.4	57.4	57.4	4.4	4.4	14.1	14.1	22	23.5
						28.9		7.5		0.4		57.3		4.4		14.0		25	
14-Jul-23	Sunny	Calm	11:40	Middle	0.1	30.0	30.0	7.8	7.8	0.4	0.4	108.3	108.4	8.2	8.2	2.0	2.0	3	2.8
						30.0		7.8		0.4		108.5		8.2		2.0		<2.5	
19-Jul-23	Cloudy	Calm	09:28	Middle	0.2	28.1	28.1	7.3	7.3	0.2	0.2	78.6	78.6	6.1	6.1	25.4	25.6	19	19.5
						28.1		7.3		0.2		78.5		6.1		25.7		20	
24-Jul-23	Sunny	Calm	08:08	Middle	0.1	28.3	28.3	7.5	7.5	0.5	0.5	70.0	70.0	5.4	5.4	18.5	17.0	36	36.5
						28.3		7.5		0.5		70.0		5.4		15.4		37	
26-Jul-23	Sunny	Calm	13:58	Middle	0.1	34.8	34.8	8.8	8.8	0.5	0.5	158.5	158.6	11.0	11.0	8.8	8.7	16	16.5
						34.8		8.8		0.5		158.6		11.0		8.6		17	
28-Jul-23	Sunny	Calm	08:42	Middle	0.2	30.1	30.1	7.3	7.3	0.5	0.5	60.4	60.2	4.6	4.6	8.3	8.4	9	10.0
						30.1		7.3		0.5		60.0		4.5		8.4		11	
31-Jul-23	Cloudy	Calm	13:48	Middle	0.2	32.5	32.5	7.7	7.7	0.2	0.2	103.1	103.0	7.5	7.5	7.0	7.2	17	16.0
						32.5		7.7		0.2		102.9		7.5		7.3		15	
21-Jul-23	Cloudy	Calm	10:11	Middle	0.2	29.1	29.1	8.0	8.0	0.6	0.6	73.9	73.8	5.7	5.7	5.2	5.2	6	6.0
						29.1		8.0		0.6		73.7		5.7		5.1		6	

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
3-Jul-23	Cloudy	Calm	12:02	Middle	0.5	29.6	29.6	6.9	6.9	0.5	0.5	61.6	61.4	4.7	4.7	10.9	10.6	16	15.0
						29.5		6.9		0.5		61.2		4.7		10.2		14	
5-Jul-23	Sunny	Calm	09:23	Middle	0.5	27.9	27.9	6.7	6.7	0.3	0.3	59.3	59.0	4.6	4.6	12.1	11.7	10	10.5
						27.9		6.7		0.3		58.6		4.6		11.3		11	
7-Jul-23	Sunny	Calm	08:55	Middle	0.4	28.1	28.1	6.3	6.3	0.4	0.4	59.9	59.5	4.7	4.7	14.5	14.5	18	16.5
						28.1		6.3		0.4		59.0		4.6		14.5		15	
10-Jul-23	Sunny	Calm	11:44	Middle	0.4	31.3	31.3	6.7	6.7	0.8	0.8	66.5	66.4	4.9	4.9	21.0	20.0	18	18.0
						31.3		6.7		0.8		66.3		4.9		19.0		18	
12-Jul-23	Sunny	Calm	09:26	Middle	0.5	29.9	29.9	6.8	6.8	0.7	0.7	57.8	57.9	4.4	4.4	19.1	19.1	23	24.5
						29.9		6.8		0.7		58.0		4.4		19.0		26	
14-Jul-23	Sunny	Calm	12:08	Middle	0.5	33.7	33.7	7.3	7.4	1.7	1.7	115.6	116.0	8.1	8.2	18.7	18.7	23	21.5
						33.7		7.4		1.7		116.3		8.2		18.6		20	
19-Jul-23	Cloudy	Calm	10:18	Middle	0.5	27.2	27.2	6.7	6.7	0.1	0.1	62.6	62.5	5.0	5.0	13.7	13.2	13	12.5
						27.2		6.7		0.1		62.3		5.0		12.7		12	
24-Jul-23	Sunny	Calm	08:35	Middle	0.4	27.2	27.2	6.8	6.8	0.1	0.1	53.7	53.4	4.3	4.3	19.9	20.3	25	25.0
						27.2		6.8		0.1		53.1		4.2		20.7		25	
26-Jul-23	Sunny	Calm	14:32	Middle	0.4	35.5	35.5	7.5	7.5	1.3	1.3	131.7	131.7	9.0	9.0	14.9	15.0	22	24.0
						35.5		7.5		1.3		131.7		9.0		15.0		26	
28-Jul-23	Sunny	Calm	09:12	Middle	0.4	30.9	30.9	6.8	6.8	1.0	1.0	57.3	57.3	4.2	4.2	16.2	16.1	24	22.0
						30.9		6.8		1.0		57.3		4.2		16.0		20	
31-Jul-23	Cloudy	Calm	14:15	Middle	0.4	29.0	29.0	6.7	6.7	0.1	0.1	60.3	60.6	4.6	4.7	12.7	12.6	14	13.0
						29.0		6.7		0.1		60.8		4.7		12.5		12	
21-Jul-23	Cloudy	Calm	10:58	Middle	0.3	28.2	28.2	7.7	7.7	0.1	0.1	63.4	63.3	4.9	4.9	11.1	11.2	12	12.5
						28.2		7.7		0.1		63.1		4.9		11.3		13	

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
3-Jul-23	Cloudy	Calm	10:58	Middle	0.1	29.4	29.4	7.0	7.0	1.1	1.1	54.8	54.7	4.2	4.2	31.7	31.9	25	25.5
						29.3		7.0		1.1		54.5		4.1		32.1			
5-Jul-23	Sunny	Calm	08:48	Middle	0.1	29.1	29.1	7.3	7.3	0.3	0.3	60.9	60.7	4.7	4.7	29.3	29.5	30	29.0
						29.1		7.3		0.3		60.5		4.6		29.6			
7-Jul-23	Sunny	Calm	08:09	Middle	0.1	30.3	30.3	7.1	7.1	1.3	1.3	55.3	55.3	4.1	4.1	32.0	32.1	26	24.5
						30.3		7.1		1.3		55.2		4.1		32.1			
10-Jul-23	Sunny	Calm	11:01	Middle	0.1	32.2	32.2	7.1	7.1	1.3	1.3	69.8	69.8	5.1	5.1	33.9	33.8	22	22.5
						32.2		7.1		1.3		69.7		5.0		33.7			
12-Jul-23	Sunny	Calm	08:24	Middle	0.1	31.5	31.5	7.3	7.3	0.4	0.4	58.2	58.3	4.3	4.3	33.0	33.1	28	29.0
						31.5		7.3		0.4		58.3		4.3		33.2			
14-Jul-23	Sunny	Calm	11:27	Middle	0.1	32.5	32.5	7.2	7.2	0.4	0.4	65.2	65.3	4.7	4.7	21.4	21.4	20	20.0
						32.5		7.2		0.4		65.4		4.7		21.3			
19-Jul-23	Cloudy	Calm	09:06	Middle	0.2	28.2	28.2	7.0	7.0	0.2	0.2	56.1	56.0	4.4	4.4	30.2	30.4	22	22.5
						28.2		7.0		0.2		55.8		4.4		30.5			
24-Jul-23	Sunny	Calm	07:53	Middle	0.1	30.4	30.4	7.3	7.3	1.2	1.2	58.4	57.9	4.4	4.4	21.3	21.4	25	24.5
						30.3		7.3		1.2		57.3		4.3		21.5			
26-Jul-23	Sunny	Calm	13:45	Middle	0.1	33.4	33.4	7.0	7.0	1.2	1.2	77.2	77.2	5.5	5.5	17.2	17.2	21	23.5
						33.4		7.0		1.2		77.2		5.5		17.1			
28-Jul-23	Sunny	Calm	08:26	Middle	0.1	31.7	31.7	6.9	6.9	1.4	1.4	61.3	61.5	4.5	4.5	17.8	17.8	19	19.5
						31.7		6.9		1.4		61.6		4.5		17.8			
31-Jul-23	Cloudy	Calm	13:30	Middle	0.1	31.7	31.7	7.0	7.0	1.2	1.2	69.8	69.7	5.1	5.1	26.8	27.0	22	24.0
						31.7		7.0		1.2		69.5		5.1		27.2			
21-Jul-23	Cloudy	Calm	10:26	Middle	0.2	30.0	30.0	7.4	7.4	0.4	0.4	57.5	57.9	4.3	4.4	28.5	28.4	20	20.5
						30.0		7.4		0.4		58.2		4.4		28.3			

Remarks: *DA: Depth-Averaged

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

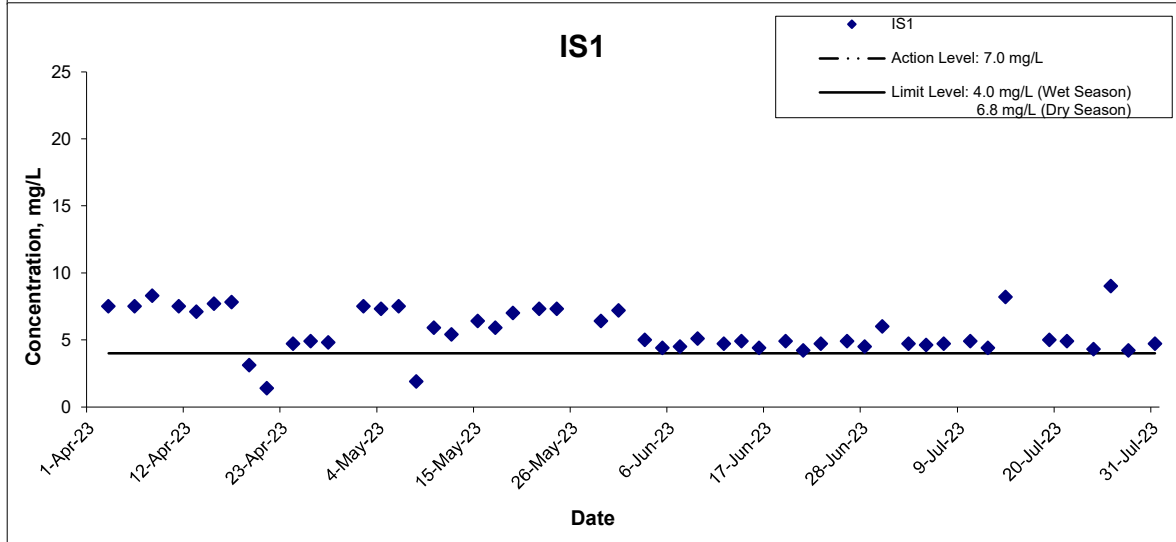
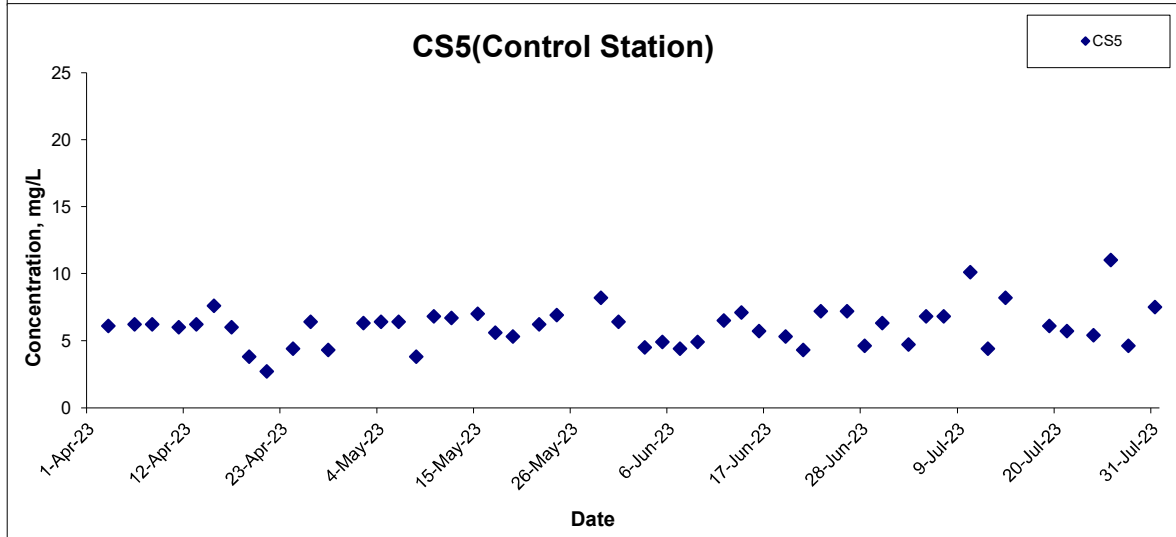
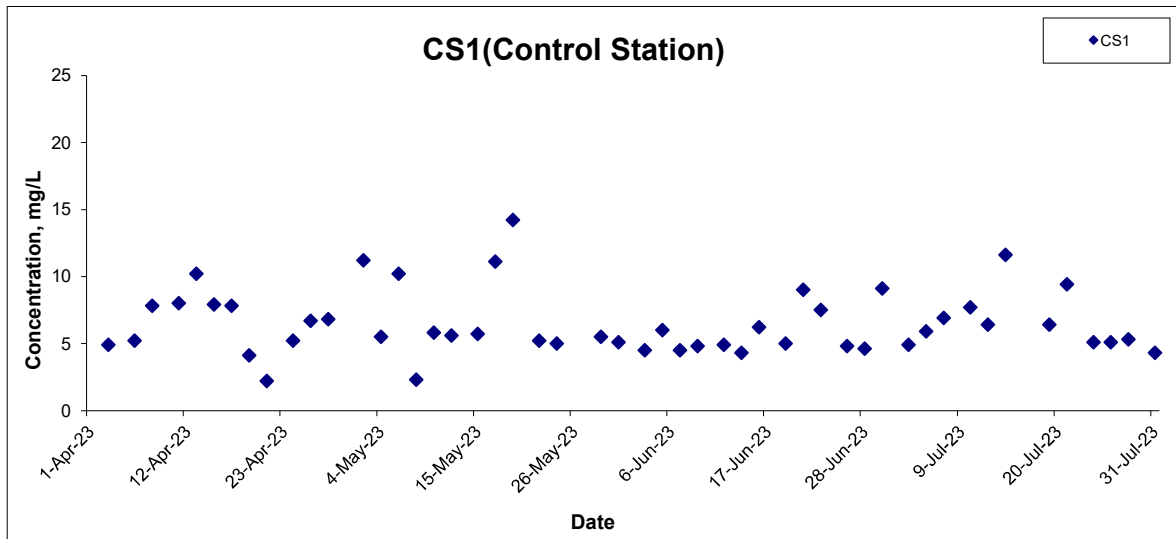
Water Quality Monitoring Results at IS4

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
3-Jul-23	Cloudy	Calm	11:34	Middle	0.2	28.5	28.5	7.0	7.0	0.1	0.1	62.1	62.0	4.8	4.8	15.0	15.0	10	10.5
						28.5		6.9		0.1		61.8		4.8		15.0		11	
5-Jul-23	Sunny	Calm	09:15	Middle	0.2	28.0	28.0	7.1	7.1	0.1	0.1	54.7	55.0	4.3	4.3	14.9	15.0	19	18.5
						28.0		7.1		0.1		55.3		4.3		15.0		18	
7-Jul-23	Sunny	Calm	08:42	Middle	0.1	27.2	27.2	6.5	6.5	0.1	0.1	60.7	61.2	4.8	4.9	16.4	16.5	19	19.5
						27.2		6.5		0.1		61.7		4.9		20			
10-Jul-23	Sunny	Calm	11:29	Middle	0.1	28.6	28.6	6.7	6.7	0.1	0.1	59.0	59.1	4.6	4.6	10.9	10.9	13	13.5
						28.6		6.7		0.1		59.1		4.6		14			
12-Jul-23	Sunny	Calm	09:03	Middle	0.1	27.4	27.4	6.9	6.9	0.1	0.1	56.4	56.0	4.5	4.5	9.2	9.3	10	10.0
						27.4		6.9		0.1		55.5		4.4		10			
14-Jul-23	Sunny	Calm	11:54	Middle	0.1	29.2	29.2	6.6	6.6	0.1	0.1	61.4	61.8	4.7	4.8	14.1	14.2	8	7.5
						29.2		6.5		0.1		62.1		4.8		7			
19-Jul-23	Cloudy	Calm	09:44	Middle	0.2	26.9	26.9	7.1	7.1	0.0	0.0	69.0	68.8	5.5	5.5	9.8	10.0	8	8.5
						26.9		7.1		0.0		68.6		5.5		9			
24-Jul-23	Sunny	Calm	08:23	Middle	0.2	27.3	27.4	7.5	7.5	0.1	0.1	55.2	55.4	4.4	4.4	13.9	13.8	14	13.0
						27.4		7.5		0.1		55.6		4.4		12			
26-Jul-23	Sunny	Calm	14:12	Middle	0.2	30.0	30.0	7.1	7.1	0.0	0.0	57.7	58.0	4.4	4.4	18.2	18.3	21	19.5
						30.0		7.1		0.0		58.2		4.4		18			
28-Jul-23	Sunny	Calm	08:57	Middle	0.2	27.9	27.9	6.9	6.9	0.0	0.0	59.2	59.5	4.6	4.7	11.9	12.0	11	11.5
						27.9		6.9		0.0		59.7		4.7		12			
31-Jul-23	Cloudy	Calm	14:06	Middle	0.2	29.1	29.1	7.5	7.5	0.0	0.0	55.5	55.4	4.3	4.3	13.6	13.7	11	10.5
						29.1		7.5		0.0		55.2		4.2		10			
21-Jul-23	Cloudy	Calm	10:39	Middle	0.3	28.4	28.4	7.6	7.6	0.0	0.0	55.3	55.3	4.3	4.3	10.0	10.0	11	12.0
						28.4		7.6		0.0		55.2		4.3		13			

Remarks: *DA: Depth-Averaged

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

Dissolved Oxygen



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

Graphical Presentation of Water Quality Monitoring Results

Scale N.T.S

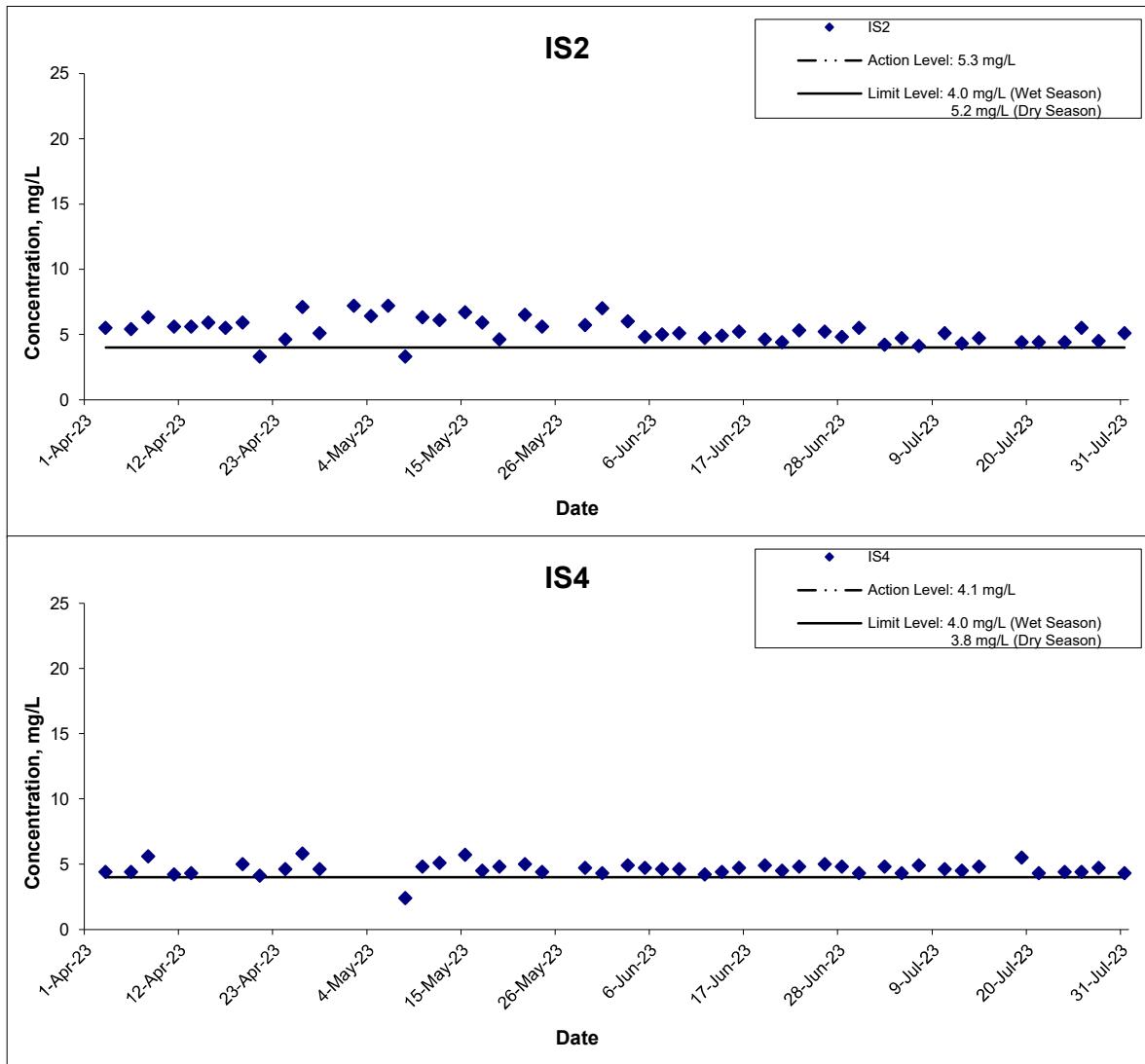
Date Jul 23

Project No. WMA21009

Appendix H



Dissolved Oxygen



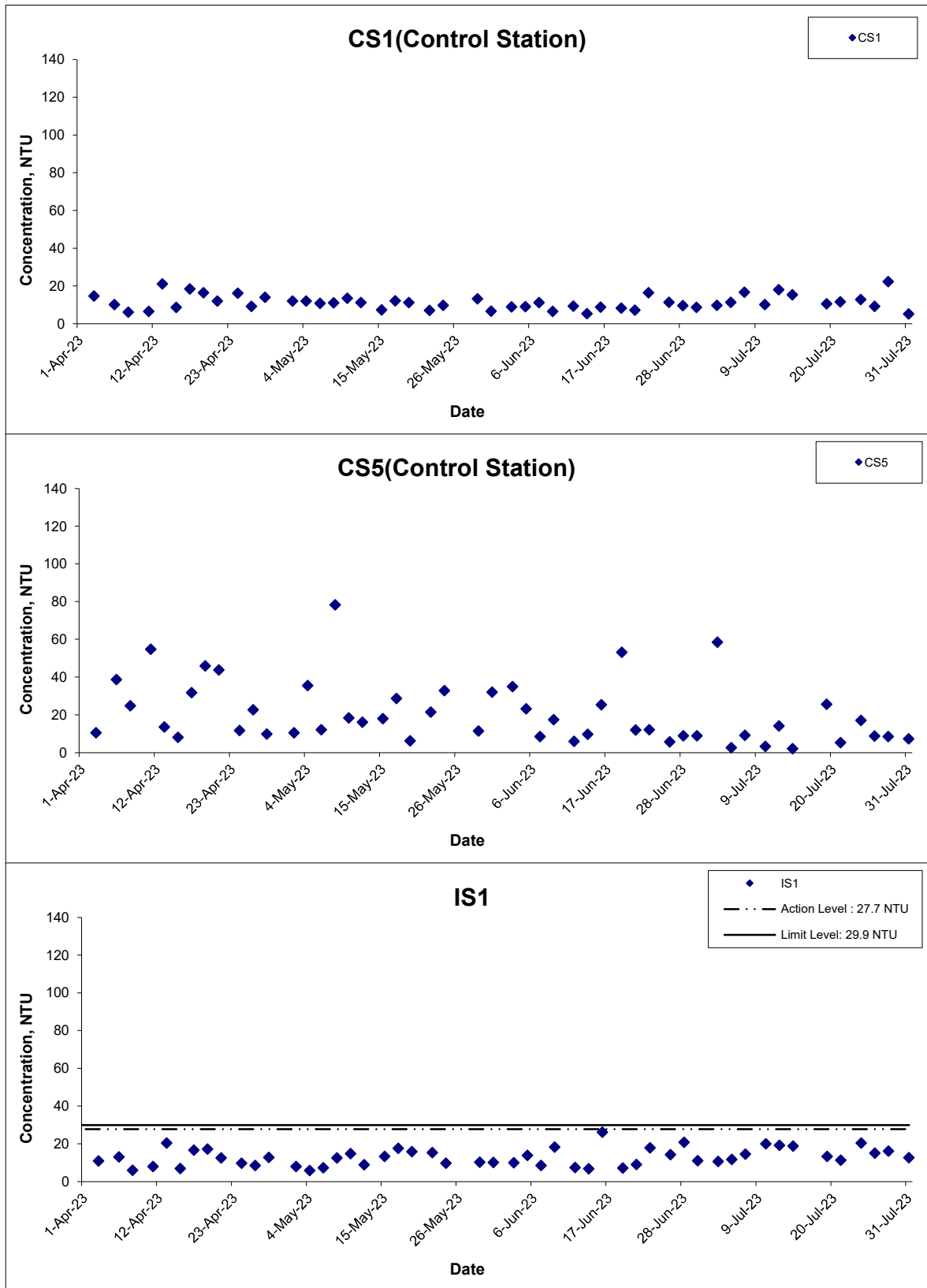
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 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
 Graphical Presentation of Water Quality Monitoring
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Scale
 N.T.S
 Date
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Turbidity



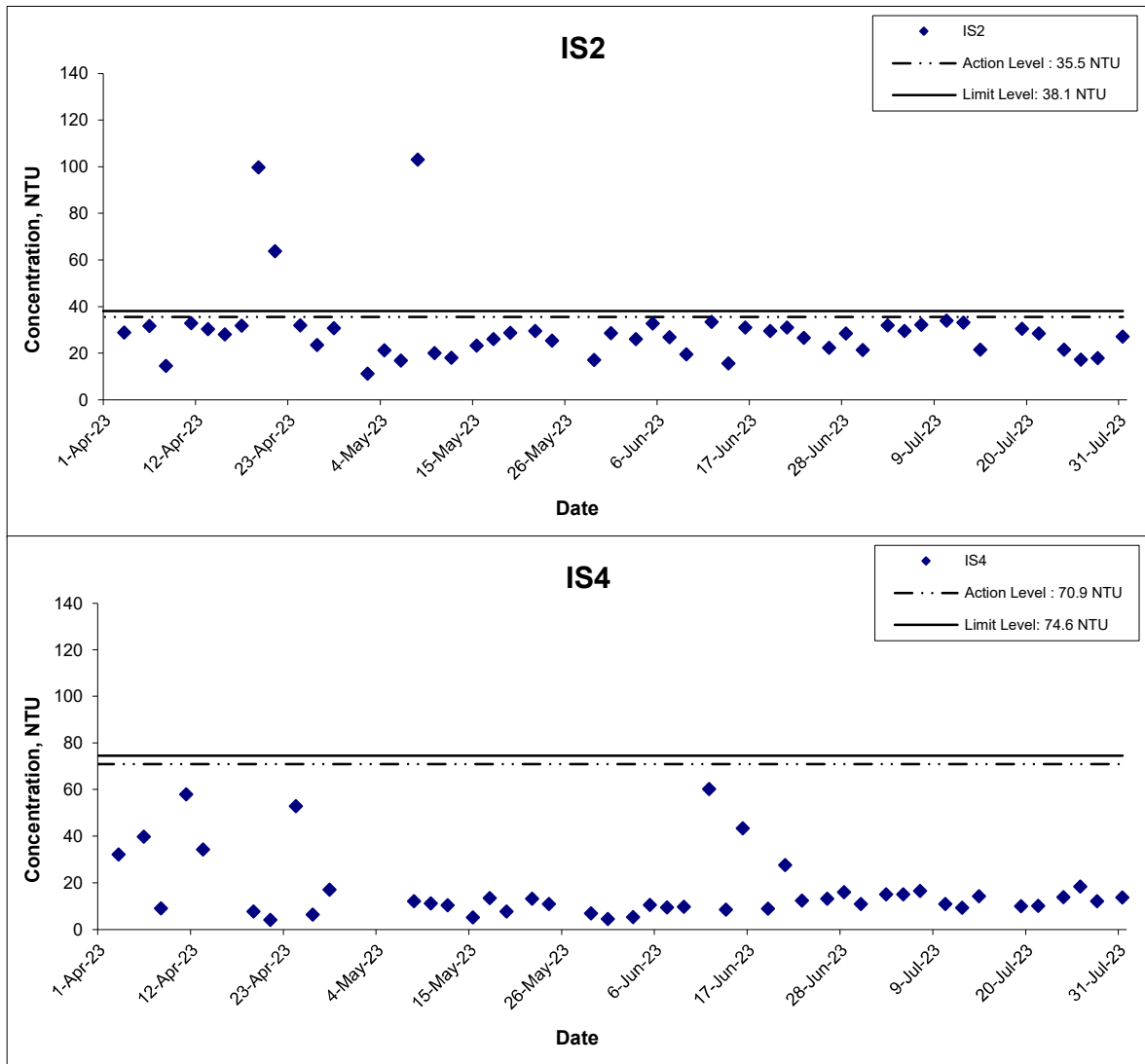
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 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
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Turbidity



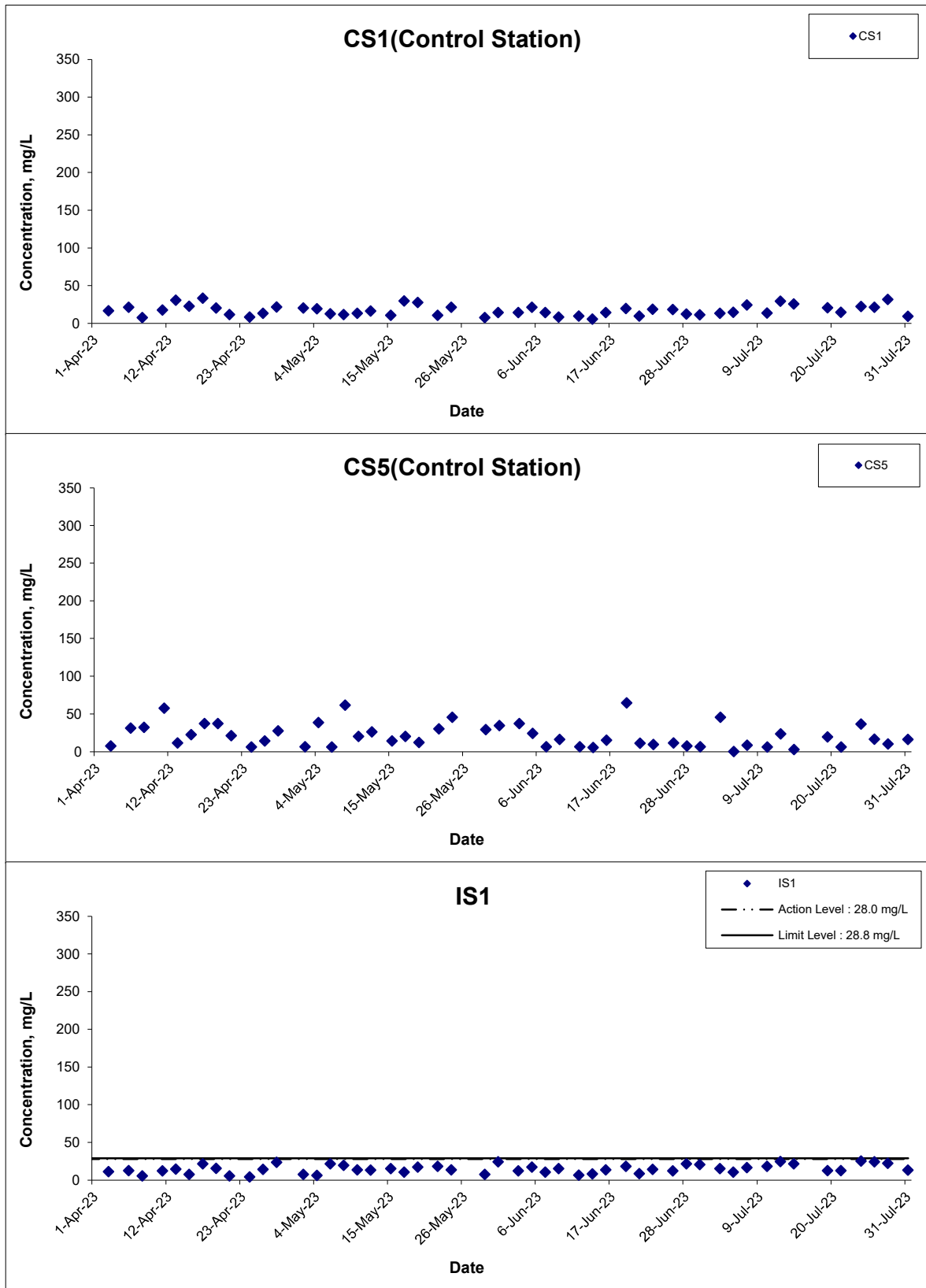
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 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
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Suspended Solids



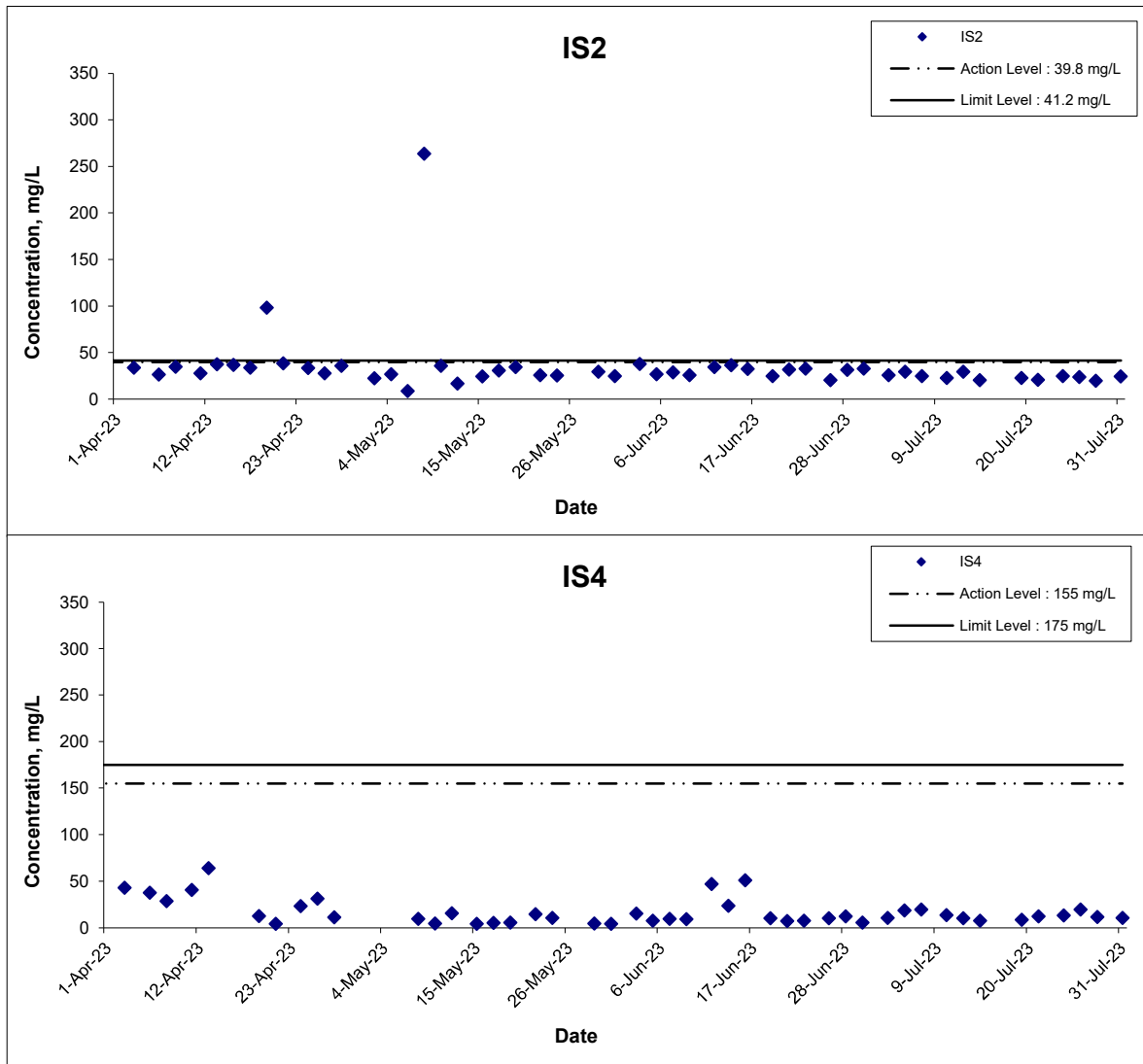
Title
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 Development of Lok Ma Chau Loop:
 Main Works Package 1 - Environmental Team
Graphical Presentation of Water Quality Monitoring Results

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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

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Project No.

WMA21009

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 July 2023	28.9	82	4.7
2 July 2023	27.5	89	15.6
3 July 2023	28.9	83	3.6
4 July 2023	29.3	82	10.6
5 July 2023	30.4	77	Trace
6 July 2023	30.3	77	Trace
7 July 2023	30.4	76	0.3
8 July 2023	30.4	76	-
9 July 2023	30.5	77	Trace
10 July 2023	30.7	75	-
11 July 2023	30.7	76	-
12 July 2023	30.7	74	-
13 July 2023	30.9	71	-
14 July 2023	31.3	71	-
15 July 2023	31.1	74	2.5
16 July 2023	29.7	75	4.9

Date	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Precipitation (mm)
17 July 2023	28.4	85	29
18 July 2023	29.2	86	10.9
19 July 2023	28.7	88	3.9
20 July 2023	29.6	80	4.8
21 July 2023	29.7	79	Trace
22 July 2023	30.6	76	-
23 July 2023	30.6	77	Trace
24 July 2023	30.7	76	-
25 July 2023	30.7	73	-
26 July 2023	32	72	-
27 July 2023	32.2	67	6.9
28 July 2023	31.5	72	-
29 July 2023	29.8	84	21
30 July 2023	29.2	87	10
31 July 2023	29.1	84	46.5

* 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-Jul-2023	00:00	0.0	NW
1-Jul-2023	01:00	0.0	---
1-Jul-2023	02:00	0.0	---
1-Jul-2023	03:00	0.0	E
1-Jul-2023	04:00	0.0	---
1-Jul-2023	05:00	0.0	---
1-Jul-2023	06:00	0.0	NNE
1-Jul-2023	07:00	0.0	---
1-Jul-2023	08:00	0.0	WNW
1-Jul-2023	09:00	0.0	WNW
1-Jul-2023	10:00	0.0	E
1-Jul-2023	11:00	0.0	ENE
1-Jul-2023	12:00	0.0	ENE
1-Jul-2023	13:00	0.0	ENE
1-Jul-2023	14:00	0.0	ENE
1-Jul-2023	15:00	0.0	NW
1-Jul-2023	16:00	0.0	---
1-Jul-2023	17:00	0.0	---
1-Jul-2023	18:00	0.0	W
1-Jul-2023	19:00	0.0	WNW
1-Jul-2023	20:00	0.0	WNW
1-Jul-2023	21:00	0.0	WNW
1-Jul-2023	22:00	0.0	---
1-Jul-2023	23:00	0.0	---
2-Jul-2023	00:00	0.0	WNW
2-Jul-2023	01:00	0.0	WNW
2-Jul-2023	02:00	0.0	W
2-Jul-2023	03:00	0.0	WNW
2-Jul-2023	04:00	0.0	WNW
2-Jul-2023	05:00	0.0	---
2-Jul-2023	06:00	0.0	NW
2-Jul-2023	07:00	0.0	WNW
2-Jul-2023	08:00	0.0	NW
2-Jul-2023	09:00	0.0	WNW
2-Jul-2023	10:00	0.0	WNW
2-Jul-2023	11:00	0.0	SW
2-Jul-2023	12:00	0.4	ENE
2-Jul-2023	13:00	0.0	ENE
2-Jul-2023	14:00	0.0	ENE
2-Jul-2023	15:00	0.0	---
2-Jul-2023	16:00	0.0	---
2-Jul-2023	17:00	0.0	WNW
2-Jul-2023	18:00	0.0	WNW
2-Jul-2023	19:00	0.0	W
2-Jul-2023	20:00	0.0	WNW
2-Jul-2023	21:00	0.0	WNW
2-Jul-2023	22:00	0.0	WNW
2-Jul-2023	23:00	0.0	---
3-Jul-2023	00:00	0.0	WNW
3-Jul-2023	01:00	0.0	W
3-Jul-2023	02:00	0.0	WSW
3-Jul-2023	03:00	0.0	W

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
3-Jul-2023	04:00	0.0	---
3-Jul-2023	05:00	0.0	---
3-Jul-2023	06:00	0.0	---
3-Jul-2023	07:00	0.0	---
3-Jul-2023	08:00	0.0	---
3-Jul-2023	09:00	0.0	---
3-Jul-2023	10:00	0.0	E
3-Jul-2023	11:00	0.0	E
3-Jul-2023	12:00	0.4	WNW
3-Jul-2023	13:00	0.4	W
3-Jul-2023	14:00	0.4	E
3-Jul-2023	15:00	0.4	E
3-Jul-2023	16:00	0.4	ENE
3-Jul-2023	17:00	0.0	E
3-Jul-2023	18:00	0.4	WNW
3-Jul-2023	19:00	0.0	WNW
3-Jul-2023	20:00	0.4	WNW
3-Jul-2023	21:00	0.0	---
3-Jul-2023	22:00	0.0	E
3-Jul-2023	23:00	0.0	WNW
4-Jul-2023	00:00	0.0	ENE
4-Jul-2023	01:00	0.0	NNW
4-Jul-2023	02:00	0.0	NW
4-Jul-2023	03:00	0.0	E
4-Jul-2023	04:00	0.0	E
4-Jul-2023	05:00	0.0	NNW
4-Jul-2023	06:00	0.0	---
4-Jul-2023	07:00	0.0	---
4-Jul-2023	08:00	0.0	---
4-Jul-2023	09:00	0.0	E
4-Jul-2023	10:00	0.0	E
4-Jul-2023	11:00	0.4	E
4-Jul-2023	12:00	0.4	E
4-Jul-2023	13:00	0.4	E
4-Jul-2023	14:00	0.4	ENE
4-Jul-2023	15:00	0.0	---
4-Jul-2023	16:00	1.8	ENE
4-Jul-2023	17:00	0.0	WNW
4-Jul-2023	18:00	0.0	---
4-Jul-2023	19:00	0.0	---
4-Jul-2023	20:00	0.0	WNW
4-Jul-2023	21:00	0.0	WNW
4-Jul-2023	22:00	0.0	---
4-Jul-2023	23:00	0.0	WNW
5-Jul-2023	00:00	0.4	WNW
5-Jul-2023	01:00	0.0	---
5-Jul-2023	02:00	0.0	---
5-Jul-2023	03:00	0.0	---
5-Jul-2023	04:00	0.0	---
5-Jul-2023	05:00	0.0	---
5-Jul-2023	06:00	0.0	---
5-Jul-2023	07:00	0.0	---

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
5-Jul-2023	08:00	0.0	---
5-Jul-2023	09:00	0.0	E
5-Jul-2023	10:00	0.0	E
5-Jul-2023	11:00	0.9	E
5-Jul-2023	12:00	1.3	ENE
5-Jul-2023	13:00	1.3	E
5-Jul-2023	14:00	1.8	ENE
5-Jul-2023	15:00	1.3	E
5-Jul-2023	16:00	0.9	E
5-Jul-2023	17:00	0.4	E
5-Jul-2023	18:00	0.4	ENE
5-Jul-2023	19:00	0.0	ENE
5-Jul-2023	20:00	0.0	NNW
5-Jul-2023	21:00	0.0	NNW
5-Jul-2023	22:00	0.0	E
5-Jul-2023	23:00	0.0	NNW
6-Jul-2023	00:00	0.0	NNW
6-Jul-2023	01:00	0.0	ENE
6-Jul-2023	02:00	0.0	ENE
6-Jul-2023	03:00	0.0	ENE
6-Jul-2023	04:00	0.0	---
6-Jul-2023	05:00	0.0	---
6-Jul-2023	06:00	0.0	---
6-Jul-2023	07:00	0.0	---
6-Jul-2023	08:00	0.0	---
6-Jul-2023	09:00	0.0	NW
6-Jul-2023	10:00	0.0	E
6-Jul-2023	11:00	0.4	E
6-Jul-2023	12:00	0.0	E
6-Jul-2023	13:00	1.3	E
6-Jul-2023	14:00	2.2	E
6-Jul-2023	15:00	1.8	ENE
6-Jul-2023	16:00	2.7	ENE
6-Jul-2023	17:00	1.3	ENE
6-Jul-2023	18:00	0.4	ENE
6-Jul-2023	19:00	0.4	E
6-Jul-2023	20:00	0.0	ENE
6-Jul-2023	21:00	0.0	ENE
6-Jul-2023	22:00	0.0	NNW
6-Jul-2023	23:00	0.0	NNW
7-Jul-2023	00:00	0.0	---
7-Jul-2023	01:00	0.0	---
7-Jul-2023	02:00	0.0	---
7-Jul-2023	03:00	0.0	---
7-Jul-2023	04:00	0.0	---
7-Jul-2023	05:00	0.0	---
7-Jul-2023	06:00	0.0	---
7-Jul-2023	07:00	0.0	---
7-Jul-2023	08:00	0.0	NW
7-Jul-2023	09:00	0.0	ENE
7-Jul-2023	10:00	0.4	E
7-Jul-2023	11:00	0.4	ENE

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
16-Jul-2023	04:00	0.0	NW
16-Jul-2023	05:00	0.0	---
16-Jul-2023	06:00	0.0	---
16-Jul-2023	07:00	0.0	W
16-Jul-2023	08:00	0.0	W
16-Jul-2023	09:00	0.0	WSW
16-Jul-2023	10:00	0.4	WSW
16-Jul-2023	11:00	0.0	SW
16-Jul-2023	12:00	0.0	WSW
16-Jul-2023	13:00	0.4	WSW
16-Jul-2023	14:00	0.4	WSW
16-Jul-2023	15:00	0.4	WSW
16-Jul-2023	16:00	0.4	WSW
16-Jul-2023	17:00	0.9	WSW
16-Jul-2023	18:00	0.9	WSW
16-Jul-2023	19:00	0.9	WSW
16-Jul-2023	20:00	0.9	WSW
16-Jul-2023	21:00	0.9	WSW
16-Jul-2023	22:00	0.4	WSW
16-Jul-2023	23:00	0.4	WSW
17-Jul-2023	00:00	0.9	WSW
17-Jul-2023	01:00	0.9	WSW
17-Jul-2023	02:00	0.4	SW
17-Jul-2023	03:00	0.9	WSW
17-Jul-2023	04:00	0.4	SW
17-Jul-2023	05:00	0.9	SW
17-Jul-2023	06:00	0.9	WSW
17-Jul-2023	07:00	1.3	SW
17-Jul-2023	08:00	1.8	SW
17-Jul-2023	09:00	2.2	SW
17-Jul-2023	10:00	2.2	SW
17-Jul-2023	11:00	2.7	SW
17-Jul-2023	12:00	2.2	SW
17-Jul-2023	13:00	1.8	SW
17-Jul-2023	14:00	2.2	WSW
17-Jul-2023	15:00	2.2	SW
17-Jul-2023	16:00	3.1	SW
17-Jul-2023	17:00	2.7	SW
17-Jul-2023	18:00	2.2	SW
17-Jul-2023	19:00	1.3	SW
17-Jul-2023	20:00	1.8	SW
17-Jul-2023	21:00	0.4	WSW
17-Jul-2023	22:00	0.4	W
17-Jul-2023	23:00	1.3	NW
18-Jul-2023	00:00	0.4	SW
18-Jul-2023	01:00	0.4	SW
18-Jul-2023	02:00	0.4	WNW
18-Jul-2023	03:00	0.9	NW
18-Jul-2023	04:00	0.4	NW
18-Jul-2023	05:00	0.4	WSW
18-Jul-2023	06:00	0.4	NW
18-Jul-2023	07:00	0.4	W

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

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

Appendix I - Wind Data

Date	Time	Wind Speed m/s	Direction
31-Jul-2023	08:00	0.0	W
31-Jul-2023	09:00	0.0	SW
31-Jul-2023	10:00	0.4	SW
31-Jul-2023	11:00	0.4	SW
31-Jul-2023	12:00	0.4	SW
31-Jul-2023	13:00	0.4	SW
31-Jul-2023	14:00	0.4	SW
31-Jul-2023	15:00	0.4	E
31-Jul-2023	16:00	0.4	W
31-Jul-2023	17:00	0.4	W
31-Jul-2023	18:00	0.4	WSW
31-Jul-2023	19:00	0.4	WSW
31-Jul-2023	20:00	0.4	SW
31-Jul-2023	21:00	0.0	SW
31-Jul-2023	22:00	0.0	SW
31-Jul-2023	23:00	0.0	WSW

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.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
LIMIT 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 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. 	<ol style="list-style-type: none"> 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. 	<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. 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	<ol style="list-style-type: none"> 1. 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; 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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;

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

Event / Action Plan for Construction Noise

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

Event and Action Plan for Water Quality

	Action			
Event	ET	IEC	ER	Contractor
Action level being exceeded by one sampling day	<ol 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. 	<ol 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. 	<ol 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. 	<ol 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	<ol 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 	<ol 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. 	<ol 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. 	<ol 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 sampling day	<ol style="list-style-type: none"> 1. Repeat measurement on next day of exceedance to confirm findings; 2. Inform IEC, contractor and ER; 	<ol style="list-style-type: none"> 1. Discuss with ET, Contractor and ER on the implemented mitigation measures; 	<ol style="list-style-type: none"> 1. Discuss with ET, IEC and Contractor on the implemented remedial measures; 	<ol style="list-style-type: none"> 1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing;

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

Event / Action Plan for Landscape and Visual during construction phase

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

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	$L_{eq}(30 \text{ min.}) \text{ dB(A)}$	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	230705
Date	5 July 2023 (Wednesday)
Time	14:00 – 15:45

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
230705-R01	<ul style="list-style-type: none">Dust suppression measures and water quality mitigation measures should be provided for the dusty materials stockpiling site at Zone 4.	B2
	C. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Water Quality	
230705-R01	<ul style="list-style-type: none">Dust suppression measures and water quality mitigation measures should be provided for the dusty materials stockpiling site at Zone 4.	D8
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Ecology	
230705-R02	<ul style="list-style-type: none">Provide maintenance to the green fence at Pond 12 and meander bridge works area.	H2
	I. Fisheries	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 230628), follow-up actions were required for item 230628-R02, which were remarked as 230705-R01 and 230705-R02 respectively.	

	Name	Signature	Date
Recorded by	Adrian Lam		5 July 2023
Checked by	Dr. Priscilla Choy		5 July 2023

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230712
Date	12 July 2023 (Wednesday)
Time	9:30 – 10:40

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	<i>B. Air Quality</i>	
230712-R01	<ul style="list-style-type: none"> The idle stockpiling site at near Pai Lau should be covered with tarpaulin sheet to avoid dust emission. 	B2
	<i>C. Noise</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>D. Water Quality</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>E. Waste / Chemical Management</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>F. Land Contamination</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>G. Landscape and Visual</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>H. Ecology</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>I. Fisheries</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>J. Permits/Licences</i>	
	<ul style="list-style-type: none"> No environmental deficiency was identified during site inspection. 	
	<i>K. Others</i>	
	Follow-up on previous audit section (Ref. No.: 230705), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		12 July 2023
Checked by	Dr. Priscilla Choy		12 July 2023

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230719
Date	19 July 2023 (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	
230719-R02	• The exposed slope at near Pond 12 should be properly covered.	D8
230719-R03	• The sand bag bund or similar measures should be provided along the earthworks to avoid muddy surface runoff discharge (Pond 12).	D4
230719-R04	• The silt curtain for meander bridge should be properly deployed without gap.	D22
	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	
230719-R01	• The green fence next to Pond 12 should be properly erected.	H2
230719-R02	• The exposed slope at near Pond 12 should be properly covered.	H16
	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.: 230712), all environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		19 July 2023
Checked by	Dr. Priscilla Choy		19 July 2023

Service Contract No. WD/04/2020

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



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

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230726
Date	26 July 2023 (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	
230726-R01	<ul style="list-style-type: none">The exposed slopes and stockpile of soil along WCR should be properly covered with tarpaulin sheet.	B2
	C. Noise	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	D. Water Quality	
230726-R01	<ul style="list-style-type: none">The exposed slopes and stockpile of soil along WCR should be properly covered with tarpaulin sheet.	D8
	E. Waste / Chemical Management	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	F. Land Contamination	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	H. Ecology	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	I. Fisheries	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	J. Permits/Licences	
	<ul style="list-style-type: none">No environmental deficiency was identified during site inspection.	
	K. Others	
	Follow-up on previous audit section (Ref. No.: 230719), follow-up action was required for item 230719-R02 which was remarked as 230726 –R01. Other environmental deficiencies have been improved/ rectified by the contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		26 July 2023
Checked by	Dr. Priscilla Choy		26 July 2023

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

Loop: Main Works Package 1 – Contract 2 Western

Connection Road Phase 2, Connection Roads to Fanling /

San Tin Highway and Direct Road Link Phase 1

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	230705
Date	5 July 2023 (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	
	• 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	
230705-R01	• To set up tree protection zone for retained trees. (Fu Tai)	G 1
	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.: 230628), all environmental deficiency was identified during site inspection.	

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

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	230712
Date	12 July 2023 (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	
230712-R01	• The water hose should be fixed at LCS to avoid water leakage.	D1
	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.: 230705), all environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		12 July 2023
Checked by	Dr. Priscilla Choy		12 July 2023

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	230719
Date	19 July 2023 (Wednesday)
Time	9:30 – 10:45

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	
230719-R02	• The sand bag bund or similar measures should be provided along the earthworks at Fu Tai Site Area.	D4
	E. Waste / Chemical Management	
230719-R03	• Drip tray should be provided for the generator at Reedbed 3A.	E13
	F. Land Contamination	
	• No environmental deficiency was identified during site inspection.	
	G. Landscape and Visual	
230719-R01	• Tree protection works should be provided for the retained trees at Fu Tai Site Area.	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.: 230712), all environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		19 July 2023
Checked by	Dr. Priscilla Choy		19 July 2023

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	230726
Date	26 July 2023 (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	
230726-R01	• A bund should be provided along the wheel washing area at Fu Tai site to avoid the water from wheel wash directly discharging to the nearby nullah.	D4
230726-R02	• Wastewater treatment facilities should be provided at RW9 as soon as possible according to the approved effluent discharge license.	D7
	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.: 230719), all environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Ivy Tam		26 July 2023
Checked by	Dr. Priscilla Choy		26 July 2023

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	230703
Date	3 July 2023 (Monday)
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	
230703-R01	• The exposed site area should be properly protected at near the MTR drainage at EEAA.	D4
	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.:230626), no major environmental deficiency was identified during site inspection.	



	Name	Signature	Date
Recorded by	Ivy Tam		3 July 2023
Checked by	Dr. Priscilla Choy		3 July 2023

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230710
Date	10 July 2023 (Monday)
Time	14:00-15:00

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
230710-R02	• The worn sand bags should be cleared and the site exit should be paved at EEAA.	B7
	C. Noise	
230710-R01	• The worn noise barrier to enclose the breaker at EEAA should be replaced.	C5
	D. Water Quality	
230710-R02	• The worn sand bags should be cleared and the site exit should be paved at EEAA.	D14iv.
	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.:23703), all environmental deficiency has been rectified/ improved by the Contractor.	



	Name	Signature	Date
Recorded by	Ivy Tam		10 July 2023
Checked by	Dr. Priscilla Choy		10 July 2023

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230719
Date	19 July 2023 (Wednesday)
Time	11:00-11:30

Ref. No.	Non-Compliance	Related Item No.
-	None identified	-
Ref. No.	Remarks/Observations	Related Item No.
	B. Air Quality	
230719-R01	• The worn sand bags should be cleared and the site exit should be paved at EEAA.	B7
	C. Noise	
	• No environmental deficiency was identified during site inspection.	
	D. Water Quality	
230719-R01	• The worn sand bags should be cleared and the site exit should be paved at EEAA.	D14iv.
	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.:23710), follow-up action is needed for Item 230710-R02 which was remarked as 230719-R01.	



	Name	Signature	Date
Recorded by	Ivy Tam		19 July 2023
Checked by	Dr. Priscilla Choy		19 July 2023

Weekly Site Inspection Record Summary

Inspection Information

Checklist Reference Number	230724
Date	24 July 2023 (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.:23719), all environmental deficiency has been rectified/ improved by the Contractor.	

	Name	Signature	Date
Recorded by	Ivy Tam		24 July 2023
Checked by	Dr. Priscilla Choy		24 July 2023

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	230731
Date	31 July 2023 (Monday)
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	
230731-R02	• To provide maintenance to the leaking plastic hoses to prevent runoff going through site surface, and enhance water mitigation measures to the surrounding site boundary.	D 5
	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	
230731-R01	• To remove any water barriers leaning onto protected trees in the tree protection zone.	G 1
	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.:230724), no major environmental deficiency was identified during site inspection.	

	Name	Signature	Date
Recorded by	Adrian Lam		1 August 2023
Checked by	Dr. Priscilla Choy		1 August 2023

**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>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		impervious sheeting or placed in an area sheltered on the top and the 3 sides; <ul style="list-style-type: none"> • 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. 					N/A N/A ^
S3.8	D4-DP 1/DP2/ DP3	Implement regular dust monitoring under EM&A programme during the construction stage.	Monitoring of dust impact	Contractor	Selected representative dust monitoring station	Construction stage	^
Construction Noise Impact							
S4.8	N-CP1-DP1/D P2/DP3	Implement the following good site management practices: <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	^ ^ ^

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> <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
Waste Management (Construction Waste)							
S7.6	WM1-D P1/DP2 /DP3	<p><u>Waste Reduction Measures</u></p> <p>Waste reduction is best achieved at the planning and design phase, as well as by ensuring the implementation of good site practices. The following recommendations are proposed to achieve reduction:</p> <ul style="list-style-type: none"> • Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • proper storage and site practices to minimize the potential for damage and contamination of construction materials; • plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; • sort out demolition debris and excavated materials from demolition works to recover reusable/recyclable portions (i.e. soil, broken concrete, metal etc.); • provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 	Reduce waste generation	Contractor	All construction sites where practicable	Construction phase	* * ^ ^ ^
S7.6	WM2-D P1/DP2 /DP3	Prepare Waste Management Plan and submit to the Engineer for approval	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^
S7.6	WM2-D P1/DP2 /DP3	<p><u>Good Site Practice</u></p> <p>The following good site practices are recommended throughout the construction activities:</p> <ul style="list-style-type: none"> • Nomination of an approved personnel, such as a site manager, to be responsible for the implementation of 	Minimize waste generation during construction	Contractor	All construction sites	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site;</p> <ul style="list-style-type: none"> • 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 waste transportation; 	Minimize waste impact from storage	Contractor	All construction sites	Construction phase	<p>^</p> <p>^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> 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 P1/DP2	<p><u>Contaminated Soil</u></p> <p>As a precaution, it is recommended that standard good site practice should be implemented during the construction phase to</p>	Remediate contaminated soil	Contractor	All construction sites where	Construction phase	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	/DP3	minimize any potential exposure to contaminated soils or groundwater. The details of mitigation measures to minimize the potential environmental implications arising from the handling of contaminated materials refer to Land Contamination Section.			applicable		
S7.6	WM8-D P1/DP2 /DP3	<p><u>Chemical Waste</u></p> <ul style="list-style-type: none"> 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. A reputable waste collector should be employed to remove 	Minimize production of the general refuse and avoid odour, pest and litter impacts	Contractor	All construction sites	Construction phase	^ ^ ^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		general refuse on a daily basis.					
S7.6	WM10-DP1/D P2	<u>Sewage</u> <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	<u>Sediment</u> The following mitigation measures are recommended during transportation and stockpiling: <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 bunded; 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 workers. 	Minimize waste impacts from sediment	Contractor	All construction sites	Construction phase	N/A N/A N/A N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		In case contamination of excavated materials is confirmed after testing, the mitigation measures described in Land Contamination Impacts section should also be implemented to minimize potential environmental impacts.					
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 means; 	To minimise the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area		N/A N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<ul style="list-style-type: none"> • 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; • Mixing process and other associated material handling 	To minimize the potential environmental impacts arising from the handling of contaminated materials	Contractor	Contaminated area	The course of remediation	<p>N/A</p> <p>N/A</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>activities should be properly scheduled to minimise potential noise impact and dust emission;</p> <ul style="list-style-type: none"> • 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. 					<p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p> <p>N/A</p>
S8.7	LC4-D P3	<p><u>Safety Measures</u></p> <ul style="list-style-type: none"> • Set up a list of safety measures for site workers; • Provide written information and training on safety for site 	To minimize the potential adverse effects on health and safety of construction	Contractor	Contaminated area	The course of remediation	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>workers;</p> <ul style="list-style-type: none"> • 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. 	workers				
S8.8	LC5-D P3	<u>Re-appraisal on the entire contamination assessment area for associated infrastructure in the adjacent areas in Hong Kong outside LMC Loop.</u>	Ensure any potential contamination activities from land use changes after the approval of this land contamination assessment study	Project Proponent /Detailed design consultant	Entire contamination assessment area for associated infrastructure in the adjacent	After land resumption	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
					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 construction phase to prevent damage to tree canopies 	Avoid disturbance and protection of existing trees	Detailed design consultant/ Contractor	Within project site	Detailed design and construction phase	<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>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	^
	L-CP4-	<p><u>Transplantation of Existing Trees</u></p>	Minimize landscape impacts	Contractor	The whole	Construction	

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>The reinstatement shall be undertaken at the earliest possible stage during the construction phase of the project.</p> <ul style="list-style-type: none"> Creation of 12.78ha of Ecological Area (EA) containing reed marsh and marsh will be created at the southern portion of the LMC Loop, and a 50m width landscape buffer area will be set up in between the EA and the development area. Wetland creation concepts please refer to Figure 11.9zf and Chapter 12 Ecology Impact Assessment of this EIA. Native tree and shrub mix will be utilised for the creation of landscape buffer along northern edge of EA to support the creation of avifauna habitat from ecologist perspectives as well as enhance the aesthetic and landscape diversity within the LMC Loop Development. Creation of minimum 11.72 Ha. of permanent compensatory off-site wetland areas at Sam Po Shue and Hoo Hok Wai. For the potential locations for off-site wetlands please refer to Figure 11.9zf and 11.9zh, Chapter 2 Project Description and Chapter 12 Ecology Impact Assessment of this EIA. 		design consultant/ Contractor/ Operator	applicable	phases	^
	V-CP5-DP1/D P2/DP3	<p><u>Coordination with Concurrent Projects</u></p> <ul style="list-style-type: none"> Coordinated implementation programme with concurrent projects to minimise impacts and where possible reduce the period of disturbance. 	Minimize landscape impacts	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
S11.6.5 Table 11.6.3	V-CP1-DP3	<p><u>Preservation and Protection of Existing Trees (Good Site Practice)</u></p> <ul style="list-style-type: none"> 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 be sited at less visual prominent locations. 	Minimise visual impact	Contractor	The whole project area where applicable	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
	V-CP3-DP3	<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> <ul style="list-style-type: none"> Erection of a 3m high, dull green site boundary fence to 	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
		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 properly covered and located away from nearby water 	Minimise the indirect impact from the increasing suspended solids and pollutants in LMC Meander	Contractor	Seawall,	During construction	<p>^</p> <p>^</p> <p>*</p> <p>^</p> <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>bodies;</p> <ul style="list-style-type: none"> • Construction debris and spoil will be covered and/or properly disposed of as soon as possible to avoid being washed into nearby water bodies; • Construction effluent, site run-off and sewage will be properly collected and/or treated. Wastewater from any construction site will be minimised via the following in descending order: reuse, recycling and treatment; • Proper locations for discharge outlets of wastewater treatment facilities well away from sensitive receivers will be identified (i.e. treated wastewater will not be discharged into LMC Meander, natural streams, marsh, reedbed, active or abandoned fish ponds); • Adequate lateral support will be erected where necessary in order to prevent soil/mud from slipping into the Ecological Area or LMC Meander; • Site boundary will be clearly marked and any works beyond the boundary strictly prohibited; • Regular water monitoring and site audit will be carried out at adequate points along LMC Meander, and at the outfalls of the natural streams around LMC Loop. If the monitoring and audit results show that pollution occurs, adequate measures including temporarily cessation of works will be considered. 					<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
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> <ul style="list-style-type: none"> Fritting, or the placement of ceramic lines or dots on glass, 	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
		<p>has little effect on the human-perceived transparency of the window but creates a visual barrier to birds outside. This treatment also has the advantage of reducing air conditioning loads by lowering heat gain, while still allowing light transmission for interior spaces. It is most successful when the frits are applied on the outside surface. Frosted glass has similar effects.</p> <ul style="list-style-type: none"> • 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 lighting at or near the top of buildings or other structures. In</p>					<p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p> <p style="text-align: center;">^</p>

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>addition to avoiding uplighting, light spillage should be minimised, while green and blue lights should be used where possible. As far as possible, lights should be controlled by motion sensors, and building operations should be managed in such a way as reduce or eliminate night lighting near windows. The potential advantages of removing unnecessary lighting in terms of reducing the carbon footprint of the LMC Loop development are obvious.</p>					
S12.7	E5-DP1 /DP2/D P3	<ul style="list-style-type: none"> • Minimize loss of natural vegetation along LMC Meander, and suitable replacement planting with possible installation of otter holts and the provision of potential feeding area and spraint locations for otters in the stabilized bank subject to detailed design. • No significant change to velocity of water flow, water level or water quality. • No direct lighting on Meander. • 3m high, dull green site boundary fence for all developments associated with the project. • Pre-construction surveys for otter holts or natal dens will be conducted in LMC Loop before the commencement of construction works. Work in the area of any otter holt found to cease pending examination by experienced Ecologist. If in use for breeding, works in the area will temporarily stop until end of breeding activity. • No construction activities within 100m of LMC Meander between one hour prior to sunset and one hour after 	Minimize impacts on Eurasian Otter	Detailed design consultant/ Contractor	Construction site within the project	Detailed design, construction phase	<p>^</p> <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
		<p>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. Further minimisation of impact by maintaining a lower 	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	^ ^ 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
		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.					
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 3	<ul style="list-style-type: none"> Use of viaduct alignment to minimize wetland loss. Compensatory wetland habitat elsewhere. 	Minimize wetland loss	Project Proponent /	Within project site	Detailed design 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
				Detailed design consultant / Contractor /		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 Western Connection	Project Proponent/ Detailed	Construction site from Western	Detailed design, construction and operation	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
			Road	design consultant/ Contractor Operator	Connection Road	phases	
S12.9	EG2-D P3	All generic mitigation measures proposed in Tables 12.82a and 12.82b in the EIA report.	Avoid, minimize and mitigate overall ecological impact.	Project proponent / contractor / detailed design consultant / developer / operator	All areas.	All phases	^
Fisheries (Construction Phase)							
S13.7	F4-	<ul style="list-style-type: none"> • Re-provision 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
S13.7	F4-DP3	During the construction phase, a layer of sheet pile wall will be	Bund stability	Contractor	Fish ponds	Construction	N/A

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		erected along the site boundary adjacent to fish ponds after commencement of site works. The sheet pile wall will be constructed by silent piling method (Press-in method) which induces minimal vibration. Therefore the stability of the fish pond bund will not be influenced by the construction of the sheet pile wall, subsequent construction works and the loading from the road during operational phase. In addition, the sheet pile wall will have grouting or a grout curtain to avoid water seepage from the fish pond to the excavation area. With these measures, significant impacts are not anticipated.				phase	
S13.7	F5-DP3	Temporary traffic arrangements will be instigated to maintain or provide alternative access to fish ponds during construction phase.	Prevent Blockage of Access Roads to Fish Ponds	Contractor	Fish ponds	Construction phase	^
S13.7	F6-DP3	Standard mitigation measures to control site runoff and other pollutants caused by construction activities and good site practices will be implemented during the construction phase of the Project. Excavated material and other inert construction wastes produced will be transferred to proper recipients (i.e. landfill) (see Waste Management Section). Sewage from the proposed development will be dealt with via a sewerage system and will not be discharged directly to surrounding water bodies.	Avoid water quality impact	Contractor	Fish ponds	Construction phase	^
S13.7	F7-DP3	<p><u>Dust Minimization</u></p> <ul style="list-style-type: none"> • 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 covered entirely by impervious sheeting or sprayed with 	Dust minimization	Contractor	Fish ponds	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</p> <ul style="list-style-type: none"> • 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 contaminated run-off, and truck bodies and tailgates should 					

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>be sealed to prevent any discharge during transport or during wet season;</p> <ul style="list-style-type: none"> • 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></p> <p>The contractor should prepare an emergency contingency plan for actions to be taken if significant impacts, such as accidental spillage of chemicals, water seepage from fish ponds, damaged/destabilized pond bunds, pond water contamination by site runoff, on fish ponds occur. The contractor should submit the emergency contingency plan dealing with, but not limited to, the aforementioned potential impacts to the engineer for review, comment and approval. The fish pond operators will also be consulted for the details of the contingency plan, which will also be submitted to AFCD for review and comment. The plan should include, but not limited to, the following:</p> <ul style="list-style-type: none"> • 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. 	Deal with any accidental spillage event	Contractor / Operator	Fish ponds	Construction and operational phases	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
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. Any excavated or stockpile of dusty material should be 	Dust minimization	Contractor	Fish pond within project site	Construction phase	^

EIA Ref.	EM&A Log Ref	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	Implementation Status
		<p>covered entirely by impervious sheeting or sprayed with water to maintain the entire surface wet and then removed or backfilled or reinstated where practicable within 24 hours of the excavation or unloading;</p> <ul style="list-style-type: none"> • 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. 					

- Remarks: ^ Compliance of mitigation measure
- * Recommendation was made during site audit but improved/rectified by the contractor
- # Recommendation was made during site audit but not yet improved/rectified by the contractor.
- N/A Not Applicable at this stage as no such site activities were conducted in the reporting period (e.g. concrete batching plan, barging point, seawall dredging and filling, bored piling, landscaping works etc)

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


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> 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; 	



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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> • A stockpile of dusty material should not be extended 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 materials do not leak from the vehicle; 	

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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> • The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials; • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides; 	 

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



Working Period: 1st to 31th July 2023

- Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.



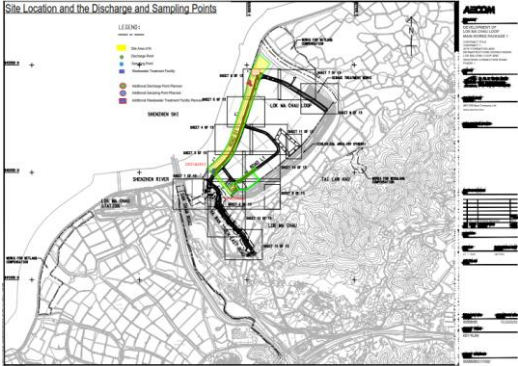

Contract No. YL/2020/01 – Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection Road Phase 1 Proactive Environmental Protection Proforma

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> • Mobile plant should be sited as far away from NSRs as possible and practicable; All generator used onsite are Quality Powered Mechanical Equipment (QPME) registered with EPD. • Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator. 	 



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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S5.7	All site area	Water Pollution Control	<ul style="list-style-type: none"> 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 	 



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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<p>drainage system will be undertaken by the contractor prior to the commencement of construction.</p> <ul style="list-style-type: none"> • Diversion of natural stormwater should be provided as far as possible. <p>The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipments in order to avoid or minimize polluted runoff.</p> <p>Sedimentation tanks with sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8 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.</p>	 


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> 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. <p>All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms.</p> <ul style="list-style-type: none"> Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater 0.15m³/day/employed populations and be responsible for appropriate disposal and maintenance. 	 



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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<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. 	


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> • Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Proper storage and site practices to minimize the potential for damage and contamination of construction materials; 	 


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> • Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling. 	


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<ul style="list-style-type: none"> • Prepare Waste Management Plan and submit to the Engineer for approval • Proper storage and sorting of excavated inert materials to maximize on site reuse for backfilling 	 <p>The screenshot shows a 'CONTRACTOR'S SUBMISSION FORM' for a Waste Management Plan. It includes fields for 'To: AECOM', 'Attention: Mr. Roger Man', 'Submission Ref. No.', 'AECOM Ref. No.', 'Date of Submission: 16 February 2022', 'Title of Submission: Waste Management Plan (Rev.02)', 'Prepared Location of Works', 'Specification/Drawing Reference: PS Clause 25.20(47)', and 'Description of Content'. A table at the bottom shows the 'Prepared by', 'Reviewed by', and 'Approved & submitted by' with their respective titles and signatures. Below the form is a photograph of a construction site where excavated materials are covered with blue tarpaulin.</p>


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<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.	 A photograph showing four recycling bins lined up against a light-colored wall. From left to right, the bins are blue, green, yellow, and brown. Each bin has a recycling symbol on its front. The blue bin has a blue recycling symbol, the green bin has a green recycling symbol, the yellow bin has a yellow recycling symbol, and the brown bin has a brown recycling symbol. The bins are placed on a gravel surface.



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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
			<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. 	


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

Working Period: 1st to 31th July 2023

Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA 12.7 EP 2.7	<p>Constructi on site within the project</p> <p>Pond habitat along alignment (mainly Ha Wan Tsuen Road)</p>	Ecology	<p>Installing 3m high olive-green fence around construction areas to allow or deter different animal passages where appropriate;</p> <p>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;</p>	 

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

Working Period: 1st to 31th July 2023


Ref	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
	Old Shenzhen River meander and other identified important ecologically sensitive areas,		Using powered mechanical equipment for construction works only during the period 9am to 5pm at and near the old Shenzhen River meander and other identified important ecologically sensitive areas, if any;	


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

Loop: Main Works Package 1 – Contract 2 Western



Connection Road Phase 2, Connection Roads to Fanling /

San Tin Highway and Direct Road Link Phase 1

Ref*	Location/Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> 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; 	

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> • 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 materials do not leak from the vehicle; 	

Proactive Environmental Protection Proforma


			<ul style="list-style-type: none">• 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;	
			<ul style="list-style-type: none">• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;	

Contract No. YL/2020/02


Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 2 Western Connection Road Phase 2,
Connection Roads to Fanling/ San Tin Highway and Direct Road Link Phase 1

Working Period: 1st to 31st Jul 2023


Proactive Environmental Protection Proforma


			<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.	
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Proactive Environmental Protection Proforma

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> • Mobile plant should be sited as far away from NSRs as possible and practicable; • Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator. 	 <p>The top photograph shows an orange excavator working on a dirt site with a large pile of earth. The bottom photograph shows a concrete noise barrier with a metal mesh screen, with red and white traffic barrels in the foreground.</p>


Proactive Environmental Protection Proforma



EIA S5.7	All site area	Water Pollution Control	<ul style="list-style-type: none">• 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. • Diversion of natural stormwater should be provided as far as possible. The design of temporary on-site drainage should prevent runoff going through site surface, construction machinery and equipment in order to avoid or minimize polluted runoff.	
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		<ul style="list-style-type: none">• 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 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.	
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		<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. • Portable chemical toilets and sewage holding tanks should be provided for handling the construction sewage generated by the workforce. A licensed contractor should be employed to provide appropriate and adequate portable toilets to cater 0.15m³/day/employed populations and be responsible for appropriate disposal and maintenance.	 
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Proactive Environmental Protection Proforma

			<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.	
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> • Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Proper storage and site practices to minimize the potential for damage and contamination of construction materials; 	 



		<ul style="list-style-type: none">• 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. • 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.	 
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S12.7	All site area	Ecology	<ul style="list-style-type: none"> • Use opaque, non-transparent, non-reflective noise barriers for all developments associated with the Project. • On-site compensate the same area of the occupied reedbed 	 <p>The top photograph shows a construction site with a concrete wall topped with a silver, diamond-patterned noise barrier. In the foreground, there are several rows of red and white plastic water-filled barriers. The background features green trees under a blue sky with white clouds.</p> <p>The bottom photograph shows a lush green reedbed with tall, dense grasses growing on a slight slope. The background consists of a line of trees under a cloudy sky.</p>

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

Loop: Main Works Package 1 – Contract 3 Direct Road

Link Phase 2

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> 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; 	 

Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S3.8	All site area	Dust impact	<ul style="list-style-type: none"> • 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 materials do not leak from the vehicle; 	 

• The portion of any road leading only to construction site that is within 30m of a vehicle entrance or exit should be kept clear of dusty materials;





• Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) should be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides;



- Where practicable, vehicle washing facilities with high pressure water jet should be provided at every discernible or designated vehicle exit point. The area where vehicle washing takes place and the road section between the washing facilities and the exit point should be paved with concrete, bituminous materials or hardcores.

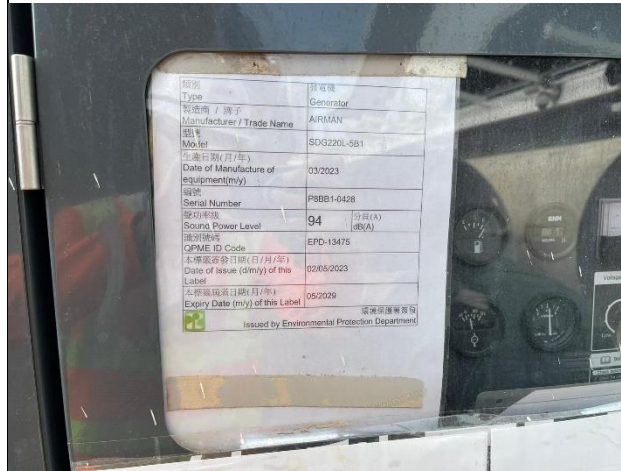


Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S4.8	All site area	Noise impact	<ul style="list-style-type: none"> • Mobile plant should be sited as far away from NSRs as possible and practicable; • Install movable noise barriers and full enclosure, screen the noisy plants including air compressor and generator. 	 

• An acoustic canvas had been deployed along the site boundary facing the resident of Shenzhen City.



• All generator used onsite are Quality Powered Mechanical Equipment (QPME) registered with EPD.



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

Working Period: 1st to 31st July 2023

<p>EIA S5.7</p>	<p>All site area</p>	<p>Water Pollution Control</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.
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S/2021/01_C3-000000
Contract No. YL/2021/01

Development of Lok Ma Chau Loop: Main Works Package 1 -
Contract 3 - Direct Road Link Phase 2

CONTRACTOR'S SUBMISSION FORM

To : AECOM

Attention : Mr. Roger Man (Project Manager's delegate)

Submission Ref. No. : CS/21/000000A

AECOM Ref. No. :

Date of Submission : 3 Dec 2022

Title of Submission : Temporary Drainage Management Plan (Rev. 2)

Proposed Location of Works : Portion 1

Specification/Drawing Reference : P.S. Clause 1.21A

Description of Context :

Pursuant to P.S. Clause 1.24(A), We would like to submit the captioned subject for your review and approval.

Attachments :

Reply required by :


Purpose of Submission :

For Approval For Comment For Information For Record For Action

FROM : Paul Y - Chun Wo - CREC Joint Venture

Prepared by:	Reviewed by:	Approved & submitted by:
Graduate Engineer Stephene Leung	Section Agent Charles Choi CW	Site Agent Dimitrios Tang
Signature:	Signature:	Signature:
Date: 3 DEC 2022	Date: 3 DEC 2022	Date: 3 DEC 2022



* User Guide for Submission Form
 B - Design & Construction | C - Construction | E - Environmental Protection | F - Planning
 G - Operation & Maintenance | H - Safety & Health | I - Traffic & Transport | J - Utilities
 K - Water & Sewerage | L - Waste Management | M - Other

			<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 equipment 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.	
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• The design of efficient silt removal facilities should be based on the guidelines in Appendix A1 of ProPECC PN 1/94. The detailed design of the sand/silt traps should be undertaken by the contractor prior to the commencement of construction.

• All drainage facilities and erosion and sediment control structures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rainstorms.




			<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 portable toilets to cater 0.15m³/day/employed populations and be responsible for appropriate disposal and maintenance. • Notices should be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment during the construction phase of the Project. Regular environmental audit on the construction site should be conducted in order to provide an effective control of any malpractices and achieve continual improvement of environmental performance on site.	 
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Contract No. YL/2021/01 – Contract No.: YL/2021/01

Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2

Proactive Environmental Protection Proforma

Working Period: 1st to 31st July 2023

			<ul style="list-style-type: none">•An additional water pump had been set up and the concerned outlet have been sealed up with concrete	
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Ref*	Location/ Working Period	Anticipated Major Impacts	Recommended Mitigation Measures	Photo Records (Partial)
EIA S7.6	All site area	Waste Generation	<ul style="list-style-type: none"> • Segregate and store different types of waste in different containers, skip or stockpiles to enhance reuse or recycling of materials and their proper disposal; • Proper storage and site practices to minimize the potential for damage and contamination of construction materials; 	 

- Provide training to workers on the importance of appropriate waste management procedures, including waste reduction, reuse and recycling.



- Prepare Waste Management Plan and submit to the Engineer for approval

		Contract No. YL/2021/01 Development of Lok Ma Chau Loop: Main Works Package 1 – Contract 3 Direct Road Link Phase 2	
CONTRACTOR'S SUBMISSION FORM			
To :	AECOM		
Attention :	Mr. Roger Man (Project Manager's delegate)		
Submission Ref. No* :	CSF/HSE/000005D		
AECOM Ref. No. :	-		
Date of Submission :	15 August 2022		
Title of Submission :	Waste Management Plan (Rev.04)		
Proposed Location of Works :	-		
Specification/Drawing Reference :	PS Clause 25.20A(?)		
Description of Content :	In response to the comments in your letter ref. C3/YL2021/01/C15/310/38000199, we would like to re-submit the Waste Management Plan (Rev.04) for your approval.		
Attachments :	Waste Management Plan Rev.4		
Reply required by :	21 days		
Purpose of Submission :			
For Approval <input checked="" type="checkbox"/> For Comment <input type="checkbox"/> For Information <input type="checkbox"/> For Record <input type="checkbox"/> For Action <input type="checkbox"/>			
FROM :	Paul Y – Chun Wo - CRCC. Joint Venture		
	Prepared by:	Reviewed by:	Approved & submitted by:
Title	Environmental Officer (Lila Lui)	HSE Manager (Lei Wong)	Site Agent (Desmond Tang)
Signature			
Date	15 August 2022	15 August 2022	15 August 2022


		<ul style="list-style-type: none">• 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. • 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.	 
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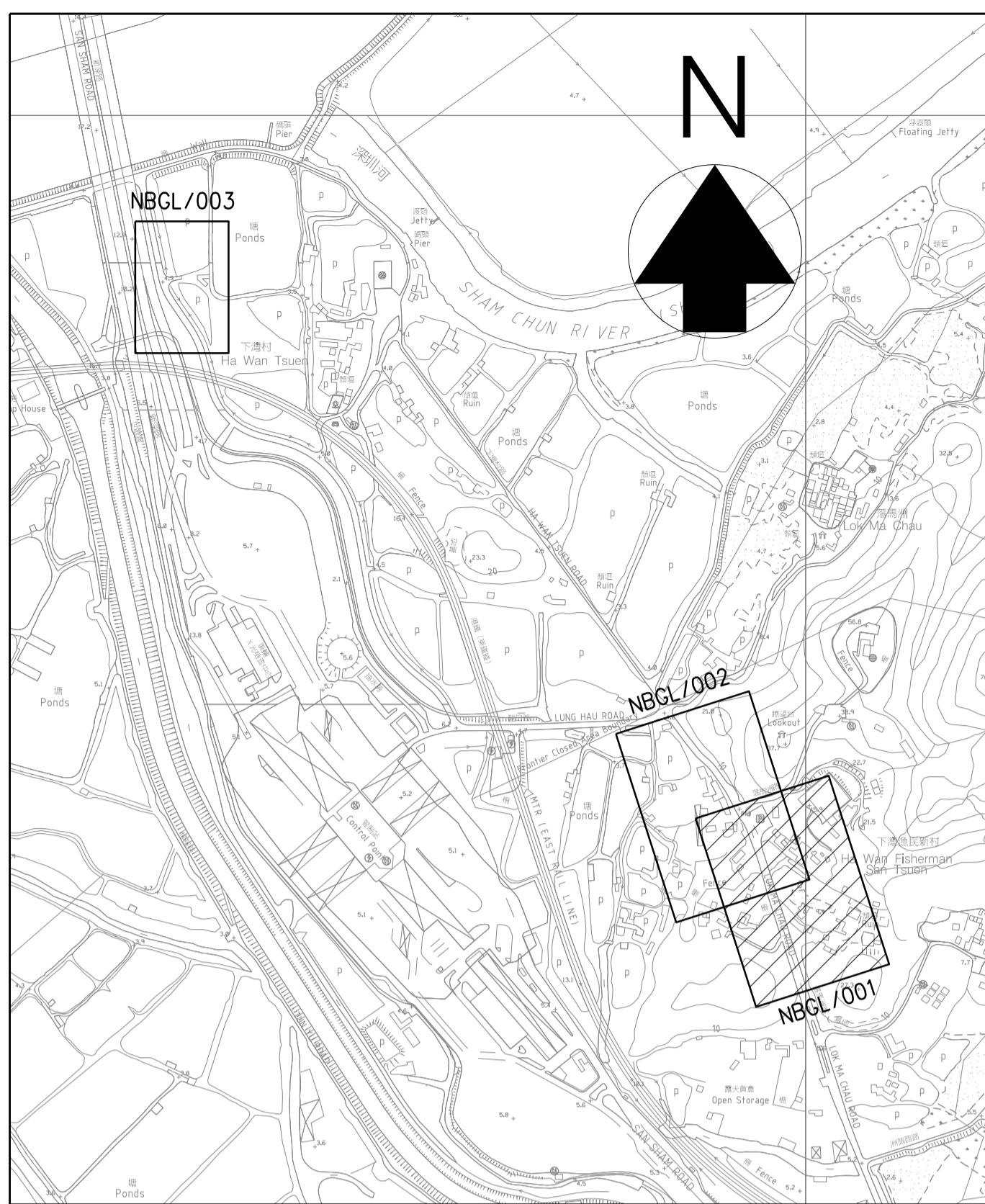
APPENDIX N
TEMPORARY NOISE BARRIERS

NOTES:

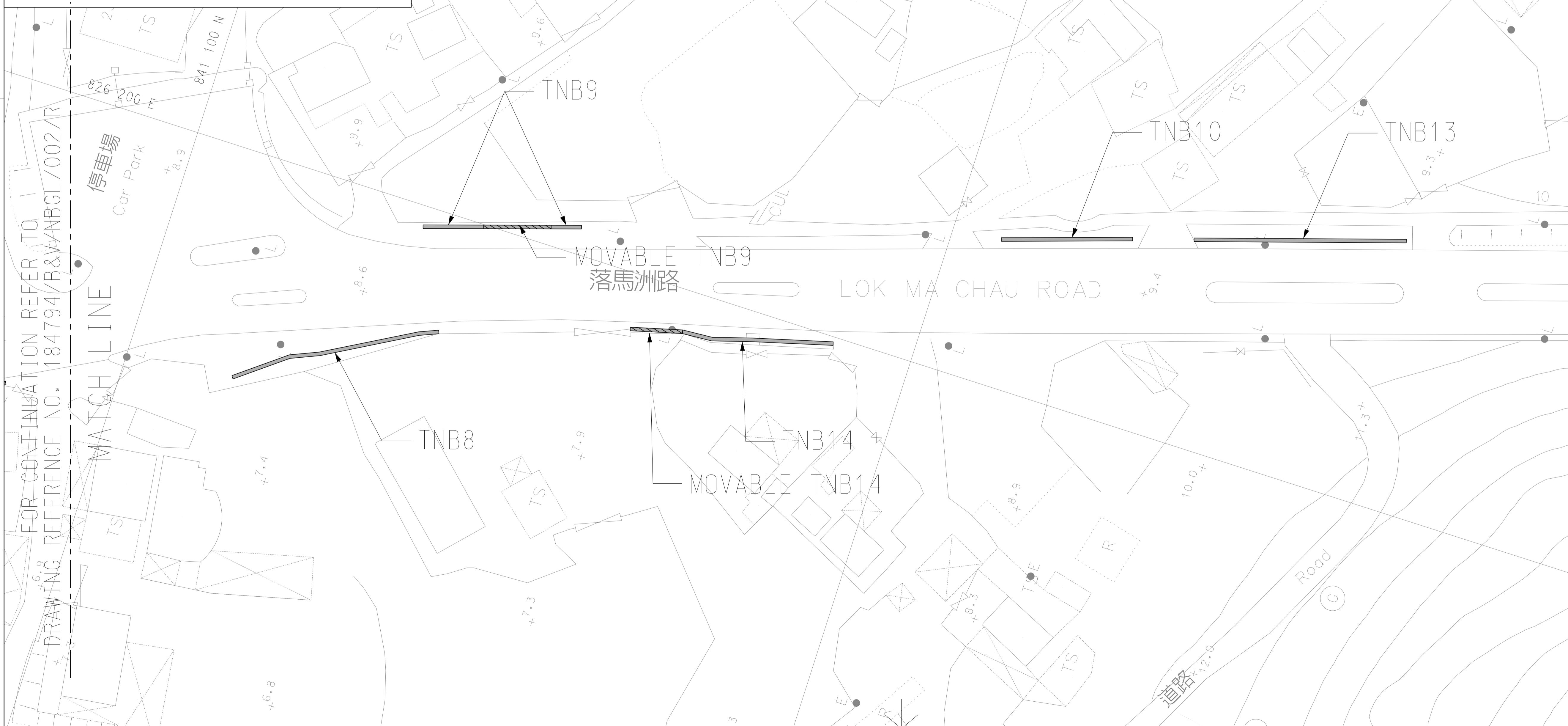
1. FOR DETAILS OF NOISE BARRIER, PLEASE REFER TO DRAWING NO. 184794/B&V/NB15/001/R & NO. 184794/B&V/NB15/002/R.

LEGEND:

-  1.5m - HIGH TEMPORARY NOISE BARRIER
-  1.5m - HIGH MOVEABLE TEMPORARY NOISE BARRIER



LOCATION PLAN
N.T.S.



WORK AS EXECUTED

DATE OF COMMENCEMENT : 22 JUN 2018

DATE OF COMPLETION :

核准
Approved

合約編號
Contract No. YL/2017/03

合約編號
Agreement No. CE 5/2014 (CE)

合約名稱
Contract title
DEVELOPMENT OF LOK MA CHAU LOOP:
LAND DECONTAMINATION AND
ADVANCE ENGINEERING WORKS

圖則名稱
Drawing title
AS-CONSTRUCTED DRAWING
NOISE BARRIER -
GENERAL LAYOUT PLAN

(SHEET 1 OF 3)

圖則參考編號
Drawing Reference No. 184794/NBGL/001/R

修訂
Revision -

合約圖則編號
Contract Drawing No.

修訂
Revision -

比例
Scale A1 1 : 300
A3 1 : 600

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





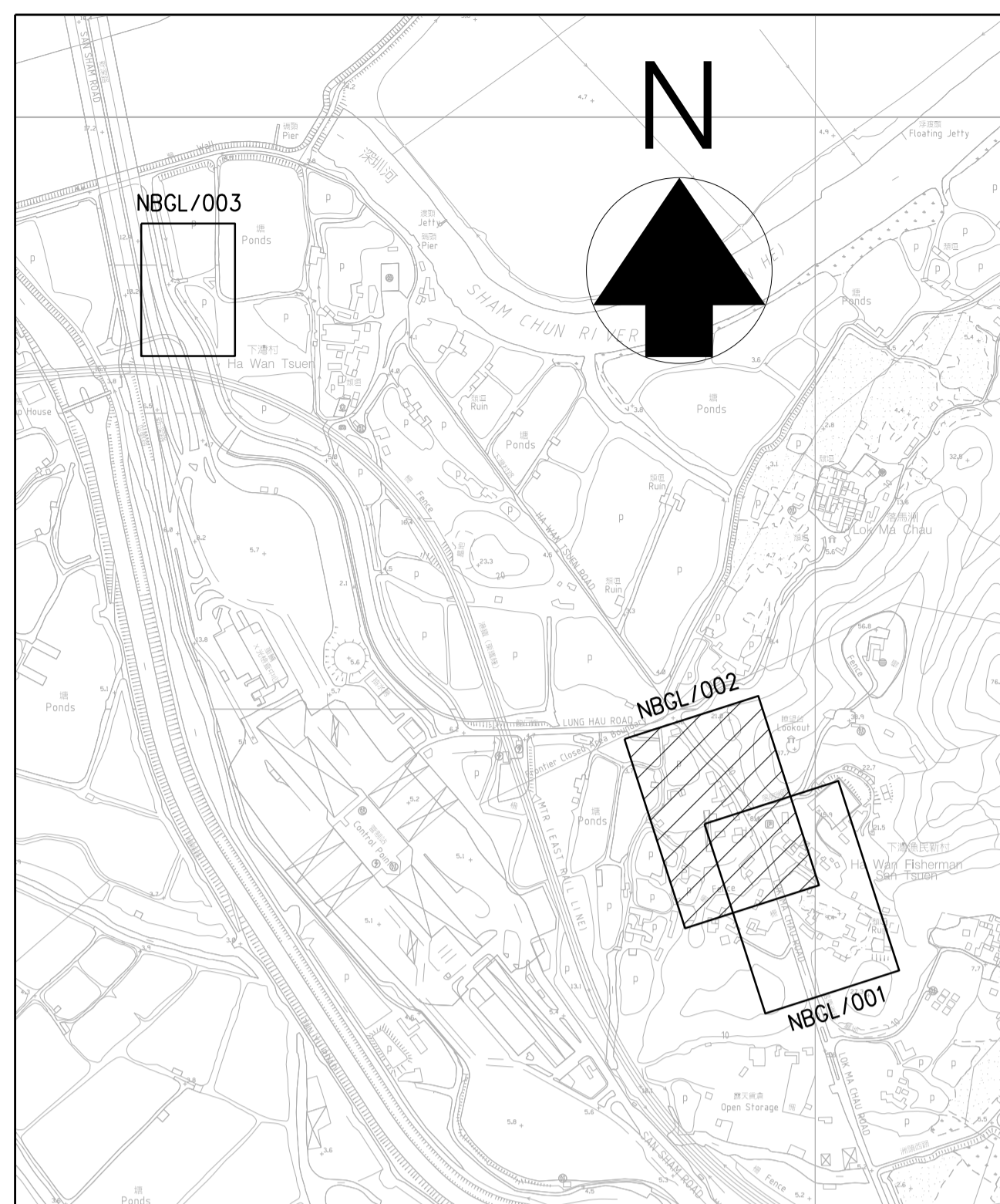
BINNIES HONG KONG LIMITED
賓尼士工程顧問有限公司

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 -

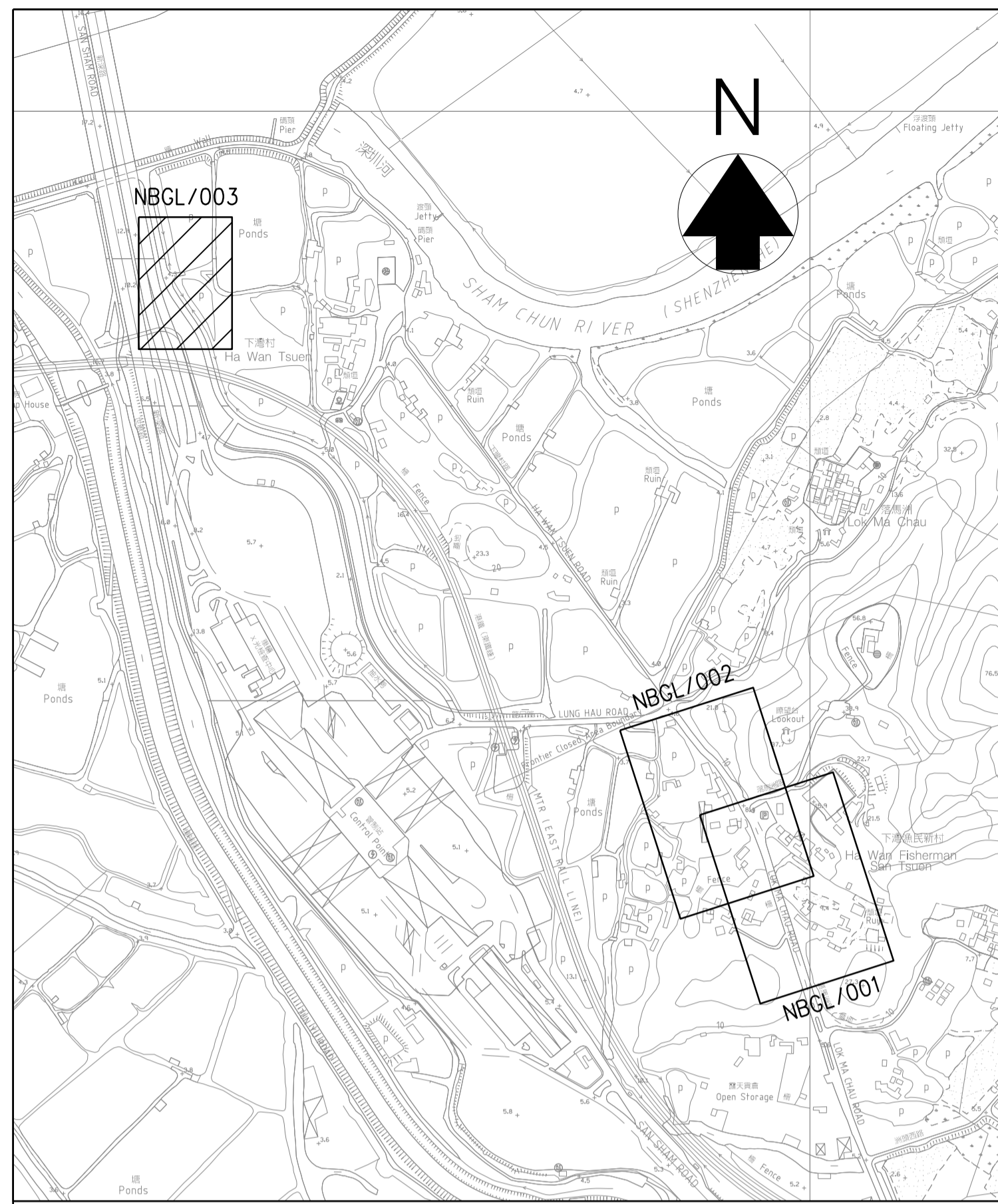
合約圖則編號
Contract Drawing No. 修訂
Revision -

比例
Scale A1 1 : 300
A3 1 : 600

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

 binnies

BINNIES HONG KONG LIMITED
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

binnies
BINNIES HONG KONG LIMITED
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' is drawn across the top of the barrier.
TNB7	 A photograph showing a temporary noise barrier (TNB7) along a road. The barrier is a grey, 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' is drawn across the top of the barrier.
TNB8	 A photograph showing a temporary noise barrier (TNB8) along a road. The barrier is a grey, corrugated metal structure. In the background, there are trees and a building with a red roof. A red line with the label 'TNB8' is drawn across the top of the barrier. The date '29/07/2021' is visible in the bottom right corner of the photo.

Development of Lok Ma Chau Loop – Land Decontamination and Advance Engineering Works
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road




TNB ID	Photo
TNB9	 A photograph showing a temporary noise barrier (TNB9) along a road. The barrier consists of grey concrete blocks 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	 A photograph showing a temporary noise barrier (TNB14) along a road. The barrier is a grey metal fence. In the background, there are buildings and trees. A red rectangle highlights the barrier, with the text "TNB14" written above it. The road is paved and has white lane markings.
TNB15	 A photograph showing a temporary noise barrier (TNB15) along a road. The barrier is a concrete wall. In the background, there are trees and a cloudy sky. A red rectangle highlights the barrier, with the text "TNB15" written above it. The road is paved and has white lane markings. A date stamp "27/06/2020" is visible in the bottom right corner of the photo.




YL/2020/02 – Western Connection Road Phase 2, Connection Roads to Fanling/San Tin Highway and Direct Road Link Phase 1

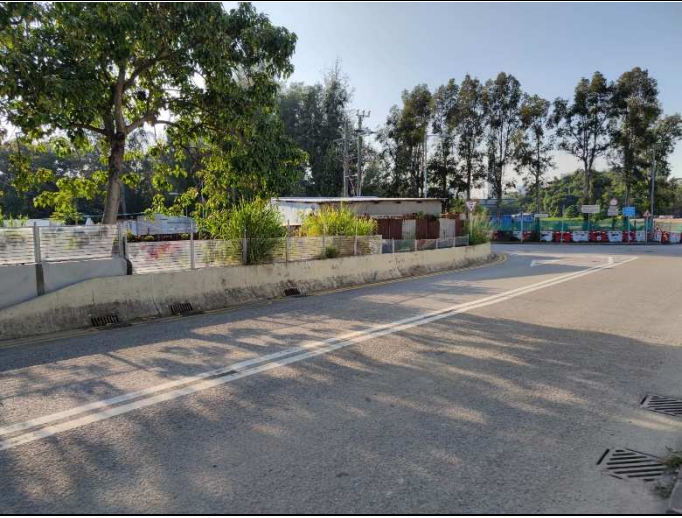
Record Photographs for Temporary Noise Barriers at Lok Ma Chau Road

TNB ID	Photo
2	
3 4	
5	

TNB ID	Photo
6	
7	
8	

TNB ID	Photo	Construction Status
9		Completed
10		Completed
11		Completed

TNB ID	Photo
12	
13	
14	

TNB ID	Photo
17	

**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 2023 (year)

Name of Person completing the record: Lila Lui (EO)

Development of Lok Ma Chau Loop : Main Works Package 1 – Contract 1 Site Formation and Infrastructure Works inside Lok Ma Chau Loop and Western Connection

Contract No.: YL/2020/01

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated (a)= (b)+(c)+(d)+(e)	Hard Rock and Large Broken Concrete (b)	*Reused in the Contract (c)	Reused in other Projects (d)	Disposed as Public Fill (e)	Imported Fill	Metals	Paper/ cardboard packaging/	Plastics	Yard Waste	Chemical Waste	Others, e.g. general refuse
	(in '000m 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-23	0.491	0.000	0.000	0.000	0.491	0.919	0.000	0.067	0.000	0.000	0.000	0.018
Feb-23	0.715	0.000	0.000	0.000	0.715	0.000	0.000	0.150	0.000	1.100	0.000	0.027
Mar-23	1.129	0.000	0.000	0.000	1.129	0.000	0.012	0.132	0.016	0.000	0.000	0.032
Apr-23	2.910	0.000	0.000	0.000	2.910	0.000	0.000	0.160	0.000	0.000	0.000	0.012
May-23	2.590	0.000	0.000	0.000	2.590	0.412	0.007	0.133	0.010	0.000	0.000	0.022
Jun-23	0.831	0.000	0.000	0.000	0.831	4.051	0.000	0.158	0.000	0.000	0.000	0.016
Sub-total	8.665	0.000	0.000	0.000	8.665	5.382	0.019	0.800	0.026	1.100	0.000	0.126
Jul-23	1.393	0.000	0.000	0.000	1.393	0.494	0.000	0.287	0.000	0.000	0.000	0.058
Aug-23												
Sep-23												
Oct-23												
Nov-23												
Dec-23												
Total	10.059	0.000	0.000	0.000	10.059	5.876	0.019	1.087	0.026	1.100	0.000	0.184

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 2023 (year)

Name of Person completing the record: Calvin So (EO)

Project : Development of Lok Ma Chau Loop: Main Works Package 1– Contract 2, Western Connection Road Phase 2,
Connection Roads in Fanling / San Tin Highway and Direct Road Link Phase 1

Contract No.: YL/2020/02

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock and Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000m 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	0.432	0.000	0.000	0.000	0.432	0.000	0.000	0.000	0.000	0.000	0.428
Feb	0.257	0.000	0.000	0.000	0.257	0.095	0.000	0.000	0.000	0.000	0.403
Mar	1.359	0.000	0.000	0.000	1.359	0.090	0.000	0.004	0.001	0.000	0.171
Apr	0.621	0.000	0.000	0.000	0.621	0.000	0.000	0.000	0.000	0.000	0.107
May	0.864	0.000	0.000	0.000	0.864	0.126	0.000	0.012	0.000	0.000	0.330
Jun	0.828	0.000	0.000	0.000	0.828	0.000	0.002	0.055	0.018	0.000	0.076
Sub-total	4.361	0.000	0.000	0.000	4.361	0.311	0.002	0.071	0.018	0.000	1.514
Jul	0.603	0.000	0.000	0.000	0.603	0.356	0.000	0.000	0.001	0.000	0.213
Aug											
Sep											
Oct											
Nov											
Dec											
Total	4.964	0.000	0.000	0.000	4.964	0.666	0.002	0.071	0.037	0.000	1.726

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 2023 (year)

Name of Person completing the record: Tino Law

Development of Lok Ma Chau Loop : Main Works Package 1 – Contract 3

Contract No.: YL/2021/01

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					
	Total Quantity Generated (a)= (b)+(c)+(d)+(e)	Hard Rock and Large Broken Concrete (b)	*Reused in the Contract (c)	Reused in other Projects (d)	Disposed as Public Fill (e)	Imported Fill	Metals	Paper/ cardboard packaging/	Plastics (see Note 3)	Yard Waste	Chemical Waste	Others, e.g. general refuse
	(in '000m 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-23	0.597	0.000	0.000	0.000	0.597	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb-23	0.329	0.000	0.000	0.000	0.329	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar-23	0.706	0.000	0.000	0.000	0.706	0.000	0.011	0.000	0.005	0.000	0.000	0.001
Apr-23	0.231	0.000	0.000	0.000	0.231	0.000	0.000	0.000	0.000	0.000	0.000	0.003
May-23	0.683	0.000	0.000	0.000	0.683	0.000	0.003	0.000	0.005	0.000	0.000	0.003
Jun-23	1.196	0.000	0.000	0.000	1.196	0.000	0.000	0.000	0.000	0.000	0.000	0.001
Sub-total	3.742	0.000	0.000	0.000	3.742	0.000	0.014	0.000	0.010	0.000	0.000	0.008
Jul-23	0.961	0.000	0.000	0.000	0.961	0.000	0.000	0.000	0.000	0.000	0.000	0.003
Aug-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec-23	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	4.703	0.000	0.000	0.000	4.703	0.000	0.014	0.000	0.010	0.000	0.000	0.011

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

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
COM-2021-10-01	11 October 2021	EPD	EPD File Ref.: N07/RN/00 024120-21	<p>EPD received a public complaint on 11 October 2021. The complainant alleged the following:</p> <p>(a) Discharge of muddy water from construction sites of “Development of Lok Ma Chau Loop” project to Shenzhen River in the morning of 8 October 2021; and,</p> <p>(b) Use of powered mechanical equipment (including excavators and dump trucks) in the construction sites of “Development of Lok Ma Chau Loop” project on Sunday.</p>	<p>(a) <u>Water Quality</u> Non-project related According to the interim report, wastewater treatment facilities and relevant mitigation measures were properly implemented and there is no direct evidence to demonstrate the muddy discharge was inducted by the Contract. Further preventive measures, such as increasing the height of the temporary drainage by using sandbag and providing the earth bund with geo-textile along the site boundary, were implemented on 12 October 2021 in order to avoid muddy water from leaking into Shen Zhen River.</p> <p>(b) <u>Noise</u> Project related Typhoon No. 8 (Tropical cyclone: Lion Rock) was hoisted on 9 October 2021. Severe rainfall was recorded due to the adverse weather. To avoid leakage of the muddy water into the meander of the Shenzhen River, JV mobilized an excavator and dump truck to clear the blockage as an emergency measure. ET reminded the Contractor to update the site drainage</p>	Interim report was submitted to EPD on 29 Oct 2021

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					<p>plan according to the construction programme and closely check the effectiveness of the implemented mitigation measures on site so that the EP, EIA and EM&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 induced by the Project.</p> <p>Further preventive measures, such as set up a monitoring point at the exit of the site to check the wheels of the vehicles are clean enough so that no mud and grit adhered to the wheels of the trucks when leaving the site. In addition, sprinkler truck will be only operated at appropriate location within the project site to avoid nuisance to the public road user.</p>	Final reply to 1823 on 12 April 2022. Interim report prepared by Contractor was agreed by IEC and ET

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
COM-2022-08-01	1 August 2022	EPD	EPD File Ref.: N06/RN/00 015561-22	The complainant concerned about the muddy water discharged by a piling contractor “德運建築鑽探有限公司” on 20 th July 2022	<u>Contract No.: YL/2020/01</u> 德運建築鑽探有限公司 is not related to the Contract No. YL/2020/01. After checking on site, the complaint was referred to other party.	Interim report was submitted to EPD on 18 Aug 2022
COM-2022-08-02	4 August 2022	EPD	EPD File Ref.: N06/RN/00 015953-22	The complainant concerned about the muddy water discharging to the public area from a construction site near Fu Tai Car Park.	<u>Contract No.: YL/2020/02</u> Joint site investigation with RSS was carried out on 5 Aug 2022 near Fu Tai Carpark. There were no construction works carried out near Fu Tai Carpark and no muddy water was noted. Preventive measures (sand bag bund) had been provided.	Interim report was submitted to EPD on 18 Aug 2022
COM-2022-10-01	14 October 2022	EPD	EPD File Ref.: N06/RN/00 022308-22	The complainant concerned about the noise arising from piling works carried out at 6am in the morning and around 11pm at night at the construction site adjacent to the existing Lok Ma Chau MTR Station.	<u>Contract No.: YL/2021/01</u> According to the interim report, the piling works were carried out with valid construction noise permit from 08:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site. Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment to minimize the noise generated from works and the impact to the nearby resident.	Interim report was submitted to EPD on 17 Nov 2022
COM-2022-10-02	14 October 2022	EPD	EPD File Ref.: N06/RN/00 022342-22	The complainant concerned about the noise arising from piling works carried out before 7am and at around 11pm at the construction site adjacent to the existing Lok Ma Chau MTR Station.	<u>Contract No.: YL/2021/01</u> According to the interim report, the piling works were carried out with valid construction noise permit from 08:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site.	Interim report was submitted to EPD on 17 Nov 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment to minimize the noise generated from works and the impact to the nearby resident.	
COM-2022-10-03	28 October 2022	EPD	EPD File Ref.: N06/RN/00 023772-22	The complainant concerned about the noise arising from percussive piling works carried out on 27 & 28 Oct 2022 in Lok Ma Chau Loop (at a work site near “落馬州河套區創科園地盤”)	<u>Contract No.: YL/2020/01</u> According to the interim report, no percussive piling works were carried out under Contract No. YL/2020/01 inside Lok Ma Chau Loop on 27 th and 28 th October 2022 according to per Condition 2.9 (d) of EP 477/2013/A.	Interim report was submitted to EPD on 22 Nov 2022
COM-2022-11-01	20 November 2022	EPD	EPD File Ref.: N07/RN/00 026174-22	The complainant concerned about the noise arising from piling works carried out at around 7am to around 10pm at the construction site adjacent to the Lok Ma Chau minibus station (落馬州關口小巴士站旁地盤).	<u>Contract No.: YL/2021/01</u> According to the interim report, the piling works were carried out with valid construction noise permit from 09:00 to 23:00 under Contract YL/2021/01 nearby Lok Ma Chau Station. Noise control measures (e.g., permit-to-work system) have been implemented on site. Further noise mitigation measure, such as set up the acoustic canvas to enclose the engine of the used powered mechanical equipment and along the site boundary facing the resident of Shenzhen City to minimize the noise generated from works and the impact to the nearby resident. In addition, the duration of potential noisy construction activities (e.g., core demouling and casing extraction)	Interim report was submitted to EPD on 5 Dec 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					were also minimized.	
COM-2022-12-01	4 December 2022	EPD	EPD File Ref.: N06/RN/00 027607-22)	The complainant alleged that: "... 打樁噪音造成困擾,情況已維持幾個星期,最初只係星期六下午,近兩星期日日朝早點前後就開始,到黃昏點幾6點先至停". The complainant provided co-ordinate information (x=826305.0; y=842363.0) for reference.	<p><u>Contract No.: YL/2020/01</u></p> <p>According to the interim report, no percussive piling works were carried out since the commencement of the Contract with reference to the site diary records.</p> <p>Refer to the coordinate information (x=826305.0; y=842363.0) provided by the complainant, the location of concerned is not within the works area under the Contract.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract.</p>	Interim report was submitted to EPD on 22 Dec 2022
COM-2022-12-01	8 December 2022	EPD	EPD File Ref.: N06/RN/00 028165-22)	The complainant alleged that there was percussive piling works carried out within the work site of Lok Ma Chau Loop, and commented that "落馬洲河套地盤打樁噪音問題,到目前仍然如是". The complainant provided a video record of 7 Dec 2022 (taken at around 1500 hours) showing the suspected percussive piling work. The complainant provided co-ordinate information (x=826305.0; y=842363.0)	<p><u>Contract No.: YL/2020/01</u></p> <p>According to the interim report, no percussive piling works were carried out since the commencement of the Contract with reference to the site diary records.</p> <p>Refer to the coordinate information (x=826305.0; y=842363.0) provided by the complainant, the location of concerned is not within the works area under the Contract.</p> <p>Based on the above information and investigation findings, the noise complaint is not related to the construction works of the Contract.</p>	Interim report was submitted to EPD on 22 Dec 2022

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
				for reference, and did not indicate where he/she was affected by the construction noise.		
COM-2023-02-01	15 February 2023	EPD	EPD File Ref.: N06/RN/0004267-23)	The complaint was lodged by a resident of Shenzhen City ‘...'附上落马洲工程夜间持续到现在还在工作的视频，轰隆声非常影响我们住在对面深圳居民的休息！希望能得到改善！不要在夜间扰民！谢谢！". Two short videos were attached in EPD's email dated 15 February 2023.	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, piling works were carried out by the Contractor from 09:00 to 23:00 with valid construction noise permit under Contract YL/2021/01 of the Public Transport Interchange of Lok Ma Chau MTR Station.</p> <p>Noise monitoring was conducted for works during the restricted hours and no exceedance was recorded. The duration of working time for core demoulding and casting extraction were also minimized in order to reduce noise levels. Acoustic canvas sheets were installed to enclose the engine of used PME and deployed along the site boundary facing the resident of Shenzhen City to minimize the noise generated from works and the impact to the nearby resident.</p> <p>For enhancement, a 3m high noise barrier was installed next the rotary drilling rig on 15 February 2023. All night works were reviewed and suspended until 19 February 2023.</p>	Interim report was submitted to EPD on 24 Feb 2023
COM-2023-03-01	3 March 2023	EPD	EPD File Ref.: N06/RN/00	The complaint was lodged by a resident of Shenzhen City “附件有视频，拍不到做工	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, the piling works were</p>	Interim report was submitted to EPD on 17

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
			006284 23	程，但机器的轰隆声从早到晚，即使现在 22:24 分还在热火朝天的工作中！孩子和老人都需要休息，特别是老人，这种声音让他们已经很久没能早点休息！！！望能解决！或者可否告知什么时候工程能结束？ A short video was attached in EPD's email on 8 th March 2023.	<p>carried out from 09:00 to 23:00 with valid construction noise permit under Contract YL/2021/01 at the Public Transport Interchange of Lok Ma Chau MTR Station. Other than the piling works, there were no construction works undertaken by Contract YL/2021/01 on that night. Noise source was recorded in the short video provided by the complaint. However, the noise source had yet to be ascertained.</p> <p>Since the commencement of the contract, Permit to Work (PTW) System for construction works undertaking during restricted hours has been implemented. PMEs used were followed the granted CNP as well as the condition(s) stipulated in CNP were fulfilled.</p> <p>In addition, noise monitoring was conducted for works during the restricted hours, and no exceedance was recorded.</p> <p>Acoustic canvas sheets were installed to enclose the engine of used powered mechanical equipment. A 3m high noise barrier was installed next to the rotary drilling rig. For enhancement, another 3m high noise barrier was erected facing the residential blocks of Shenzhen City on 7 March 2023. The piling works at the site area near Lok Ma Chau MTR Station are tentatively scheduled to be completed in the first quarter of 2024.</p>	Mar 2023
COM-2023-04-01	3 April 2023	EPD	EPD File Ref.: N06/RN/00	The complaint was lodged by a resident of Shenzhen City "this site is still operating at	<p><u>Contract No.: YL/2021/01</u></p> <p>According to the interim report, the piling works were</p>	Interim report was submitted to EPD on 27

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
			009011-23	this time (10:15pm). It is not the first time it operates until this late but every single night since the work began. Last Sunday, it operated until 4pm”. A sound recording and phot were attached to the email.	<p>carried out from 08:00 to 19:00 on 2 April (Sunday) and 08:00 to 23:00 on 3 April with valid construction noise permit under Contract YL/2021/01 at the Public Transport Interchange of Lok Ma Chau MTR Station. Other than the piling works, there were no construction works undertaken for Contract YL/2021/01 during the aforementioned periods. The complaint included a sound recording that captured noise, but the source of the noise has not yet been determined.</p> <p>Since the commencement of the contract, Permit to Work (PTW) System for construction works undertaking during restricted hours has been implemented. Frontline supervisor and sub-contractors have to apply a PTW one working day in advance of the construction works during restricted hours and attend the pre-work briefing prior to commencing works on site to ensure strict compliance with the conditions of construction noise permit. No works and PME were allowed without the approved PTW form.</p> <p>Based on the Contractor’s record, two rotary drill rigs were operated as listed in Group L of granted CNP at 08:00 – 19:00 on 2 April (Sunday) and 19:00 – 23:00 on 3 April, and only one group (L) of the PME was used for carrying out construction work at the same time. PMEs used were followed the granted CNP as well as the condition(s) stipulated in CNP were fulfilled. The power generating part of the rotary drilling rigs was screened by</p>	Apr 2023

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status																
					<p>acoustic barrier. In addition, noise monitoring was conducted for works during the restricted hours, and no exceedance was recorded. The duration of working time for core demoulding and casing extraction were also minimized in order to reduce noise levels. 3m high noise barriers were installed next to the rotary drilling rigs. Another noise barriers were erected facing the residential blocks of Shenzhen City.</p> <p>All construction works performed during the restricted hours were reviewed and no non-compliance was identified. A refresher training on a CNP compliance was provided to relevant frontline staff and workers on 20th April 2023.</p>																	
COM-2023-05-01	8 May 2023	EPD	EPD File Ref.: N06/RN/00 011649 23	<p>A public complaint was received by EPD on 8 May 2023 and supplemented a video taken by complainant on 14 May 2023. The complaint was lodged by a resident of Shenzhen City "地點，港鐵落馬洲站，樓下近巴士總站，福田口岸建築地盤剛，經常發出噪音，剛才星期六五月六號約15點40分，估計噪音超過100分配，另外經常在18:00後，及於星期日公眾假期等日子進行施工及發出噪音造成滋擾。"</p>	<p>Contract No.: YL/2021/01</p> <p>According to the interim report, construction activities being undertaken nearby Lok Ma Chau MTR Station on 6 May (Saturday) and 14 May (Sunday) 2023 were:</p> <table border="1"> <thead> <tr> <th>Date</th> <th colspan="2">6 May (Saturday)</th> <th>14 May (Saturday)</th> </tr> </thead> <tbody> <tr> <td>Working Time:</td> <td>08:00 to 19:00 (Normal working hours)</td> <td>19:00 to 23:00 (Restricted hours)</td> <td>08:00 to 19:00 (Restricted hours)</td> </tr> <tr> <td>Location:</td> <td colspan="3">The Public Transport Interchange of Lok Ma Chau MTR Station</td> </tr> <tr> <td>Construction</td> <td colspan="2">Piling works</td> <td>Air lifting works</td> </tr> </tbody> </table>	Date	6 May (Saturday)		14 May (Saturday)	Working Time:	08:00 to 19:00 (Normal working hours)	19:00 to 23:00 (Restricted hours)	08:00 to 19:00 (Restricted hours)	Location:	The Public Transport Interchange of Lok Ma Chau MTR Station			Construction	Piling works		Air lifting works	Interim report was submitted to EPD on 17 May 2023
Date	6 May (Saturday)		14 May (Saturday)																			
Working Time:	08:00 to 19:00 (Normal working hours)	19:00 to 23:00 (Restricted hours)	08:00 to 19:00 (Restricted hours)																			
Location:	The Public Transport Interchange of Lok Ma Chau MTR Station																					
Construction	Piling works		Air lifting works																			

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status														
					<p>activities: <table border="1" style="display: inline-table; vertical-align: middle;"><tr><td style="width: 150px; height: 15px;"></td><td style="width: 150px; height: 15px;"></td></tr></table></p> <p>The noise recorded in the video was considered not arising from Contract YL/2021/01.</p> <p>Since the commencement of the contract, Permit to Work (PTW) System for construction works undertaking during restricted hours has been implemented. No works and PMEs were allowed without the approved PTW form.</p> <p>PMEs used record</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 20%;">Date:</td> <td style="width: 40%;">6 May (Saturday)</td> <td style="width: 40%;">14 May (Saturday)</td> </tr> <tr> <td>Time (restricted hours)</td> <td>19:00 to 23:00</td> <td>08:00 to 19:00</td> </tr> <tr> <td>Group of granted CNP:</td> <td>L</td> <td>M</td> </tr> <tr> <td>PMEs used:</td> <td>1 x Rotary drilling rig</td> <td>2 x De-senders 2 x Mobile cranes 2 x Air compressors</td> </tr> </table> <p>PMEs used were followed the granted CNP as well as the condition(s) stipulated in CNP were fulfilled. The power generating part of the rotary drilling rigs was screened by acoustic barrier. In addition, noise monitoring was conducted for works during the restricted hours, and no exceedance was recorded. The duration of working time for core demoulding and casing extraction were also minimized in order to reduce noise levels. A 3m high noise barrier were installed next to the rotary drilling rig. Another noise barriers were erected facing the residential</p>			Date:	6 May (Saturday)	14 May (Saturday)	Time (restricted hours)	19:00 to 23:00	08:00 to 19:00	Group of granted CNP:	L	M	PMEs used:	1 x Rotary drilling rig	2 x De-senders 2 x Mobile cranes 2 x Air compressors	
Date:	6 May (Saturday)	14 May (Saturday)																		
Time (restricted hours)	19:00 to 23:00	08:00 to 19:00																		
Group of granted CNP:	L	M																		
PMEs used:	1 x Rotary drilling rig	2 x De-senders 2 x Mobile cranes 2 x Air compressors																		

Log Ref.	Date of Complaint	Complaint Route	Reference No.	Details of Complaint	Investigation Finding	Status
					<p>blocks of Shenzhen City. The generators used on site were Quality Powered Mechanical Equipment (QPME).</p> <p>According to the calculation by the Contractor during the non-restricted hour on 6 May (Saturday), the mitigated noise level at the nearest residential building in Shenzhen based on the SWL of PME's used were below 75dB(A).</p> <p>All construction works performed during the restricted hours were reviewed and no non-compliance was identified. A refresher training on a CNP compliance was provided to relevant frontline staff and workers on 12 May 2023. The deployment of the temporary noise barriers would be reviewed from time to time to cater for the changing site conditions.</p>	

**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	6 th July 2023
					Weather Condition	Fine
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		2	
Black Drongo	<i>Dicrurus macrocercus</i>	黑卷尾	Sv		2	
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV		1	
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		1	2
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)		2
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		1	3
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)		1
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
House Swift	<i>Apus nipalensis</i>	小白腰雨燕	SpM, R			3
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)	1	1
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鶻鴝	R			1
Pied Kingfisher	<i>Ceryle rudis</i>	斑魚狗	UR	(LC)		2
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		2	2
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R			3
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	13	19

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	6 th July 2023
					Weather Condition	Fine
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	白胸翡翠	R	(LC)	1	
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶯	R		4	4
Total No. of Species					7	16
No. of Birds Recorded					23	49

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	10 th July 2023
					Weather Condition	Fine
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		2	1
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV		1	1
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R			3
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R			2
Chinese Pond Heron	<i>Ardeola bacchus</i>	池鷺	R	PRC(RC)		1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R			4
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R			1
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R			1
White Wagtail	<i>Motacilla alba</i>	白鶇鶇	PM, WV			1
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	6	8
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶇	USV, UPM	(LC)		1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷦鶯	R		2	2
Total No. of Species					4	13
No. of Birds Recorded					11	27

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	18 th July 2023
					Weather Condition	Storm
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		1	1
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV			1
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鸚	R			7
Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>	栗葦鶉	UPM, SSV	LC		1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		1	2
Great Egret	<i>Ardea alba</i>	大白鷺	R, WV	PRC(RC)		1
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
Hair-crested Drongo	<i>Dicrurus hottentottus</i>	髮冠卷尾	PM, SV		1	1
Little Egret	<i>Egretta garzetta</i>	小白鷺	R	PRC(RC)		1
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R		2	2
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鸚	R			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			5
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背椋鳥	M, WV, Sv	LC		6
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶉	USV, UPM	(LC)	3	
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		1	2

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	18 th July 2023
					Weather Condition	Storm
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Total No. of Species					7	14
No. of Birds Recorded					10	36

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	24 th July 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv		1	
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV		2	
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R		2	1
Chinese Bulbul	<i>Pycnonotus sinensis</i>	白頭鶇	R		5	6
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R		2	3
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)		1
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R		3	2
Red-whiskered Bulbul	<i>Pycnonotus jocosus</i>	紅耳鶇	R		2	4
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R		1	2
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	7
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶇	USV, UPM	(LC)		2
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		3	4
Total No. of Species					8	14
No. of Birds Recorded					21	37

Common Name	Species Name	Chinese Name	Hong Kong Status	Conservation Status	Date	31 st July 2023
					Weather Condition	Sunny
					Abundance	
					Maximum count of bird species recorded (Point Count – 15 mins interval)	
					Before Construction	During Construction
Barn Swallow	<i>Hirundo rustica</i>	家燕	PM, Sv			1
Black Kite	<i>Milvus migrans</i>	黑鳶	R, WV	(RC), Cap.586		1
Black-collared Starling	<i>Gracupica nigricollis</i>	黑領棕鳥	R			1
Cinnamon Bittern	<i>Ixobrychus cinnamomeus</i>	栗葦鶉	UPM, SSV	LC		1
Crested Myna	<i>Acridotheres cristatellus</i>	八哥	R			2
Greater Coucal	<i>Centropus sinensis</i>	褐翅鴉鵂	R	(VU)		1
Large-billed Crow	<i>Corvus macrorhynchus</i>	大嘴烏鴉	R			2
Oriental Magpie-Robin	<i>Copsychus saularis</i>	鵲鴝	R			1
Plain Prinia	<i>Prinia inornata</i>	純色鷓鴣	R			2
Spotted Dove	<i>Streptopelia chinensis</i>	珠頸斑鳩	R		2	
White-shouldered Starling	<i>Sturnia sinensis</i>	灰背棕鳥	M, WV, Sv	LC	3	3
Yellow Bittern	<i>Ixobrychus sinensis</i>	黃葦鶉	USV, UPM	(LC)		1
Yellow-bellied Prinia	<i>Prinia flaviventris</i>	黃腹鷓鴣	R		2	1
Total No. of Species					3	12
No. of Birds Recorded					7	17

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: 21 st July 2023					
			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	0	1	0
<p><u>Remarks:</u> It was observed that the shallow agricultural ponds where Chinese Bullfrog were recorded has been altered into relatively dry agricultural lands, which may have an effect on the local Chinese Bullfrog population.</p>								

Note:

WAL – Wet Agricultural Land, AFP – Abandoned Fishpond

Appendix R3 – Aquatic Fauna (Rose Bitterling) Survey Results

Common Name	Species Name	Chinese Name	Date: 6 th July 2023							
			Weather Condition: Fine							
			Counts							
			Location(s)							
			S1	S2	S3	S4	A1	A2	B1	B2
Rose Bitterling	<i>Rhodeus ocellatus</i>	高體鱔鮠	Direct Observation:							
			0	0	0	0	5	2	0	0
			Sweep Netting:							
			0	0	0	0	0	0	0	0

Appendix R4

Service Contract No. WD/04/2020
Development of Lok Ma Chau Loop: Main Works Package 1 – Environmental Team
Water Quality Monitoring Results on 06-Jul-23

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	13:15	32.7	32.7	6.9	6.9	0.1	0.1	61.5	61.2	4.4	4.4	1.9	1.9
			32.7		6.9		0.1		60.9		4.4			
A2	Sunny	12:55	31.8	31.8	7.0	7.0	0.1	0.1	41.9	41.6	3.1	3.1	2.2	2.3
			31.8		6.9		0.1		41.3		3.0			
B1	Sunny	12:48	33.4	33.4	7.8	7.8	0.1	0.1	146.6	146.8	10.5	10.5	11.5	11.6
			33.4		7.8		0.1		147.0		10.5			
B2	Sunny	12:42	33.2	33.2	7.8	7.8	0.1	0.1	150.6	150.7	10.8	10.8	12.3	12.3
			33.2		7.8		0.1		150.8		10.8			
S1	Sunny	13:21	31.8	31.8	6.8	6.8	0.1	0.1	60.0	59.4	4.4	4.4	17.5	17.5
			31.8		6.8		0.1		58.8		4.3			
S2	Sunny	13:08	29.4	29.4	6.9	6.9	0.1	0.1	58.6	58.4	4.5	4.5	7.9	7.6
			29.4		6.9		0.1		58.2		4.4			
S3	Sunny	12:28	29.4	29.4	6.8	6.8	0.1	0.1	43.4	43.4	3.3	3.3	12.2	12.3
			29.4		6.8		0.1		43.3		3.3			
S4	Sunny	12:35	30.3	30.3	6.8	6.8	0.1	0.1	37.2	36.7	2.8	2.8	7.0	6.9
			30.3		6.7		0.1		36.2		2.7			

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Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	10:42	32.2	32.2	7.1	7.1	0.1	0.1	30.6	30.3	2.2	2.2	2.8	2.8
			32.2		7.0		0.1		30.0		2.2		2.8	
A2	Sunny	10:27	32.1	32.1	7.0	7.0	0.1	0.1	24.2	24.0	1.8	1.8	2.5	2.5
			32.1		6.9		0.1		23.8		1.7		2.5	
B1	Sunny	10:21	32.0	32.0	7.3	7.3	0.1	0.1	119.1	119.0	8.7	8.7	13.3	13.4
			32.0		7.3		0.1		118.9		8.7		13.5	
B2	Sunny	10:15	32.2	32.2	7.4	7.4	0.1	0.1	114.1	114.6	8.3	8.4	11.3	11.5
			32.2		7.4		0.1		115.0		8.4		11.6	
S1	Sunny	10:49	30.3	30.3	6.8	6.8	0.1	0.1	20.2	20.1	1.5	1.5	30.6	30.6
			30.3		6.8		0.1		19.9		1.5		30.6	
S2	Sunny	10:35	29.1	29.1	7.1	7.1	0.1	0.1	63.3	62.8	4.9	4.9	6.3	6.6
			29.1		7.1		0.1		62.2		4.8		6.9	
S3	Sunny	10:02	29.8	29.8	8.0	8.0	0.1	0.1	62.6	62.3	4.7	4.7	42.4	42.7
			29.8		7.9		0.1		62.0		4.7		43.0	
S4	Sunny	10:09	29.7	29.7	7.3	7.3	0.1	0.1	54.1	53.6	4.1	4.1	15.0	15.0
			29.7		7.3		0.1		53.1		4.0		15.0	

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Water Quality Monitoring Results on 21-Jul-23









Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity(NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Cloudy	09:28	29.0	29.0	6.9	6.9	0.1	0.1	27.3	26.9	2.1	2.1	3.4	3.4
			29.0		6.9		0.1		26.5		2.0			
A2	Cloudy	09:14	29.0	29.0	6.8	6.8	0.1	0.1	31.0	30.7	2.4	2.4	3.0	3.1
			28.9		6.8		0.1		30.4		2.3			
B1	Cloudy	09:07	28.4	28.4	6.9	6.9	0.1	0.1	66.8	66.6	5.2	5.2	14.6	14.5
			28.4		6.9		0.1		66.4		5.2			
B2	Cloudy	09:01	28.4	28.4	7.0	7.0	0.1	0.1	59.2	59.1	4.6	4.6	22.4	21.8
			28.4		6.9		0.1		59.0		4.6			
S1	Cloudy	09:35	28.2	28.2	7.0	7.0	0.1	0.1	62.5	62.2	4.9	4.9	32.9	35.0
			28.2		7.0		0.1		61.9		4.8			
S2	Cloudy	09:22	28.5	28.5	6.9	6.9	0.1	0.1	68.3	67.8	5.3	5.3	5.3	5.0
			28.5		6.9		0.1		67.3		5.2			
S3	Cloudy	08:48	28.0	28.0	7.1	7.1	0.1	0.1	55.4	55.4	4.3	4.3	20.5	20.3
			28.0		7.1		0.1		55.3		4.3			
S4	Cloudy	08:55	27.9	27.9	7.0	7.0	0.1	0.1	55.3	55.1	4.3	4.3	15.2	15.2
			27.9		7.0		0.1		54.8		4.3			

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Water Quality Monitoring Results on 26-Jul-23

Location	Weather Condition	Start Time	Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)		Turbidity (NTU)	
			Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average
A1	Sunny	13:13	33.7	33.7	7.0	7.0	0.1	0.1	60.9	60.7	4.3	4.3	2.8	2.8
			33.6		7.0		0.1		60.5		4.3			
A2	Sunny	12:56	32.8	32.8	7.2	7.2	0.1	0.1	55.1	54.9	4.0	4.0	4.0	4.0
			32.8		7.2		0.1		54.6		3.9			
B1	Sunny	12:50	33.2	33.2	8.5	8.5	0.1	0.1	169.4	169.6	12.1	12.2	11.7	11.7
			33.2		8.5		0.1		169.7		12.2			
B2	Sunny	12:44	33.2	33.2	8.1	8.1	0.1	0.1	160.1	160.3	11.5	11.5	23.1	22.4
			33.2		8.1		0.1		160.5		11.5			
S1	Sunny	13:20	31.9	31.9	6.6	6.6	0.03	0.03	62.5	62.3	4.6	4.6	24.2	24.2
			31.9		6.6		0.03		62.0		4.5			
S2	Sunny	13:07	30.1	30.1	7.2	7.2	0.1	0.1	59.8	59.6	4.5	4.5	12.8	12.7
			30.1		7.2		0.1		59.3		4.5			
S3	Sunny	12:31	30.0	30.0	7.1	7.1	0.1	0.1	38.6	38.5	2.9	2.9	14.0	14.2
			30.0		7.1		0.1		38.4		2.9			
S4	Sunny	12:38	30.5	30.5	6.9	6.9	0.2	0.2	34.0	33.9	2.5	2.5	4.1	4.1
			30.5		6.9		0.2		33.7		2.5			

**APPENDIX S
PHOTO RECORDS OF THE STATUS OF
PONDS**

Appendix S – Photo Records of The status of Ponds in July 2023

	
<p>Pond 5</p>	<p>Pond 6</p>
	
<p>Pond 7</p>	<p>Pond 8</p>
	
<p>Pond 9</p>	<p>Pond 10</p>
	
<p>Pond 11</p>	<p>Pond 12</p>



Pond 13