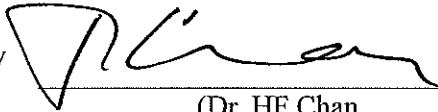


Civil Engineering and Development Department

**Agreement No. CE 59/2015 (EP)
Environmental Team for
Tseung Kwan O – Lam Tin Tunnel
Design and Construction**

**Monthly Environmental Monitoring and
Audit Report for
June 2021
(version 1.0)**

Approved By 
(Dr. HF Chan,
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.

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

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Civil Engineering and Development Department
East Development Office
8/F, South Tower, West Kowloon Government Offices
11 Hoi Ting Road
Yau Ma Tei
Kowloon

Your reference:

Our reference: HKCEDD08/50/107428

Date: 19 July 2021

Attention: Mr Raymond Chan

BY FAX & POST
(Fax no.: 2739 0076)

Dear Sirs

Agreement No.: NTE 06/2016
Independent Environmental Checker for Tseung Kwan O – Lam Tin Tunnel
Monthly Environmental Monitoring and Audit Report for June 2021 (version 1.0)

We refer to email of 16 July 2021 from Cinotech Consultants Limited attaching the Monthly Environmental Monitoring and Audit Report for June 2021 (version 1.0).

We have no further comment and hereby verify the captioned report in accordance with Clause 4.4 of the Environmental Permit no. EP-458/2013/C.

Should you have any queries, please do not hesitate to contact the undersigned or our Mr Edric Lau on 2618 2831.

Yours faithfully
ANEWR CONSULTING LIMITED

James Choi
Independent Environmental Checker

CPSJ/LCCR/LTKE/lsm

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EXECUTIVE SUMMARY

Introduction

1. This is the 56th Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited for the “Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel – Design and Construction” (hereinafter called “the Project”). This report documents the findings of EM&A Works conducted in June 2021.
2. During the reporting month, the following works contracts were undertaken:
 - Contract No. NE/2015/01 – Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works;
 - Contract No. NE/2015/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works;
 - Contract No. NE/2015/03 – Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge;
 - Contract No. NE/2017/01 – Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works
 - Contract No. NE/2017/02 – Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works.
 - Contract No. NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works
 - Contract No. NE/2017/07 – Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works.

Environmental Monitoring Works

3. Environmental monitoring for the Project was performed in accordance with the EM&A Manual and the monitoring results were checked and reviewed. Site Inspections/Audits were conducted once per week. The implementation of the environmental mitigation measures, Event Action Plans and environmental complaint handling procedures were also checked.
4. Summary of the non-compliance (exceedance) in the reporting month for the Project is tabulated in **Table I**.

Table I Non-compliance (exceedance) Record for the Project in the Reporting Month

Environmental Monitoring	No. of Non-compliance (Exceedance)		No. of Non-compliance (Exceedance) due to Construction Activities of this Project		Action Taken
	Action Level	Limit Level	Action Level	Limit Level	
Air Quality	0	1	0	0	N/A
Noise	0	1	0	1	Refer to Appendix K & O
Marine Water Quality	31	116	0	0	Refer to Appendix K
Groundwater Level Monitoring (Piezometer Monitoring)	0	N/A ¹	0	N/A ¹	N/A
Ecological	N/A	N/A	N/A	N/A	N/A
Cultural Heritage	0	0	0	0	N/A
Landfill Gas	0	0	0	0	N/A

Note:(1) No Limit Level for Groundwater Level Monitoring (Piezometer Monitoring).

Air Quality Monitoring

- No Action/Limit Level exceedance for 1-hour TSP monitoring was recorded.
- One (1) Limit Level and Zero (0) Action Level exceedance for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

- No project-related Action Level exceedance for construction noise monitoring were recorded in the reporting month.
- One (1) Limit Level exceedance was recorded due to monitoring results in this reporting month. The Summary of Documented Complaints in Reporting Month is tabulated in **Table III**.

Water Quality Monitoring

- Groundwater quality monitoring had been suspended since October 2019 upon the agreement by EPD. Further details should be founded at **Section 5.1**.
- All marine water quality monitoring was conducted as scheduled in the reporting month. There were thirty-one (31) Action Level and one-hundred-and-sixteen (116) Limit Level exceedances recorded in Monitoring Stations (M) during marine water quality monitoring. During this reporting month, no sand plume was observed during the water quality monitoring and site audits, therefore there is no direct evidence that the recent exceedances were due to the construction works of the Project. Details of this investigation are presented in **Section 5**. Daily silt curtain inspection and weekly diving inspection have been carried out by contractor, the record, as reviewed by the site auditors, indicated that silt curtains were found in good conditions.

11. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

Ecological Monitoring

12. Post-translation coral monitoring survey shall be conducted once every 3 months for a period of 12 months after completion of coral translocation. The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

13. Monitoring of impacts on Cultural Heritage at Cha Kwo Ling Tin Hau Temple commenced in May 2017. No Alert, Alarm and Action (AAA) Level exceedance was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

14. The implementation of landscape and visual mitigation measures was checked during the environmental site inspections. Recommended follow-up actions have been discharged by the Contractor. Details of the audit findings and implementation status are presented in Section 10.

Landfill Gas Monitoring

15. Monitoring of landfill gases commenced in December 2016 and were carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

16. Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. The representative of the IEC joined the site inspection for NE/2015/01 and NE/2017/07 on 14 April 2021 & NE/2015/02, NE/2017/01, NE/2017/02 and NE/2017/06 on 15 April 2021 respectively. Details of the audit findings and implementation status are presented in **Section 10**.

Waste Management

17. Wastes generated from this Project include inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediment. Details of waste management data is presented in **Section 11** and **Appendix P**.

Key Information in the Reporting Month

18. Summary of key information in the reporting month is tabulated in **Table II**

Table II Key Information in the Reporting Month

Monthly Complaints	Event Details		Action Taken	Status
	Number	Nature		
June 2021	3	Light/ Water/ Working Hours	Details refer to App O	Draft CIRs submitted / On- going
May 2021	3	Air / Noise	Details refer to App O	Draft CIRs submitted / On- going
April 2021	13 ^{*1}	Noise	Details refer to App O	Closed/ Draft CIRs submitted/ On-going
March 2021	18 ^{*2}	Noise	Details refer to App O	Draft CIRs submitted / On- going
February 2021	3	Noise	Details refer to App O	Closed/ Draft CIRs submitted/ On-going
January 2021	13	Noise / Air	Details refer to App O	On-going /Closed
December 2020	13	Noise / Operating hours	Details refer to App O	Draft CIRs submitted / Closed
Notifications of any summons & prosecutions received	0	---	N/A	N/A

*1: 1 complaint at April 2021 was received at early May 2021.

*2: 4 new complaints in March 2021 was received by Environmental Team in April 2021.

19. Summary of complaints received in the reporting month is tabulated in **Table III**.

Table III Summary of Complaints Details in Reporting Month

Complaint No.	Complaint	Investigation Findings	Follow-up Action / Mitigation Measure
Lam Tin Side			
-	-	-	-
Tseung Kwan O Side			
556	Operation of Marine Construction Works during Restricted Hours	Tug boat and crane barge were used for relocating barge and airlifting materials. The Contractors held valid and approved CNP. No non-compliance was recorded. The details shall referred to CIR-N143.	
555	Suspected Muddy Water at the Marine Works Area	Investigation undergoing	
554	Construction Work during restricted hours and Light Pollution	No construction was undergoing during the time of complaint. The light shown in photo was used as safeguarding purpose. Details shall be referred to CIR-07.	

Key Construction Work in the reporting month & the next reporting month

20. Summary of key construction work in the reporting month is tabulated in **Table IV**.

Table IV Summary Table for Key Construction Work in the Reporting Month

Contract No.	Project Title	Site Activities (June 2021)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel –	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5

Contract No.	Project Title	Site Activities (June 2021)	
	Main Tunnel and Associated Works		3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank & Pumping Station Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities 8) Landscape Deck 9) LTI Drainage
		Main Tunnel	10) S02_2 Excavation & Lining 11) Main Tunnel Lining Works
		TKO Interchange	12) Bridge Construction 13) East Ventilation Building
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Sloping Seawall Construction 2) Construction of U-trough at CH821-CH105 3) Construction of Underpass at CH105-CH318 4) Construction of Seawall Coping 5) Construction of Road P2 and SR2	
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. The EM&A works were terminated in late April 2020.	
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Construction of Pier 2) Construction of Pier Head Works 3) Construction of Pile Cap 4) Segment Erection Works 5) Installation of Parapet Skin	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shaft Construction 5) Road Works	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Goods arrival & storage on site 3) Installation in Admin Building 4) Installation in Tunnel Building	
NE/2017/07	Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	1) Predrilling Work at Portion I had completed with 31 out of 35 nos. 2) Oiling work at Portion I had completed with 10 out of 35 nos. 3) Precast Shell Installation 4) 1 st Stage Concrete for pile caps 5) Precast Pier Installation 6) 2 nd Stage Concrete for pile caps 7) Precast Box Girder Installation 8) E&M Work and External Work at Portion V 9) Fabrication of deck segment panels steel 10) Round deck segment assembly 11) Fabrication of arch rib panels steel 12) Round arch rib segment assembly 13) Load-out and Transportation of Steel Main Bridge 14) Load-out, Transportation and Floating-in of Steel Bridge 15) Dismantling of V-tuss on steel main bridge 16) Installation of 10 th box girder	

Future Key Issues

21. The future key environmental issues in the coming month include:

Table V Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (July 2021)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Emergency Stormwater Tank and Pumping Station Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities 8) Landscape Deck 9) LTI Drainage	(A) / (B) / (C) / (D) / (E) / (G)
	Main Tunnel	10)S02_2 Excavation 11)Main Tunnel Lining Works	(B)
	TKO Interchange	12)Bridge Construction 13)East Ventilation Building	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Sloping Seawall Construction 2) Construction of U-trough at CH821-CH105 3) Construction of Underpass at CH105-CH318 4) Construction of Seawall Coping 5) Construction of Road P2 and SR2		(A) / (B) / (C) / (D) / (E) / (G) / (I)
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. Materials are being removed from works area.		N/A
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Construction of Pier 2) Construction of Pier Head works 3) Segment erection works 4) Construction of Bridge Decks 5) Installation of Parapet Skin		(A) / (B) / (E) / (F) / (G)
NE/2017/02 –Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shaft Construction 5) Road Works		(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Goods arrival & storage on site 3) Installation in Admin Building 4) Installation in Tunnel Building		(E)
NE/2017/07 - Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	1) Fabrication work for precast pier 2) Construct cast in-situ diaphragm 3) Dismantling of V-truss on steel bridge 4) Welding of joint between main span and side span. 5) E&N installation work 6) Fabrication of Precast Segment and Precast Shell 7) Pre-drilling 8) Bored piling 9) Pile cap construction		(A) / (B) / (D) / (E) / (F) / (G) / (H) / (I)

Contract No. and Project Title	Site Activities (July 2021)	Key Environmental Issues *
	10) Pier Construction	

Note:

- (A) Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- (B) Noisy construction activity such as rock-breaking activities and piling works;
- (C) Runoff from exposed slope or site area;
- (D) Wastewater and runoff discharge from site;
- (E) Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
- (F) Set up and implementation of temporary drainage system for the surface runoff;
- (G) Storage of chemicals/fuel and chemical waste/waste oil on site;
- (H) Accumulation and storage of general and construction waste on site; and
- (I) Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation

1. INTRODUCTION

- 1.1 Cinotech Consultants Limited (Cinotech) was commissioned by Civil Engineering and Development Department (CEDD) as the Environmental Team (ET) to undertake environmental monitoring and auditing services for the Works Contracts involved in the implementation of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) project 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 TKO-LTT project and other relevant statutory requirements. This is the 56th Monthly EM&A report summarizing the EM&A works for the Project in June 2021.

Purpose of the Report

- 1.2 This is the 56th Monthly EM&A Report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period in June 2021.

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: **Contract Information** – summarises background and scope of the Contract, site description, project organization and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting month.

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

Section 7: **Cultural Heritage** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations and monitoring results.

Section 8: **Landscape and Visual Monitoring Requirements** – summarises the requirements of landscape and visual monitoring

Section 9: **Landfill Gas Monitoring** – summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, monitoring results and Limit Levels and Action Plan

Section 10: **Environmental Site Inspection** – summarises the audit findings of the weekly site inspections undertaken within the reporting month.

Section 11: **Waste Management** – summarises the waste management data in the reporting month.

Section 12: **Environmental Non-conformance** – summarises any monitoring exceedance, environmental complaints, environmental summons and successful prosecutions within the reporting month.

Section 13: **Future Key Issues** – summarises the impact forecast and monitoring schedule for the next three months.

Section 14: **Conclusions and Recommendation**

2. PROJECT INFORMATION

Background

- 2.1 In 2002, Civil Engineering and Development Department (CEDD) commissioned an integrated planning and engineering study under Agreement No. CE 87/2001 (CE) “Further Development of Tseung Kwan O – Feasibility Study” (the “TKO Study”) to formulate a comprehensive plan for further development of TKO New Town. It recommended to further develop TKO to house a total population of 450,000 besides the district’s continuous commercial and industrial developments.
- 2.2 At present, the Tseung Kwan O Tunnel is the main connection between Tseung Kwan O (TKO) and other areas in the territory. To cope with the anticipated transport need, the TKO Study recommended the provision of Tseung Kwan O – Lam Tin Tunnel (TKO-LTT) (hereinafter referred to as “the Project”) and Cross Bay Link (CBL) to meet the long-term traffic demand between TKO and the external areas. The site layout plan for the Project is shown in **Figure 1**. CBL was also entrusted with part of the marine viaducts near Tseung Kwan O Interchange since the commencement of the CBL project the December 2018.
- 2.3 The Environmental Impact Assessment (EIA) Report for the TKO-LTT project was approved under the Environmental Impact Assessment Ordinance (EIAO) in July 2013. The corresponding Environmental Permit (EP) was issued in August 2013 (EP no.: EP-458/2013). Variations to the EP was applied and the latest EP (EP no.: EP-458/2013/C) was issued by the Director of Environmental Protection (DEP) in January 2017.
- 2.4 The commencement dates of construction of this Project are:
- Contract No. NE/2015/01 and Contract No. NE/2015/02: 7 November 2016.
 - Contract No. NE/2015/03: 29 May 2017.
 - Contract No. NE/2017/02: 15 March 2018.
 - Contract No. NE/2017/01: 23 May 2018.
 - Contract No. NE/2017/06: 09 November 2018.
 - Contract No. NE/2017/07: 22 February 2021

Project Organizations

- 2.5 Different parties with different levels of involvement in the project organization include:
- Project Proponent – Civil Engineering and Development Department (CEDD)
 - The Engineer and the Engineer’s Representative (ER) – AECOM
 - Environmental Team (ET) – Cinotech Consultants Limited (Cinotech)
 - Independent Environmental Checker (IEC) – AnewR Consulting Limited (AnewR)

2.6 The key contacts of the Project are shown in **Table 2.1**.

Table 2.1 Key Project Contacts

Party	Role	Contact Person	Phone No.	Fax No.
CEDD	Project Proponent	Mr. LO Sai Pak, Sunny	2301 1384	2739 0076
AECOM	Engineer's Representative	Mr. Jackie CW, Ng	3910 1601	3910 1600
Cinotech	Environmental Team	Dr. HF Chan	2151 2088	3107 1388
		Mr. KS Lee	2151 2091	
AnewR	Independent Environmental Checker	Mr. James Choi	2618 2836	3007 8648

Construction Activities undertaken during the Reporting Month

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

Table 2.2 Summary Table for Major Site Activities in the Reporting Month

Contract No.	Project Title	Site Activities (June 2021)	
NE/2015/01	Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) NE/2015/01
		Main Tunnel	2) S02_2 Excavation 3) Main Tunnel Lining Works
		TKO Interchange	4) Bridge Construction 5) East Ventilation Building
NE/2015/02	Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	6) Sloping Seawall Construction 7) Construction of Underpass at CH821-CH105 8) Construction of Underpass at CH105-CH318 9) Construction of Seawall Coping 1) Construction of Road P2 and SR2	
NE/2015/03	Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. The EM&A works were terminated in late April 2020.	
NE/2017/01	Tseung Kwan O – Lam Tin Tunnel – Tseung Kwan O Interchange and Associated Works	1) Construction of Pier 2) Construction of Pier Head Works 3) Construction of Pile Cap 4) Segment Erection Works 5) Installation of Parapet Skin	
NE/2017/02	Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shaft Construction 5) Road Works	
NE/2017/06	Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Goods arrival & storage on site 3) Installation in Admin Building 4) Installation in Tunnel Building	
NE/2017/07	Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	1) Predrilling Work at Portion I had completed with 31 out of 35 nos. 2) Oiling work at Portion I had completed with 10 out of 35 nos. 3) Precast Shell Installation 4) 1 st Stage Concrete for pile caps 5) Precast Pier Installation 6) 2 nd Stage Concrete for pile caps	

Contract No.	Project Title	Site Activities (June 2021)
		7) Precast Box Girder Installation 8) E&M Work and External Work at Portion V 9) Fabrication of deck segment panels steel 10) Round deck segment assembly 11) Fabrication of arch rib panels steel 12) Round arch rib segment assembly 13) Load-out and Transportation of Steel Main Bridge 14) Load-out, Transportation and Floating-in of Steel Bridge 15) Dismantling of V-tuss on steel main bridge 16) Installation of 10 th box girder

2.8 The construction programme showing the inter-relationship with environmental protection/mitigation measures are presented in **Table 2.3**.

Table 2.3 Construction Programme Showing the Inter-Relationship with Environmental Protection/Mitigation Measures

Construction Works	Major Environmental Impact	Control Measures
As mentioned in Table 2.2	Noise, dust impact, water quality and waste generation	<ul style="list-style-type: none"> • Sufficient watering of the works site with active dust emitting activities • Properly cover the stockpiles • On-site waste sorting and implementation of trip ticket system • Appropriate desilting/sedimentation devices provided on site for treatment before discharge • Use of quiet plant and well-maintained construction plant • Provide movable noise barrier

Status of Environmental Licences, Notification and Permits

2.9 A summary of the relevant permits, licences, and/or notifications on environmental protection for this Project is presented in **Table 2.4**.

Table 2.4 Summary of the Status of Environmental Licences, Notification and Permits

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
Environmental Permit (EP)				
N/A	EP-458/2013/C	20/1/2017	N/A	Valid
Notification pursuant to Air Pollution Control (Construction Dust) Regulation				
NE/2015/01	EPD Ref no.: 405305	21/07/2016	N/A	Valid
	EPD Ref no.: 405582	28/07/2016	N/A	Valid
NE/2015/02	EPD Ref no.: 406100	12/08/2016	N/A	Valid
NE/2015/03	EPD Ref no.: 416072	26/04/2017	N/A	Valid
NE/2017/02	EPD Ref no.: 429867	19/01/2018	N/A	Valid
NE/2017/01	EPD Ref no.: 430070	25/01/2018	N/A	Valid
NE/2017/06	EPD Ref no.: 461507	03/11/2020	N/A	Valid
Billing Account for Construction Waste Disposal				

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
NE/2015/01	Account No. 7025431	11/07/2016	N/A	Valid
NE/2015/02	Account No. 7025654	16/08/2016	N/A	Valid
NE/2015/03	Account No. 7026805	30/12/2016	N/A	Valid
NE/2017/02	Account No. 7029651	22/12/2017	N/A	Valid
NE/2017/01	Account No. 7029994	01/02/2018	N/A	Valid
NE/2017/06	Account No. 7032520	22/11/2018	N/A	Valid
NE/2017/07	Account No. 7031412	24/07/2018	N/A	Valid
Registration of Chemical Waste Producer				
NE/2015/01	Waste Producer No. 5218-290-L2881-02	22/08/2016	N/A	Valid
	Waste Producer No. 5213-833-L2532-03	22/08/2016	N/A	Valid
NE/2015/02	Waste Producer No. 5213-838-C4094-01	23/08/2016	N/A	Valid
NE/2015/03	Waste Producer No. 5213-265-W3435-04	19/07/2017	N/A	Valid
NE/2017/02	Waste Producer No. 5213-833-Z4004-04	01/02/2018	N/A	Valid
NE/2017/01	Waste Producer No. 5213-833-C4262-01	12/02/2018	N/A	Valid
NE/2017/07	Waste Producer No. 5213-839-C1232-19	28/08/2018	N/A	Valid
Effluent Discharge License under Water Pollution Control Ordinance				
NE/2015/01	WT00025806-2016	18/07/2018	30/11/2021	Valid
	WT00026212-2016	16/05/2017	30/11/2021	Valid
	WT00027354-2017	22/03/2017	31/03/2022	Valid
	WT00027405-2017	22/03/2017	31/03/2022	Valid
	WT00028495-2017	11/08/2017	31/08/2022	Valid
NE/2015/02	WT00026386-2016	15/12/2016	31/12/2021	Valid
	WT00027226-2017	23/02/2017	28/02/2022	Valid
	WT00030654-2018	16/04/2018	30/04/2023	Valid
NE/2015/03	WT00027295-2017	20/03/2017	31/03/2022	Valid
NE/2017/01	WT00030711-2018	11/04/2018	30/04/2023	Valid
	WT00030716-2018	23/05/2018	31/05/2023	Valid
NE/2017/02	WT00030654-2018	16/04/2018	30/04/2023	Valid
NE/2017/07	WT00032842-2018	01/03/2019	31/03/2024	Valid
	WT00034178-2019	15/07/2019	31/07/2024	Valid
Construction Noise Permit (CNP)				
NE/2015/01	GW-RE0566-21	22/06/2021	21/12/2021	Valid until 21 Dec 2021
	GW-RE0199-21	22/03/2021	21/09/2021	Valid
	GW-RE0229-21	05/04/2021	04/07/2021	Valid
	GW-RE0594-21	22/06/2021	21/09/2021	Valid until 21 Sep 2021
	GW-RE0607-21	04/07/2021	04/10/2021	Valid until 4 Oct 2021
	GW-RE0609-21	23/06/2021	31/07/2021	Valid until 31 July 2021

Contract No.	Permit / License No.	Valid Period		Status
		From	To	
NE/2015/02	GW-RE0593-21	24/06/2021	23/09/2021	Valid until 23 Sep 2021
	GW-RE0596-21	19/06/2021	18/09/2021	Valid until 18 Sep 2021
NE/2017/01	GW-RE0559-21	15/06/2021	14/09/2021	Valid until 14 Sep 2021
	GW-RE0391-21	01/05/2021	01/11/2021	Valid until 1 Nov 2021
Marine Dumping Permit				
NE/2017/01	EP/MD/21-011	N/A	N/A	N/A
NE/2015/01	CEDD01062	N/A	10/11/2020	Valid

Summary of EM&A Requirements

- 2.10 The EM&A programme requires construction noise monitoring, air quality monitoring, water quality monitoring, environmental site audit, etc. The EM&A requirements for each parameter are described in the following sections, including:
- All monitoring parameters;
 - Action and Limit levels for all environmental parameters;
 - Event Action Plans;
 - Environmental mitigation measures, as recommended in the Project EIA Report.
- 2.11 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 10** of this report.
- 2.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the monitoring parameters of the required environmental monitoring works and audit works for the Project in June 2021.

3. AIR QUALITY

Monitoring Requirements

- 3.1 According to EM&A Manual of the Project, 1-hour and 24-hour TSP monitoring are required to monitor the air quality. For regular impact monitoring, a sampling frequency of at least once in every six days shall be undertaken at all of the monitoring stations for 24-hour TSP monitoring. For 1-hour TSP monitoring, the sampling frequency of at least three times in every six days shall be undertaken when the highest dust impact occurs. **Appendix A** shows the established Action/Limit Levels for the environmental monitoring works.

Monitoring Locations

- 3.2 Six designated monitoring stations were selected for air quality monitoring programme. **Table 3.1** describes the air quality monitoring locations, which are also depicted in **Figure 2**.

Table 3.1 Locations for Air Quality Monitoring

Monitoring Stations	Location	Location of Measurement
AM1	Tin Hau Temple	Ground Level
AM2	Sai Tso Wan Recreation Ground	Ground Level
AM3	Yau Lai Estate Bik Lai House	Rooftop (41/F)
AM4 ⁽¹⁾	Sitting-out Area at Cha Kwo Ling Village	Ground Level
AM4(A) ^{(2) (*)}	Cha Kwo Ling Public Cargo Working Area Administrative Office	Rooftop (3/F)
AM5(A) ^(*)	Tseung Kwan O DSD Desilting Compound	Ground Level
AM6(A) ^(*)	Park Central, L1/F Open Space Area	1/F

Remarks: (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

(*) Air quality monitoring at designated station AM4(24-hr TSP), AM5 and AM6 was rejected by the premise owners. Therefore, baseline and impact air quality monitoring works were carried out at alternative air quality monitoring stations AM4(A) (24-hr TSP only), AM5(A) and AM6(A) respectively.

Monitoring Equipment

- 3.3 High Volume Samplers (HVS) were used to carry out 24-hour TSP monitoring. Direct reading dust meter were also used to measure 1-hour average TSP levels. The 1-hour sampling was determined periodically by HVS to check the validity and accuracy of the results measured by direct reading method.
- 3.4 Wind data monitoring equipment was set at rooftop (about 41/F) of Yau Lai Estate Bik Lai House for logging wind speed and wind direction such that the wind sensors are clear of obstructions or turbulence caused by building. The wind data monitoring equipment is re-calibrated at least once every six months and the wind directions are divided into 16 sectors of 22.5 degrees each. The location is shown in **Figure 2**.
- 3.5 **Table 3.2** summarizes the equipment to be used in the air quality monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 3.2 Air Quality Monitoring Equipment

Equipment	Model and Make	Quantity
Calibrator	TISCH Model: TE-5025A	1
1-hour TSP Dust Meter	Sibata Model No.: LD-3B / LD-5R	5
	Met One Instruments Model No.: AEROCET-831	0
	Handheld Particle Counter Hal-HPC300 / Hal-HPC301	0
HVS Sampler	TISCH Model: TE-5170	1
	GMW Model: GS2310	5
Wind Anemometer	Davis Weather Monitor II, Model no. 7440	1
	Davis Weather Stations, Vantage Pro 2, Model No. 6152CUK	0

Monitoring Parameters and Frequency

3.6 **Table 3.3** summarizes the monitoring parameters, monitoring period and frequencies of air quality monitoring.

Table 3.3 Frequency and Parameters of Air Quality Monitoring

Monitoring Stations	Parameter	Frequency
AM1, AM2, AM3, AM4, AM5(A) and AM6(A)	1-hour TSP	3 times per 6 days
AM1, AM2, AM3, AM4(A), AM5(A) and AM6(A)	24-hour TSP	Once per 6 days

Monitoring Methodology

1-hour TSP Monitoring

Measuring Procedures

3.7 The measuring procedures of the 1-hour dust meter are in accordance with the Manufacturer's Instruction Manual as follows:

(Model LD3 / LD3B / LD5R)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to "ON" and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

(AEROCET-531)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Remove the red rubber cap from the AEROCET-531 inlet nozzle.
- Turn on the power switch that is located on the right side of the AEROCET-531.
- On power up the product intro screen is displayed for 3 seconds. The intro screen displays the product name and firmware version.
- Then the main counter screen will be displayed.
- Press the START button. Internal vacuum pump start running. After 1 minute the pump will stop and the 0.5 μ m and 5 μ m channels will show the cumulative counts of particles larger than 0.5 μ m and 5 μ m per cubic foot.
- The AEROCET-531 is now checked out and ready for use.
- To switch off the AEROCET-531 power to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, and display value and site condition were recorded during the monitoring period.

(Equipment: Hal Technology; Model no. Hal-HPC300 / Hal-HPC301)

- The 1-hour dust meter is placed at least 1.3 meters above ground.
- Set POWER to “ON” and make sure that the battery level was not flash or in low level.
- Allow the instrument to stand for about 3 minutes and then the cap of the air sampling inlet has been released.
- Push the knob at MEASURE position.
- Set time/mode setting to [BG] by pushing the time setting switch. Then, start the background measurement by pushing the start/stop switch once. It will take 6 sec. to complete the background measurement.
- Push the time setting switch to change the time setting display to [MANUAL] at the bottom left of the liquid crystal display. Finally, push the start/stop switch to stop the measuring after 1 hour sampling.
- Information such as sampling date, time, count value and site condition were recorded during the monitoring period.

Maintenance/Calibration

- 3.8 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 at 2-month intervals throughout all stages of the air quality monitoring.

24-hour TSP MonitoringInstrumentation

- 3.9 High volume samplers (HVS) (TISCH Model: TE-5170 and GMW Model: GS2310) completed with appropriate sampling inlets were employed for 24-hour TSP monitoring. The sampler is composed of a motor, a filter holder, a flow controller and a sampling inlet and its performance specification complied with that required by USEPA Standard Title 40, Code of Federation Regulations Chapter 1 (Part 50).
- 3.10 The positioning of the HVS samplers are as follows:
- a horizontal platform with appropriate support to secure the samplers against gusty wind shall be provided;
 - no two samplers shall be placed less than 2 meter apart

- the distance between the sampler and an obstacle, such as buildings, must be at least twice the height that the obstacle protrudes above the sampler;
- a minimum of 2 metres of separation from walls, parapets and penthouses is required for rooftop samplers;
- a minimum of 2 metres of separation from any supporting structure, measured horizontally is required;
- no furnace or incinerator flue is nearby;
- airflow around the sampler is unrestricted;
- the sampler is more than 20 metres from the dripline;
- any wire fence and gate, to protect the sampler, shall not cause any obstruction during monitoring;
- permission must be obtained to set up the samplers and to obtain access to the monitoring stations; and
- a secured supply of electricity is needed to operate the samplers.

Operating/analytical procedures for the operation of HVS

- 3.11 Prior to the commencement of the dust sampling, the flow rate of the high volume sampler 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.
- 3.12 For TSP sampling, fiberglass filters with a collection efficiency of > 99% for particles of 0.3µm diameter were used.
- 3.13 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 monitoring station.
- 3.14 The filter holding frame was then removed by loosening the four nuts and a weighted and conditioned filter was carefully centred with the stamped number upwards, on a supporting screen.
- 3.15 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.
- 3.16 The shelter lid was closed and secured with the aluminium strip.
- 3.17 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 can be found out by using the filter number).
- 3.18 After sampling, the filter was removed and sent to the HOKLAS laboratory (ALS Hong Kong) for weighing. The elapsed time will be also recorded.
- 3.19 Before weighing, all filters was equilibrated in a conditioning environment for 24 hours. The conditioning environment temperature should be between 25°C and 30°C and not vary by more than ±3°C; the relative humidity (RH) should be < 50% and not vary by more than ±5%. A convenient working RH is 40%.

Maintenance/Calibration

- 3.20 The following maintenance/calibration is required for the HVS:
- The high volume motors and their accessories will be properly maintained. Appropriate maintenance such as routine motor brushes replacement and electrical wiring checking will be made to ensure that the equipment and necessary power supply are in good working condition.
 - High volume samplers will be calibrated at bi-monthly intervals using TE-5025A Calibration Kit throughout all stages of the air quality monitoring.

Results and Observations

- 3.21 No Action/Limit Level exceedance was recorded for both 1-hour TSP and 24-hour TSP monitoring respectively.
- 3.22 The air temperature, precipitation and the relative humidity data was obtained from Hong Kong Observatory where the wind speed and wind direction were recorded by the installed Wind Anemometer at rooftop of Yau Lai Estate Bik Lai House (41/F). The location is shown in **Figure 2**. This weather information for the reporting month is summarized in **Appendix C**.
- 3.23 The monitoring data and graphical presentations of 1-hour and 24-hour TSP monitoring results are shown in **Appendix E** and **Appendix F** respectively.
- 3.24 According to our field observations, the major dust source identified at the designated air quality monitoring stations are as follows:

Table 3.4 Major Dust Source during Air Quality Monitoring

Station	Major Dust Source
AM1 – Tin Hau Temple	Road Traffic at Cha Kwo Ling Road
AM2 – Sai Tso Wan Recreation Ground	N/A
AM3 – Yau Lai Estate Bik Lai House	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
AM4 - Sitting-out Area at Cha Kwo Ling Village	Road Traffic at Cha Kwo Ling Road
AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office	Road Traffic at Cha Kwo Ling Road
AM5(A) - Tseung Kwan O DSD Desilting Compound	Vehicle Movement within the Desilting Compound
AM6(A) - Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

4. NOISE

Monitoring Requirements

- 4.1 According to EM&A Manual of the Project, construction noise monitoring was conducted to monitor the construction noise arising from the construction activities. The regular monitoring frequency for each monitoring station shall be on a weekly basis and conduct one set of measurements between 0700 and 1900 hours on normal weekdays. **Appendix A** shows the established Action and Limit Levels for the environmental monitoring works.

Monitoring Locations

- 4.2 Noise monitoring was conducted at 9 designated monitoring stations (CM1, CM2, CM3, CM4, CM5, CM6(A), CM7(A), CM8(A), CM9(A)) in the reporting period. **Table 4.1** and **Figure 3** show the locations of these stations.

Table 4.1 Noise Monitoring Stations

Monitoring Stations	Locations	Location of Measurement
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Rooftop (41/F)
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Rooftop (40/F)
CM4	Tin Hau Temple, Cha Kwo Ling	Ground Level
CM5	CCC Kei Faat Primary School, Yau Tong	Rooftop (6/F)
CM6(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Ground Level
CM7(A)*	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Ground Level
CM8(A)*	Park Central, L1/F Open Space Area	1/F
CM9(A) ¹	Rooftop of Capri Tower 10	Rooftop (12/F)

Remarks:

* Noise monitoring at designated station CM6, CM7 & CM8 was rejected by the premise owners. Therefore, baseline and impact noise monitoring works were carried out at alternative noise monitoring stations CM6(A), CM7(A) and CM8(A) respectively.

¹ Ad-hoc noise monitoring at station CM9(A) was commenced in September 2019.

- 4.3 Since the population intake of Capri had commenced during the construction of the TKOLTT, the noise monitoring work in daytime period was conducted at CM9(A) – Rooftop of Capri Tower 10 on normal weekdays. The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.

Monitoring Equipment

- 4.4 Integrating Sound Level Meter was used for impact noise monitoring. The meters are Type 1 sound level meter capable of giving a continuous readout of the noise level readings including equivalent continuous sound pressure level (L_{eq}) and percentile sound pressure level (L_x) that also complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1) specifications.

Table 4.2 summarizes the noise monitoring equipment being used. Copies of calibration certificates are attached in **Appendix B**.

Table 4.2 Noise Monitoring Equipment

Equipment	Model and Make	Quantity
Integrating Sound Level Meter	SVAN 957/ 959 / 979	2
	BSWA308 SLM	3
Calibrator	SV30A	0
	Brüel & Kjær 4231	1
	ST-120	2

4.5 **Table 4.3** summarizes the monitoring parameters, frequency and total duration of monitoring. The noise monitoring schedule is shown in **Appendix D**. Additional weekly impact monitoring are carried out for evening time (1900 – 2300 hours) for monitoring stations CM1, CM2, CM3 & CM6(A) and night-time (2300 – 0700 hours) for monitoring stations CM1, CM2 & CM3.

Table 4.3 Frequency and Parameters of Noise Monitoring

Monitoring Stations	Parameter	Period	Frequency	Measurement
CM1	L ₁₀ (30 min) dB(A)	0700-1900 hrs on normal weekdays	Once per week	Façade
CM2				Façade
CM3				Façade
CM4				Façade
CM5				Façade
CM6(A)				Free Field
CM7(A)				Free Field
CM8(A)				Façade
CM9(A)				Façade
CM1	L ₁₀ (5 min) dB(A)	1900 – 0700 hrs on normal weekdays		Façade
CM2	L ₉₀ (5 min) dB(A)			Façade
CM3				Façade
CM6(A)	L _{eq} (5 min) dB(A)	1900 – 2300 hrs on normal weekdays		Free Field

Monitoring Methodology and QA/QC Procedure

4.6 The monitoring procedures are as follows:

- The monitoring station was normally be at a point 1m from the exterior of the sensitive receivers building façade and be at a position 1.2m above the ground.
- For free field measurement, the meter was positioned away from any nearby reflective surfaces. All records for free field noise levels was adjusted with a correction of +3 dB(A).
- 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 was set as follows:
 - frequency weighting: A
 - time weighting : Fast
 - measurement time : 30 minutes

- 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 will be 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.
- At the end of the monitoring period, the L_{eq} , L_{90} and L_{10} was recorded. In addition, noise sources was recorded on a standard record sheet.
- Noise monitoring will be 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. Supplementary monitoring was provided to ensure sufficient data would be obtained.

Maintenance and Calibration

- 4.7 The microphone head of the sound level meter and calibrator was cleaned with a soft cloth at quarterly intervals.
- 4.8 The sound level meter and calibrator was checked and calibrated at yearly intervals.
- 4.9 Immediately prior to and following each noise measurement the accuracy of the sound level meter was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements may be accepted as valid only if the calibration levels from before and after the noise measurement agree to within 1.0 dB.

Results and Observations

- 4.10 One (1) Limit Level exceedance during daytime was recorded due to monitoring results in this reporting month. No project-related Action/ Limit level exceedances for evening/night-time construction noise monitoring was recorded and no Action Level exceedance for day time was recorded in the reporting month.
- 4.11 Noise monitoring results and graphical presentations are shown in **Appendix G**.
- 4.12 The major noise source identified at the noise monitoring stations are shown in **Table 4.4**.

Table 4.4 Major Noise Source during Noise Monitoring

Monitoring Stations	Locations	Major Noise Source
CM1	Nga Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM2	Bik Lai House, Yau Lai Estate Phase 1, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM3	Block S, Yau Lai Estate Phase 5, Yau Tong	Road Traffic near Eastern Cross Harbour Tunnel Toll Plaza
CM4	Tin Hau Temple, Cha Kwo Ling	Road Traffic at Cha Kwo Ling Road
CM5	CCC Kei Faat Primary School, Yau Tong	Road Traffic at Yau Tong Road
CM6(A)	Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores	Road Traffic at O King Road near Ocean Shores
CM7(A)	Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores	Road Traffic at Tong Yin Street
CM8(A)	Park Central, L1/F Open Space Area	Road Traffic at Po Yap Road

CM9(A)	Rooftop of Capri Tower 10	Construction Noise from Portion V/Area A of NE/2015/02 site area
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- 4.13 All the Construction Noise Levels (CNLs) reported in this report were adjusted with the corresponding baseline level (i.e. Measured L_{eq} – Baseline L_{eq} = CNL), in order to facilitate the interpretation of the noise exceedance. The baseline noise level and the Noise Limit Level at each designated noise monitoring station are presented in **Table 4.5, 4.6 and 4.7.**

Table 4.5 Baseline Noise Level and Noise Limit Level for Monitoring Stations

Station	Baseline Noise Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)	Noise Limit Level, dB (A) (at 0700 – 1900 hrs on normal weekdays)
CM1	65.5	75
CM2	63.6	
CM3	65.6	
CM4	62.0	
CM5	68.2	70*
CM6(A)	61.9	75
CM7(A)	58.3	
CM8(A)	69.1	
CM9(A)	N/A ⁽¹⁾	

(*) Noise Limit Level is 65 dB(A) during school examination periods.
(1) The background Noise Level was recorded during the Lunch Hour of Construction Site (i.e. 12:00-13:00) and to be used as the referencing value for compliance checking for Noise Action and Limit Level.

Table 4.6 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Evening-time & Daytime (Holiday))

Station	Baseline Noise Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))	Noise Limit Level, dB (A) (Evening time on all days (1900-2300 hrs) and Holidays (including Sundays) during daytime (0700-1900 hrs))
CM1	64.4	70
CM2	62.2	
CM3	64.7	
CM6(A)	60.2	65 ¹

1. ASR B was adopted according to the EIA as traffic in the surrounding area has not been changed.

Table 4.7 Baseline Noise Level and Noise Limit Level for Monitoring Stations (Night-time)

Station	Baseline Noise Level, dB (A) (Night-time (2300 – 0700 hrs))	Noise Limit Level, dB (A) (Night-time (2300 – 0700 hrs))
CM1	14-day baseline monitoring results for the time period of impact measurement at each station would be adopted	55
CM2		
CM3		

Current Tunnel Blasting Arrangement

- 4.14 The drill and blast method was evaluated as the most appropriate method and the general practice of this method was introduced during the EIA report assessment. The paragraphs 2.9.9 and 2.9.33 of the EIA Report mention that there might be one blast or multiple blasts and the maximum number of blast location per day would be determined by the Contractor to suite his method of working.
- 4.15 Notwithstanding the information provided by the Engineer at paragraphs 4.6.4 and 6.6.12 of the EIA Report, to minimize blast nuisance to the public and to respond to the community concerns, the tunnel blast should be arranged, where possible, avoiding the blast to be carried out during night time and shortening the blast duration by arranging various work fronts to be blasted at different time slots. Hence, it has become more desirable to split one tunnel blasting operation, which may consist of several blasting work fronts along the tunnels, into a total of two to three tunnel blasts per day. The tunnel blasts, which locate outside the MTR Protection Zone (RPZ) possessing insignificant risk to the MTR's structures would be carried out during day time and before 22:00. For the tunnel blasts within and in close vicinity to RPZ, Contractor's blasting assessment report revealed that those blasts have to be carried out after train service and, generally, at around 01:40.

5. WATER QUALITY

Monitoring Requirements

Groundwater Quality

- 5.1 The existing groundwater quality monitoring programme has been suspended as the monitoring results had been deemed non-representative of the impact from the project justified by two major factors: (1) influence on the monitoring results from non-project related factors, such as anthropogenic activities and natural phenomenon; and (2) large separation between the monitoring stations and works area. In addition, as no alternative locations for the groundwater quality monitoring were available, the groundwater quality monitoring has been suspended since October 2019 upon the agreement by EPD.

Marine Water Quality

- 5.2 Marine water quality monitoring was conducted three times per week at the designated monitoring stations. Monitoring took place two times per monitoring day during mid ebb and mid flood tides at three depths (1 meter from surface, mid depth and 1 meter from the bottom). For Tseung Kwan O Salt Water Intake (i.e. Station M6), water sampling and in-situ measurements was taken at the vertical level where the water abstraction point of the intake is located (i.e. approximately mid-depth level). If the water depth is less than 6m, the mid-depth measurement may be omitted. If the depth is less than 3m, only the mid-depth measurements need to be taken.
- 5.3 Duplicate in-situ measurements (Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity) and water samples (suspended solids (SS)) at each depth were monitored in accordance with the requirements in the EM&A Manual. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides were not less than 0.5m.
- 5.4 According to the Environmental Review Report (ERR) for Variations of Environmental Permit (Ref: C45-03), water quality monitoring and audit programme was implemented for monitoring of oxygen depletion (e.g. Dissolved Oxygen (DO) level) in this embayed waters during the period when the fully enclosed barrier is installed. A “Proposal for Water Quality Monitoring in Temporary Marine Embayment” has been submitted to EPD in July 2017 to propose the monitoring frequency, parameter, location, etc. EPD has no further comment on the Proposal. Since January 2020, the cofferdam has been partially removed and the seawater is no longer enclosed. Therefore, no embayment water quality monitoring is required.

Groundwater Level Monitoring (Piezometer Monitoring)

- 5.5 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan. The monitoring commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

Monitoring Locations

Marine Water Quality

- 5.6 A total of twelve monitoring stations are designated for the water quality monitoring program according to EM&A Manual. One additional monitoring station (W1) is designated for monitoring of oxygen depletion in the embayed waters during the period when the fully enclosed barrier is installed. The locations are also summarized in **Table 5.2** and shown on **Figure 5**.

Table 5.2 Marine Quality Monitoring Stations

Monitoring Stations	Descriptions	Coordinates	
		Easting	Northing
M1	Junk Bay Coral Site – Junk Bay near Chiu Keng Wan	844255	817565
M2	Junk Bay Coral Site – Junk Bay	844076	817087
M3	Junk Bay Coral Site – Junk Island	844491	817890
M4	Junk Bay Coral Site – Chiu Keng Wan	843209	816416
M5	Junk Bay Coral Site – Fat Tong Chau	845463	815769
M6	Tseung Kwan O Salt Water Intake	845512	817442
C1	Control Station – Southeast	844696	814773
C2	Control Station – Northwest	842873	816014
G1	Gradient Station	844418	817560
G2	Gradient Station	844290	817384
G3	Gradient Station	844488	817735
G4	Gradient Station	844967	817551

Monitoring Equipment

- 5.7 For in-situ monitoring, a multi-parameter meter (Aquaread AP-2000-D) was used to measure Dissolved oxygen (DO) concentration, DO saturation (DO %), pH, temperature and turbidity. A sampler was used to collect water samples for laboratory analysis of SS, BOD₅, TOC, Total Nitrogen, Ammonia-N and Total Phosphate.

Dissolved Oxygen (DO) and Temperature Measuring Equipment

- 5.8 The instrument for measuring dissolved oxygen and temperature was portable and weatherproof complete with cable, sensor, comprehensive operation manuals and use DC power source. It was capable of measuring:
- a dissolved oxygen level in the range of 0-20 mg/L and 0-200% saturation; and
 - a temperature of 0-45 degree Celsius.
- 5.9 It has 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 be less than 25m in length.

pH

- 5.13 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.

Water Depth Detector

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

Water Sampler

- 5.15 Water samples collected for laboratory analysis were stored in high density polythene bottles sample containers, with appropriate preservatives added. All sampling bottles were labelled (waterproof) with the sampling date and time, sample lot number and sampling location reference number to avoid mishandling.

Sample Container and Storage

- 5.16 Following collection, water samples for laboratory analysis were stored in high density polythene bottles, with preservative appropriately added where necessary. They will be packed in ice (cooled to 4°C without being frozen), delivered to the laboratory and analysed as soon as possible.

Calibration of In-Situ Instruments

- 5.17 All in-situ monitoring instruments were checked, calibrated and certified by a laboratory accredited under HOKLAS or other international accreditation scheme before use, and subsequently re-calibrated at 3 monthly intervals throughout all stages of the water quality monitoring.
- 5.18 For the on-site calibration of field equipment, the BS 1427:1993, "Guide to Field and on-site test methods for the analysis of waters" was observed.
- 5.19 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of Aquaread AP-2000-D. The probe was then be calibrated with a solution of known NTU.
- 5.20 Sufficient stocks of spare parts were maintained for replacements when necessary. Backup monitoring equipment was also made available so that monitoring can proceed uninterrupted even when some equipment is under maintenance, calibration, etc.
- 5.21 **Table 5.3** summarizes the equipment used in the water quality monitoring program. Copies of the calibration certificates of the equipment are shown in **Appendix B**.

Table 5.3 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820-C-M	0
	Aquaread AP-2000-D	0
	YSI EXO1 Multiparameter Sondes	1
Monitoring Position Equipment	“Magellan” Handheld GPS Model GPS-320	1
Water Depth Detector	Fishfinder 140	1

Monitoring Parameters and Frequency

5.22 **Table 5.4** summarizes the monitoring parameters, monitoring period and frequencies of the water quality monitoring in the reporting period.

Table 5.4 Water Quality Monitoring Parameters and Frequency

Monitoring Stations	Parameters, unit	Depth	Frequency
Marine Water Quality			
M1 M2 M3 M4 M5 M6 C1 C2 G1 G2 G3 G4	<i>In-situ:</i> Dissolved oxygen (DO) concentration, DO saturation, turbidity, pH, temperature and salinity <i>Laboratory Testing:</i> Suspended Solids (SS)	M1-M5, C1-C2, G1-G4 <ul style="list-style-type: none"> 3 water depths: 1m below water surface, mid-depth and 1m above sea bed. If the water depth is less than 3m, mid-depth sampling only. If the water depth is less than 6m, omit mid-depth sampling. M6 <ul style="list-style-type: none"> at the vertical level where the water abstraction point of the intake is located(i.e. approximately mid-depth level) 	3 days per week / 2 per monitoring day (1 for mid-ebb and 1 for mid-flood)

Monitoring Methodology

Marine Water Quality

- 5.23 The monitoring stations were accessed using survey boat by the guide of a hand-held Global Positioning System (GPS). The depth of the monitoring location was measured using depth meter in order to determine the sampling depths. Afterwards, the probes of the in-situ measurement equipment was lowered to the predetermined depths (1 m below water surface, mid-depth and 1 m above seabed) and the measurements was carried out accordingly. The in-situ measurements at predetermined depths was carried out in duplicate. In case the difference in the duplicate in-situ measurement results was larger than 25%, the third set of in-situ measurement would be carried out for result confirmation purpose.
- 5.24 Water sampler was lowered into the water to the required depths of sampling. Upon reaching the pre-determined depth, a messenger to activate the sampler was then released to travel down the wire. The water sample was sealed within the sampler before retrieving. At each station, water samples for SS at three depths (1 m below water surface, mid-depth and 1 m above seabed) were collected accordingly. Water samples were stored in a cool box and kept at less than 4°C but without frozen and sent to the laboratory as soon as possible.

Laboratory Analytical Methods

- 5.25 The testing of all parameters were conducted by ALS Hong Kong (HOKLAS Registration No.083) and comprehensive quality assurance and control procedures in place in order to ensure quality and consistency in results. The testing method and limit of reporting are provided in **Table 5.5**.

Table 5.5 Methods for Laboratory Analysis for Water Samples

Parameters (Unit)	Proposed Method	Reporting Limit	Detection Limit
SS (mg/L)	APHA 2540 D	0.5 mg/L ⁽¹⁾	0.5 mg/L
BOD ₅ (mg O ₂ /L)	APHA 19ed 5210B	2 mg O ₂ /L	--
TOC (mg-TOC/L)	In-house method SOP020 (Wet Oxidation)	1 mg-TOC/L	--
Total Nitrogen (mg/L)	In-house method SOP063 (FIA)	0.6 mg/L	--
Ammonia-N (mg NH ₃ -N/L)	In-house method SOP057 (FIA)	0.05 mg NH ₃ -N/L	--
Total Phosphorus (mg-P/L) ⁽²⁾	In-house method SOP055 (FIA)	0.05 mg-P/L	--

Note:

- 1) Limit of Reporting is reported as Detection Limit for non-HOKLAS report.
- 2) Parameter Total Phosphorus represents the laboratory testing for total phosphate content in water which is the sum of all three forms of phosphates in water.

QA/QC Requirements

Decontamination Procedures

- 5.26 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

- 5.27 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.
- 5.28 QA/QC procedures as attached in **Appendix J** are available for the parameters analysed in the HOKLAS-accredited laboratory, ALS Hong Kong.

Results and Observations

Groundwater Quality Monitoring

- 5.29 Monitoring of groundwater quality had been suspended since October 2019. (Details refer to Section 5.1)

Marine Water Quality Monitoring

- 5.30 Marine water monitoring results and graphical presentations are shown in **Appendix I**. Other relevant data was also recorded, such as monitoring location / position, time, sampling depth, weather conditions and any special phenomena or work underway nearby.

Calculated Action and Limit Levels for Marine Water Quality is presented in **Appendix I**. There were thirty-one (31) Action Level and one-hundred-and-sixteen (116) Limit Level exceedances recorded in Monitoring Stations (M) during marine water quality monitoring.

- 5.31 Exceedances of turbidity and suspended solid were recorded on from various monitoring stations non-specifically among all stations including the control stations. Investigations over June 2021 showed that the range of SS levels recorded in May 2021 remained consistent with the records in recent months. All Contractor is reminded to strictly follow the approved drainage plan and clear drainage regularly. In particular, all drainage shall be checked and cleared after heavy rainstorm as sediments may accumulate along pipes and culverts. Further details can be found in **Appendix K**.
- 5.32 Silt curtain inspections are carried out before the commencement of the construction works every day and diving surveys are also conducted once a week to inspect the silt curtain below the water level. The inspection report are verified by both the RE and the diving specialist and the records are reviewed weekly during the site audits.

Groundwater Level Monitoring (Piezometer Monitoring)

- 5.33 Daily piezometer monitoring at any time of the day shall be carried throughout the whole period when any tunnel construction activities are carried out within +/- 50m of the piezometer gate in plan.
- 5.34 Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. As the construction activity was 120m away from the piezometer gate, no monitoring was conducted in this reporting month.

Mitigation Measures Adopted by Contractors for Surface runoff Prevention

- 5.35 During dry season, the Contractors have maintained the mitigation measures adopted on Site, in order to prevent surface run-off and muddy water from discharging to the public areas. The mitigation measures adopted by each Contract are summarised below:

NE2015/01

- 5.36 At Lam Tin Side, the Site drainage systems are divided into two parts, namely the site formation and tunnel site drainage which includes:
1. Site formation drainage system collects surface run-off from open excavation areas including slope works and flows naturally to the lowest point in the Site, where they are pumped to the wetseps and sedimentation tank for treatment near LTI site entrance before they are discharged to the designated discharge point.
 2. Tunnel drainage system collects surface run-off from the tunnel which are then pumped to the sedimentation tanks near tunnel adit, where three sets of wetseps and sedimentation tanks were set up. The treated water will be discharged to designated discharge point near the Eastern Harbour Crossing (EHC) area.
- 5.37 At Eastern Harbour Crossing (EHC), two sets of wetseps and sedimentation tanks are set up on site. The wastewater will flow to the lowest catchpit by gravity, which are then pumped to wetseps for wastewater treatment. The sandbags/bunds are also set up at the vehicle entrance to surface run-off from the Site.
- 5.38 At Tseung Kwan O (TKO), the surface run-off from the slope are directed to the lowest point at cavern via the permanent drainage, which are then pumped to the sedimentation tanks for wastewater treatment via temporary pipes. The treated water will be discharged at designated discharge points. The wetseps and sedimentation tanks are provided under the BMCPC bridge and at the two sides of marine working platform. Water from natural stream will also be diverted to existing drainage to avoid overloading the capacity of the wastewater treatment system. The reservoir on the right side of marine working platform will be enlarged to cater for higher water storage demands. During heavy rainfall, the water stored at the exit of the tunnel shall be pumped into the sedimentation tanks on the right.

NE2015/02

- 5.39 The exposed sloped area at Portion 9 has been covered with geotextile or tarpaulin to avoid surface run-off. Since March 2021, the stormwater at Portion IX, VIII, VII, VI, II and I will be collected towards to the sedimentation tanks at the edge of site boundary.

- 5.40 Certain amount of stormwater received in Portion 9 will be directed and pumped via the flex tube and sump towards the water treatment system and the approved discharge points (as shown in **Appendix V**). Water generated from Portion VI and V and some water in Portion IX are treated via storage tanks and sedimentation tanks and discharged into approved discharge points (manholes of DN2100 Drain and Area Z).
- 5.41 The peripheral open U-channel are also provided along the site boundary, which shall be directed to the storage tank and WetSep for treatment in Area A.
- 5.42 Regular cleaning depending on site conditions are provided for the WetSep at Area A and Z; and the storage tanks and sedimentation tanks at Area A. The water treated by the sedimentation tank and the wetsep shall be discharged towards the designated discharge point. Quality of the effluent are also monitored regularly.

NE2017/02

- 5.43 Existing manholes are covered with sandbags and geotextiles to avoid surface run-off from entering the channels.
- 5.44 Stockpiles are covered with tarpaulin to avoid surface run-off.
- 5.45 Concrete blocks and sandbags are placed along the periphery of the site boundary to avoid surface run-off.
- 5.46 Stormwater within the site enters the excavated area and flow naturally into the sump due height difference. The stormwater collected in the sump shall be pumped into the sedimentation tank where the run-off is treated before discharging into the designated discharge point.

NE2015/03

- 5.47 The existing manhole cover are covered with geotextile to prevent muddy water from entering the existing U-channels along the side of Po Shun Road. Manhole inspection are carried out by taking silt measurement regularly in case if silt enters the channel, and silt shall be removed from the manhole if silt were found.
- 5.48 Sandbags were placed at the periphery of the site along the hoarding to prevent surface runoff from escaping the site.
- 5.49 Exposed slopes are covered with tarpaulin to prevent surface run-off.
- 5.50 The surface run-off shall be pumped into the sedimentation tank where they are treated before entering the designated discharge points.

NE2017/01

- 5.51 Temporary peripheral open U-channels and sumps are provided for collecting the stormwater, which are pumped and directed towards the sedimentation tank for treatment. The treated water shall be directed to the designated discharge point.

6. ECOLOGY

Post-Translocation Coral Monitoring

- 6.1 Post-translocation monitoring survey is recommended in the EM&A Manual to audit the success of coral translocation. Information gathered during each post-translocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey.
- 6.2 Under Contract No. NE/2015/01 and NE/2015/02, a total of 14 and 29 coral colonies were tagged and translocated respectively from the Donor Site to the Recipient Site in November 2016. Ten (10) corals at the Recipient Site were also tagged by each Contract as reference for post-translocation monitoring.
- 6.3 The post-translocation coral monitoring shall be conducted once every 3 months after completion for a period of 12 months. Location of post-translocation coral monitoring is shown in **Figure 7**. The fourth post-translocation coral monitoring was carried out on 07 November 2017. No further monitoring is required.

7. CULTURAL HERITAGE

Monitoring Requirement

- 7.1 According to the EP Conditions and EM&A Manual, monitoring of vibration impacts was conducted when the construction works are less than 100m from the Built Heritage in close proximity of the worksite, namely the Cha Kwo Ling Tin Hau temple. Tilting and settlement monitoring should be applied on the Cha Kwo Ling Tin Hau Temple. Construction works less than 100m from the Cha Kwo Ling Tin Hau temple commenced on 8 May 2017.
- 7.2 As stated in the “*Built Heritage Mitigation Plan*” for this Project, during the period of the construction works conducted within 100m from the Cha Kwo Ling Tin Hau Temple, monitoring on settlement and tilting will be conducted once a day for the Cha Kwo Ling. Monitoring of vibration will be conducted during blasting at Cha Kwo Ling area once a day. When there is no blasting to be conducted at the area, vibration monitoring at the Cha Kwo Ling Tin Hau Temple will be conducted once per day when there are piling works or rock breaking works within the 100m from the Cha Kwo Ling Tin Hau Temple.

Monitoring Locations

- 7.3 One vibration monitoring point and three building settlement monitoring points were proposed for monitoring of the cultural heritage. The building settlement markers were placed on the wall on three sides of the Temple, except the front, of the Cha Kwo Ling Tin Hau Temple and the vibration monitoring point is located within the Cha Kwo Ling Tin Hau Temple. Monitoring Location is shown in **Figure 8**.

Monitoring Equipment

- 7.4 Building settlement is measured via a settlement marker attached to the wall of Cha Kwo Ling Tin Hau Temple by adhesive tape.
- 7.5 Vibration monitoring was conducted by using vibrographs: Minimate Plus manufactured by InstanTel. These vibrographs will be calibrated annually and its performance follows the requirements given in the “*Guidance Note on Vibration Monitoring*” (GN-VM) issued by the Civil Engineering and Development Department, which is based on the Performance Specification for Blasting Seismographs by International Society of Explosive Engineers (ISEE (2000)).
- 7.6 **Table 7.1** summarizes the equipment employed by the Contractor for cultural heritage monitoring. Copies of calibration certificates are attached in **Appendix B**.

Table 7.1 Cultural Heritage Monitoring Equipment

Equipment	Manufacturer and Model	Quantity
Digital Level for tilting	Leica LS15 Serial No.: 701141	1
Digital Caliper for tilting	Mitutoyo CD-6” ASX Serial No.: A17047921	1
iCivil-1011 Inclinometer for building settlement	iCivil-1011 Inclinometer Serial No.: HK110118 / HK110120	2
Vibrographs for vibration monitoring	MiniMate Plus / MicroMate manufactured by InstanTel Model No.: 716A0403 / 721A2501	33

Monitoring Methodology

- 7.7 Vibrograph (velocity seismograph) was deployed at each monitoring station to measure and record the PPV and amplitude of ground motion in three mutually perpendicular directions. Vibration monitoring equipment fulfils the requirements stated in the Government guidelines and is calibrated to HOKLAS standards. Each monitoring would not be more than 10 minutes. Settlement monitoring should be conducted by surveyors manually.

Alert, Alarm and Action Levels

- 7.8 The Alert, Alarm and Action (AAA) Levels are given in **Table 7.2**.

Table 7.2 AAA Levels for Monitoring for Cultural Heritage

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv: 4.5 mm/s	ppv: 4.8 mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Markers	6mm	8mm	10mm
Building Tilting ⁽¹⁾	1:2000	1:1500	1:1000

Remarks:

- (1) Building tilting measurement was replaced by building settlement point measurement. The tilting can be calculated by the ratio of the maximum settlement difference between 2 points and the distance between the 2 points.

Results

- 7.9 In the reporting month, cultural heritage monitoring was carried out by the Contractor at the aforesaid location on 26 occasions. No AAA Level exceedance was recorded in the reporting month. The monitoring results are presented in **Appendix T**.

Mitigation Measures for Cultural Heritage

- 7.10 According to Condition 3.6 of the EP (EP No.: EP-458/2013/C), to prevent damage to Cha Kwo Ling Tin Hau Temple and its Fung Shui rocks (Child-given rocks) during the construction phase, a temporarily fenced-off buffer zone (Rocks buffer zone is 5 m from the edge of Rocks and 15m from the edge of Rocks alter) with allowance for public access (minimum 1 m) around the temple and the Fung Shui rocks shall be provided. The open yard in front of the temple should be kept as usual for annual Tin Hau festival.
- 7.11 As there is a large buffer distance from the current works to Cha Kwo Ling Tin Hau Temple and the Fung Shui rocks (Child-given rocks), the temporarily fenced-off rocks buffer zone and from the edge of Rocks alter is not required. The fenced-off rocks buffer zone would be implemented when there is construction activities in vicinity of the cultural heritage.

8. LANDSCAPE AND VISUAL IMPACT REQUIREMENTS

- 8.1 Landscape and visual mitigation measures during the construction phase shall be checked to ensure that they are fully realized and implemented on site.
- 8.2 Site audits were carried out on a weekly basis to monitor and audit the timely implementation of landscape and visual mitigation measures listed in “Implementation Schedule and Recommended Mitigation Measures” (shown in **Appendix N**). The summaries of observations and recommendations related to landscape and visual impacts, if any, are shown in **Appendix L**.
- 8.3 No non-compliance of the landscape and visual impact was recorded in the reporting month.

9. LANDFILL GAS MONITORING

Monitoring Requirement

- 9.1 In accordance with the EM&A Manual, monitoring of landfill gas is required for construction works within the Sai Tso Wan Landfill Consultation Zone during the construction phase. This section presents the results of landfill gas measurements performed by the Contractor. **Appendix A** shows the Limit Levels for the monitoring works.
- 9.2 The “Landfill Gas Monitoring Proposal”, including the monitoring programme and detailed actions, is submitted to the EPD for approval. Details of monitoring in this Proposal is in line with the monitoring requirements stipulated in the EM&A Manual.

Monitoring Parameters and Frequency

- 9.3 Monitoring parameters for Landfill gas monitoring include Methane, Carbon dioxide and Oxygen.
- 9.4 According to the implementation schedule and recommended mitigation measures of the EM&A Manual, measurements of the following frequencies should be carried out:

Excavations deeper than 1m

- at the ground surface before excavation commences;
- immediately before any worker enters the excavation;
- at the beginning of each working day for the entire period the excavation remains open; and
- periodically throughout the working day whilst workers are in the excavation.

Excavations between 300mm and 1m deep

- directly after the excavation has been completed; and
- periodically whilst the excavation remains open.

For excavations less than 300mm deep

- monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person

Monitoring Locations

- 9.5 Monitoring of oxygen, methane and carbon dioxide was performed for excavations at 1m depth or more within the Consultation Zone. In this reporting month, the area required to be monitored for landfill gas are shown below and **Figure 6** shows the landfill gas monitoring locations.

- | | |
|----------------------------------|---------------|
| ➤ Excavation Locations | : Portion III |
| ➤ Manholes and Chambers | : N/A |
| ➤ Relocation of monitoring wells | : N/A |
| ➤ Any other Confined Spaces | : N/A |

Monitoring Equipment noise mitigation

- 9.6 **Table 9.1** summarizes the equipment employed by the Contractor for the landfill gas monitoring.

Table 9.1 Landfill Gas Monitoring Equipment

Equipment	Model and Make	Quantity
Portable gas detector	ALTAIR 5X Multigas Detector (Serial No. 137333)	1

Results and Observations

- 9.7 In the reporting month, landfill gas monitoring was carried out by the Contractor at the aforesaid locations on 130 occasions. No Limit Level exceedance for landfill gas monitoring was recorded in the reporting month. The monitoring results are provided in **Appendix R**. Copies of calibration certificates are attached in **Appendix B**.

10. ENVIRONMENTAL AUDIT

Site Audits

- 10.1 Site audits were carried out on a weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. The summaries of site audits are attached in **Appendix L**.
- 10.2 Joint weekly site audits by the representatives of the Engineer, Contractor and the ET were conducted in the reporting month as shown in below:
- Contract No. NE/2015/01: 2, 9, 16, 23, 30
 - Contract No. NE/2015/02: 3, 11, 17, 24, 30
 - Contract No. NE/2017/01: 3, 11, 17, 24, 30
 - Contract No. NE/2017/02: 3, 11, 17, 24, 30
 - Contract No. NE/2017/06: 3, 11, 17, 24
 - Contract No. NE/2017/07: 2, 9, 16, 23, 30
- 10.3 Monthly joint site inspection with the representative of IEC was conducted for NE/2015/01 and NE/2017/07 on 30 Jun 2021, while NE/2015/02, NE/2017/01, NE/2017/02 and NE/2017/06 were conducted on 11 Jun 2021.
- 10.4 The EM&A programme of Contract No. NE/2015/03 had been terminated on 21 April 2020 under the approval of EPD.

Implementation Status of Environmental Mitigation Measures

- 10.5 According to the EIA Study Report, Environmental Permit and the EM&A Manual of the Project, the mitigation measures detailed in the documents are recommended to be implemented during the construction phase. An updated summary of the Implementation Schedule and Recommended Mitigation Measures is provided in **Appendix N**.
- 10.6 During site inspections in the reporting month, no non-compliance was recorded on reporting month. The observations and recommendations made during the audit sessions are summarized in **Appendix L**.

11. WASTE MANAGEMENT

- 11.1 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. Inert C&D waste includes soil, broken rock, broken concrete and building debris, while non-inert C&D materials are made up of C&D waste which cannot be reused or recycled and has to be disposed of at the designated landfill sites. Marine sediment shall be expected from excavation and dredging works of this Project.
- 11.2 With reference to relevant handling records of this Project, the quantities of different types of waste generated in the reporting month are summarised and presented in **Appendix P**.
- 11.3 The Contractors are advised to minimize the wastes generated through the recycling or reusing. All mitigation measures stipulated in the approved EM&A Manual and waste management plans shall be fully implemented. The status of implementation of waste management and reduction measures are summited in **Appendix N**.

12. ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

- 12.1 One (1) Limit Level exceedance of noise was recorded due to the monitoring results in the reporting month. No Action Level exceedances of construction noise monitoring was recorded in the reporting month.
- 12.2 One (1) Limit Level exceedance of air quality was recorded in the reporting month. No Action Level exceedance of air quality monitoring was recorded in the reporting month.
- 12.3 Thirty-one (31) Action Level and one-hundred-and-sixteen (116) Limit Level exceedances were recorded in Monitoring Stations (M) during marine water quality monitoring.
- 12.4 Actions carried out in accordance with the Event and Action Plans in **Appendix M** are presented in **Appendix K** – Summary of Exceedance.

Summary of Environmental Complaint

- 12.5 Three (3) environmental complaints were received in the reporting month. The Cumulative Complaint Log is presented in **Appendix O**. The investigation status and result is also reported in **Appendix O**.

Summary of Environmental Summon and Successful Prosecution

- 12.6 No notification of summon or successful environmental prosecution was received in this reporting period. The Cumulative Log for environmental summon and successful prosecution since the commencement of the Project is presented in **Appendix O**.

13. FUTURE KEY ISSUES

13.1 Tentative construction programmes for the next three months are provided in **Appendix Q**.

13.2 Major site activities to be undertaken for the next reporting period are summarized in **Table 13.1**.

Table 13.1 Summary Table for Site Activities in the next Reporting Period

Contract No. and Project Title	Site Activities (July 2021)		Key Environmental Issues *
NE/2015/01 - Tseung Kwan O – Lam Tin Tunnel – Main Tunnel and Associated Works	Lam Tin Interchange	1) EHC2 U-Trough 2) Site Formation – Area 1G1, Area 1G2, Area 2 & Area 5 3) Site Formation – Slope stabilization & Retaining Wall 4) Administration Building, West Ventilation Building & Bridge Construction 5) Stormwater Tank Construction 6) S01_2, EHC1&4 Construction 7) CKLR Underground Utilities 8) Landscape Deck 9) LTI Drainage	(A) / (C) / (D) / (E) / (F) / (I)
	Main Tunnel	10) S02_2 Excavation 11) Main Tunnel Lining Works	(B)
	TKO Interchange	12) Bridge Construction 13) East Ventilation Building	(A) / (C) / (D) / (E) / (F) / (I)
NE/2015/02 - Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works	1) Sloping Seawall Construction 2) Construction of U-trough at CH821-CH105 3) Construction of Underpass at CH105-CH318 4) Construction of Seawall Coping 5) Construction of Road P2 and SR2		(A) / (B) / (C) / (D) / (E) / (G) / (I)
NE/2015/03 - Tseung Kwan O – Lam Tin Tunnel – Northern Footbridge	The construction works under the contract had been completed in December 2019. Materials are being removed from works area.		N/A
NE/2017/01 – Tseung Kwan O Interchange and Associated Works	1) Construction of Pier 2) Construction of Pier Head works 3) Segment erection works 4) Construction of Bridge Decks 5) Installation of Parapet Skin		(A) / (B) / (E) / (F) / (G)
NE/2017/02 – Tseung Kwan O - Lam Tin Tunnel - Road P2/D4 and Associated Works	1) Inspection pit excavation and utility diversion works 2) Construction of drainage and watermain 3) Asphalt Paving 4) Pier, Staircase and Lift Shaft Construction 5) Road Works		(A) / (B) / (E) / (F) / (G)
NE/2017/06 – Tseung Kwan O – Lam Tin Tunnel – Traffic Control and Surveillance System(TCSS) and Associated Works	1) System Integration Test 2) Goods arrival & storage on site 3) Installation works at Admin Building 4) Installation works at Tunnel		(E)

Contract No. and Project Title	Site Activities (July 2021)	Key Environmental Issues *
NE/2017/07 - Cross Bay Link, Tseung Kwan O – Main Bridge and Associated Works	1) Fabrication work for precast pier 2) Construct cast in-situ diaphragm 3) Dismantling of V-truss on steel bridge 4) Welding of joint between main span and side span. 5) E&N installation work 6) Fabrication of Precast Segment and Precast Shell 7) Pre-drilling 8) Bored piling 9) Pile cap construction	(A) / (B) / (D) / (E) / (F) / (G) / (H) / (I)

Note:

- (A) Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- (B) Noisy construction activity such as rock-breaking activities and piling works;
- (C) Runoff from exposed slope or site area;
- (D) Wastewater and runoff discharge from site;
- (E) Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
- (F) Set up and implementation of temporary drainage system for the surface runoff;
- (G) Storage of chemicals/fuel and chemical waste/waste oil on site;
- (H) Accumulation and storage of general and construction waste on site; and
- (I) Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

Key Issues for the Coming Month

13.3 Key environmental issues in the coming month include:

- Watering for dust generation from haul road, stockpiles of dusty materials, exposed site area, excavation works and rock breaking activities;
- Noisy construction activity such as rock-breaking activities and piling works;
- Runoff from exposed slope or site area;
- Wastewater and runoff discharge from site;
- Accumulation of silt, mud and sand along U-channels and sedimentation tanks;
- Set up and implementation of temporary drainage system for the surface runoff;
- Precaution measures in case of heavy rainfall brought along by typhoon;
- Storage of chemicals/fuel and chemical waste/waste oil on site;
- Accumulation and storage of general and construction waste on site; and
- Marine water quality impact and indirect impact to coral communities due to marine construction for TKO-LTT reclamation.

14. CONCLUSIONS AND RECOMMENDATIONS

Conclusions

- 14.1 This is the 56th Environmental Monitoring and Audit (EM&A) Report which presents the EM&A works undertaken during the period in June 2021 in accordance with EM&A Manual and the requirement under EP.

Air Quality Monitoring

- 14.2 No Action/Limit Level exceedance for 1-hour TSP monitoring was recorded.
- 14.3 One (1) Limit Level exceedance for 24-hour TSP monitoring was recorded.
- 14.4 No Action Level exceedance for 24-hour TSP monitoring was recorded.

Construction Noise Monitoring

- 14.5 One (1) Limit Level exceedance was recorded due to the monitoring results recorded in this reporting month.
- 14.6 No Action Level exceedances was recorded for daytime/evening-time construction noise in the reporting month. No limit level exceedance was recorded for night-time.

Water Quality Monitoring

- 14.7 Groundwater quality monitoring had been suspended since October 2019. Details shall be referred to **Section 5.1**.
- 14.8 Thirty-one (31) Action Level and one-hundred-and-sixteen (116) Limit Level exceedances were recorded in Monitoring Stations (M) during marine water quality monitoring.
- 14.9 Tunnel construction activities are within +/- 50m of the piezometer gate in plan. Construction phase daily piezometer monitoring by the Contractor commenced in June 2018. It has switched to monthly basis since 3 October 2018 as the construction activity was 120m away from the piezometer gate. No monitoring was conducted in the reporting month.

Ecological Monitoring

- 14.10 The post-translocation coral monitoring surveys were completed in November 2017.

Monitoring on Cultural Heritage

- 14.11 No Alert Alarm and Action (AAA) Level exceedance of cultural heritage monitoring on cultural heritage was recorded in the reporting month.

Landscape and Visual Monitoring and Audit

- 14.12 No non-compliance of the landscape and visual impact was recorded in the reporting month.

Landfill Gas Monitoring

14.13 Monitoring of landfill gases in the reporting month was carried out by the Contractor at excavation location, Portion III. No Limit Level exceedance was recorded.

Environmental Site Inspection

14.14 Joint weekly site inspections were conducted by representatives of the Contractor, Engineer and Environmental Team. During site inspections in the reporting month, no non-compliance was identified. The environmental deficiency observed during the reporting month are shown in **Appendix L**.

Complaint, Prosecution and Notification of Summons

14.15 Three (3) environmental complaints, no successful prosecution and notification of summon were received during the reporting period.

Recommendations

14.16 The following recommendations were made to the Contractor for the reporting month:
Air Quality Impact

- To regularly apply watering on dry surface should be applied to minimize erosion.
- To aim the water spray at the rock breaking point for effective dust suppression.
- To water materials before loading/unloading.
- To turn off idle equipment.

Construction Noise

- To provide sufficient noise barriers for noisy PMEs as practically at LTI according to CNMP.
- To repair the gaps between the noise barriers.
- To place compatible noise barrier close to the breaking point for effective noise screening.
- To erect sound proof canvases on derrick lighter barge

Water Quality Impact

- To clear the oil slick and check for any damage of the silt curtain.
- To repair damaged or missing silt curtain
- To check whether the curtain has been set to the seabed.
- To ensure that the pumping rate of bored pile is sufficient to avoid discharging waste water into the sea.
- To clear floating refuse between the cofferdam and silt curtain.
- To clear oil slick within and outside cofferdam.
- To control the amount of loading materials in the barge to avoiding spillage.
- To cover stockpile near seafront.
- To remove wastewater and oil in drip tray.
- To remove pond/still water.

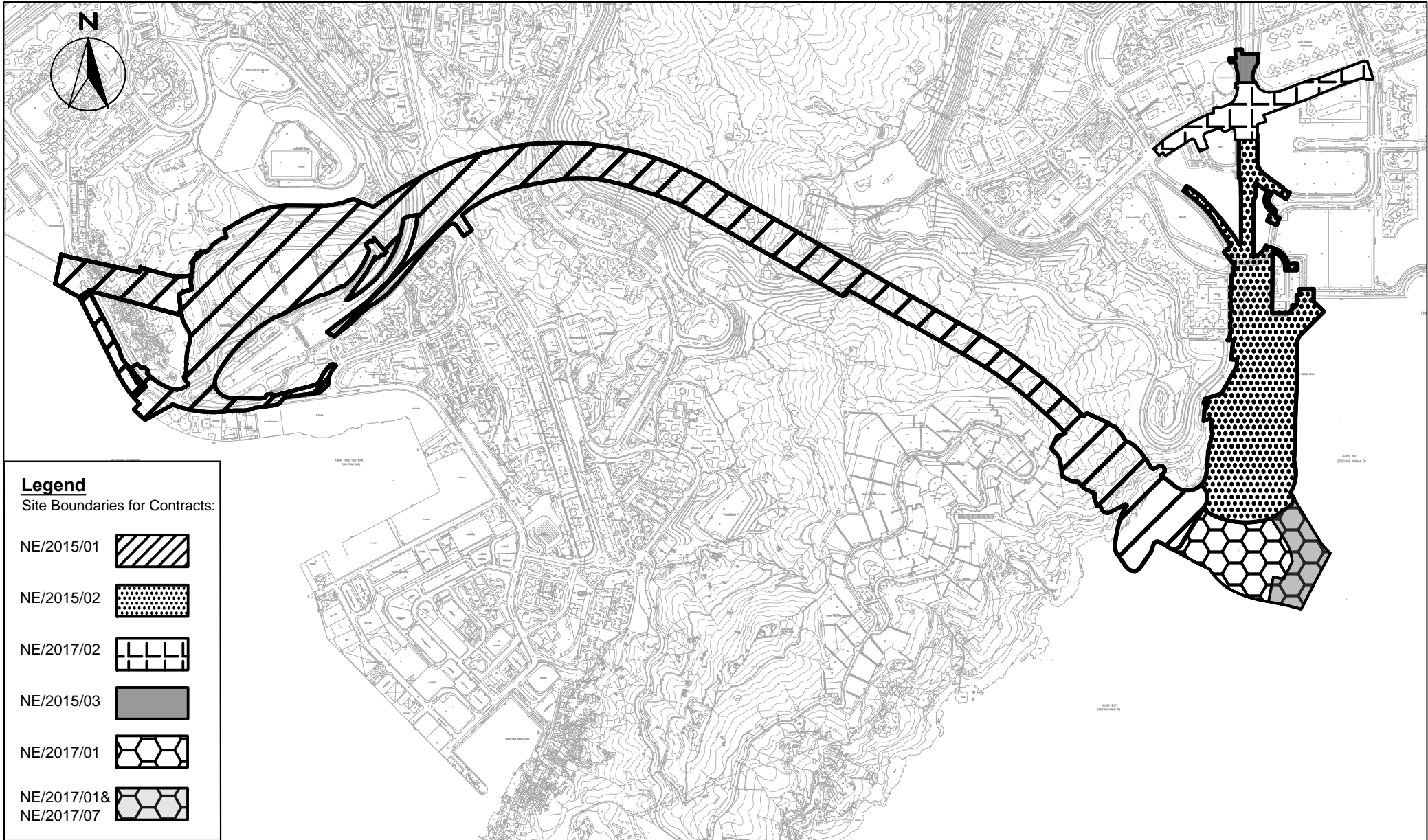
Waste/Chemical Management

- To bund or lock the chemical storage area.
- To clear dripping oil from bored piling machine.
- To clear oil slick on seawater.
- To clear oil on the floor.

Landscape and Visual

- To avoid placing any construction materials in the tree protection zone.

FIGURES



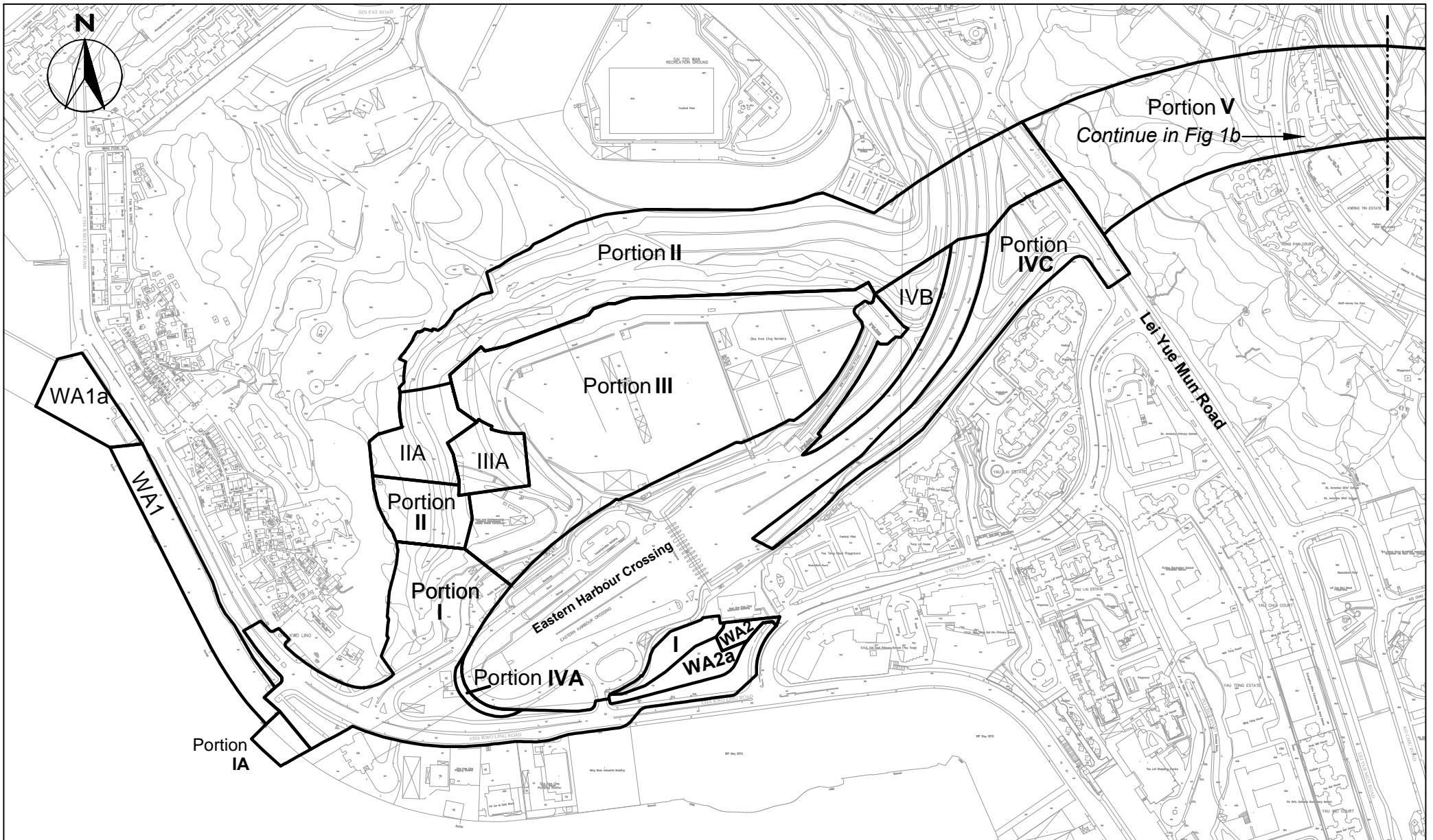
Legend
Site Boundaries for Contracts:

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NE/2015/02	
NE/2017/02	
NE/2015/03	
NE/2017/01	
NE/2017/01 & NE/2017/07	

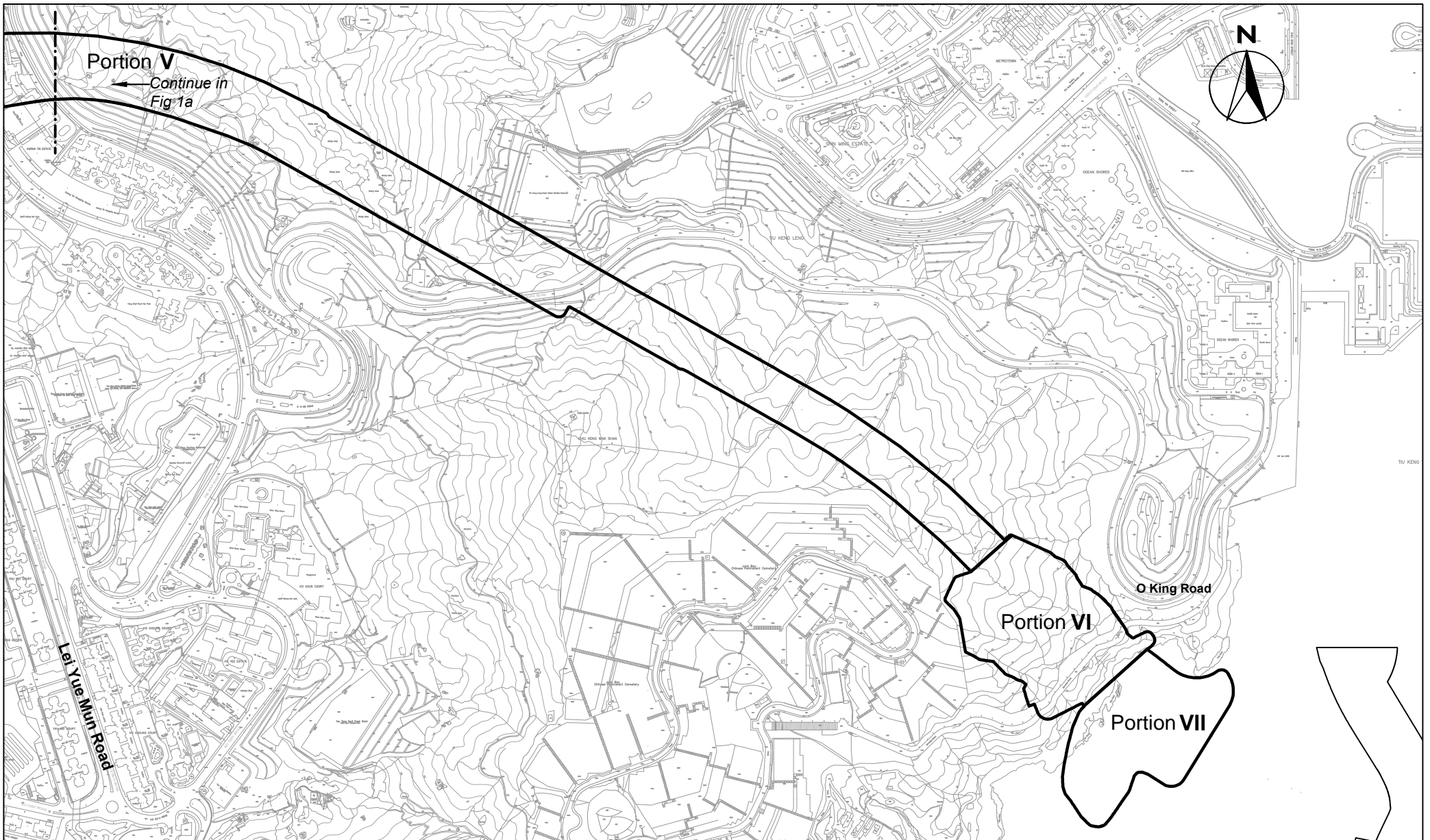


Agreement No. CE 59/2015 (EP)
 Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction
Site Layout Plan

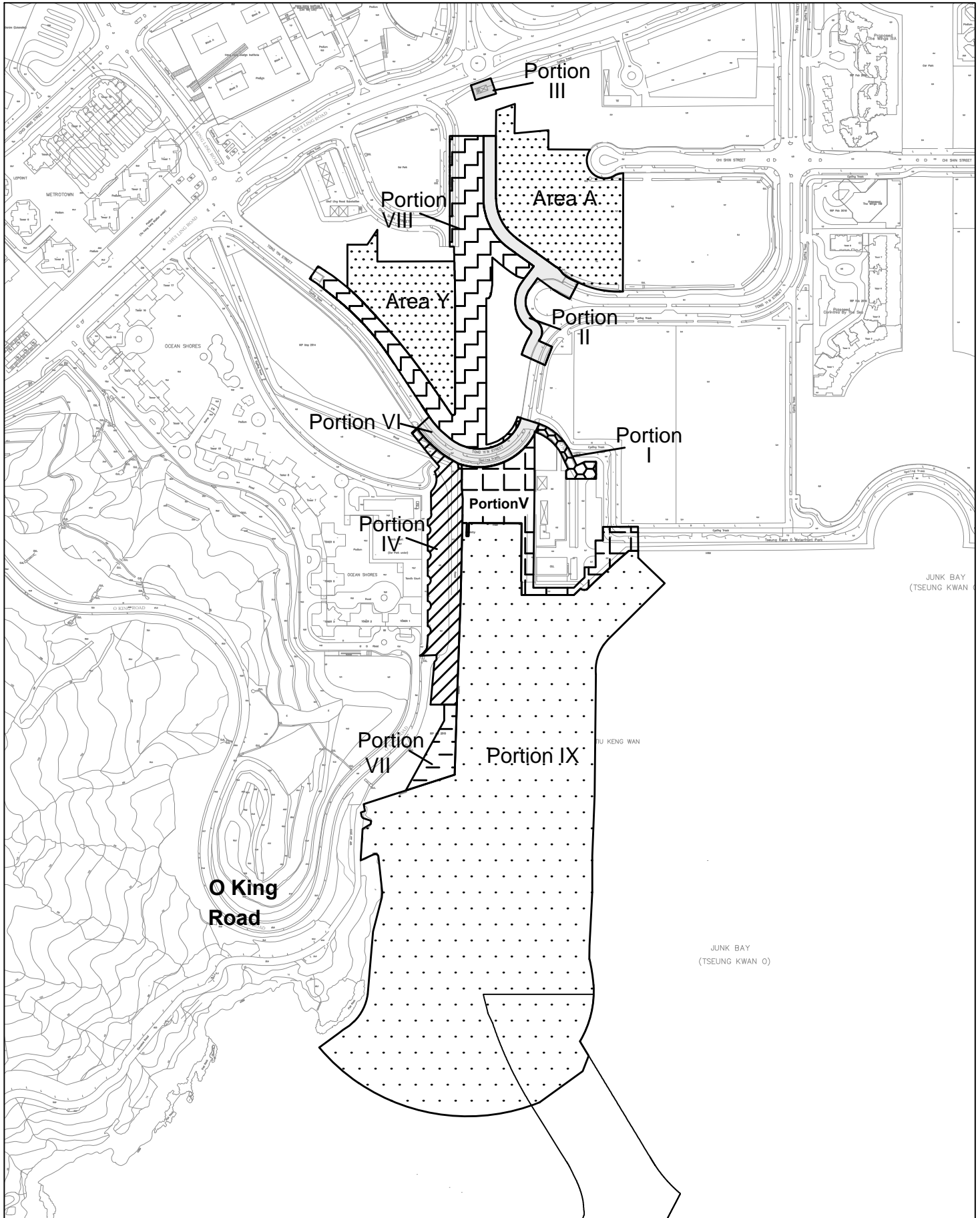
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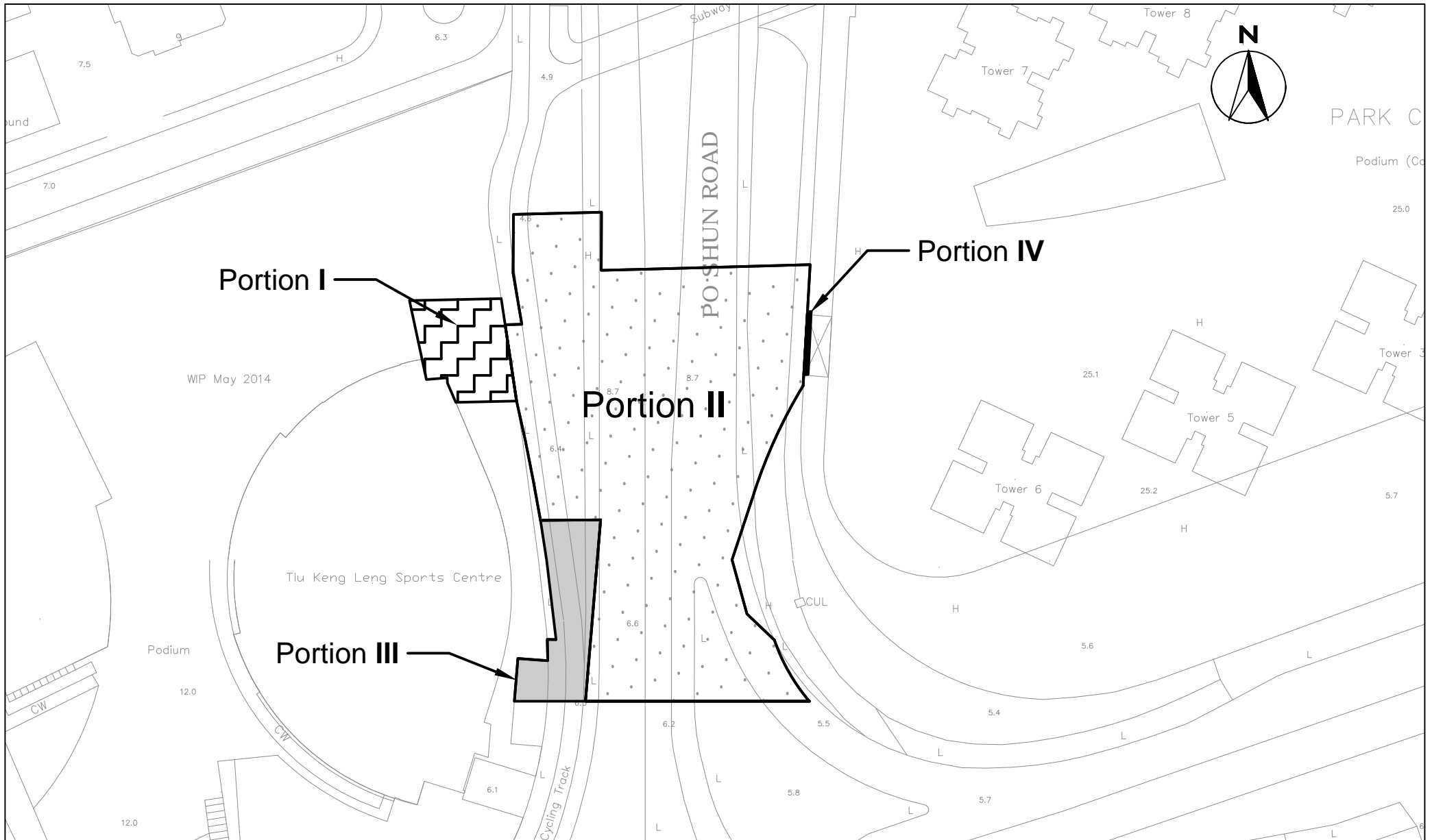
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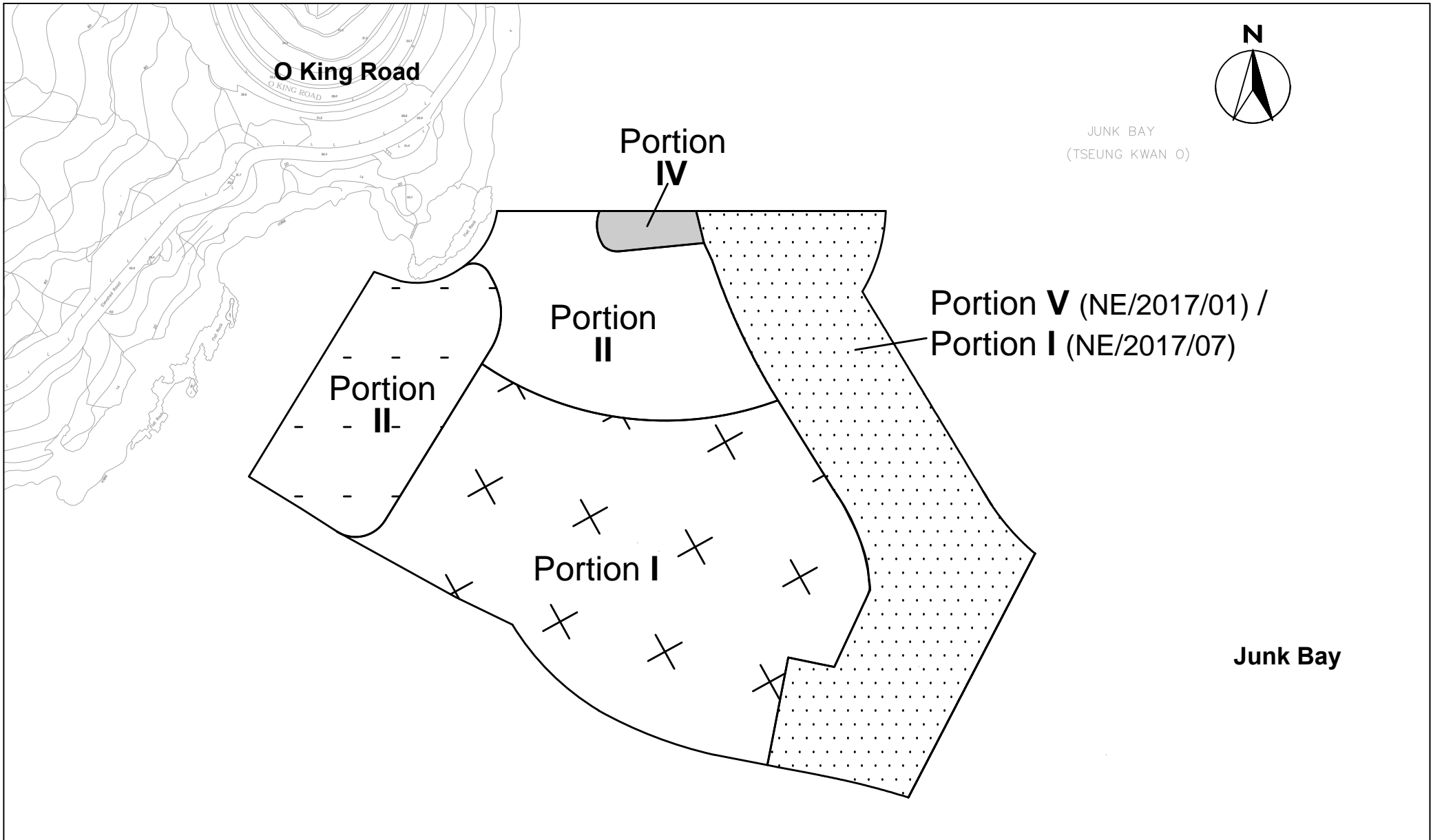
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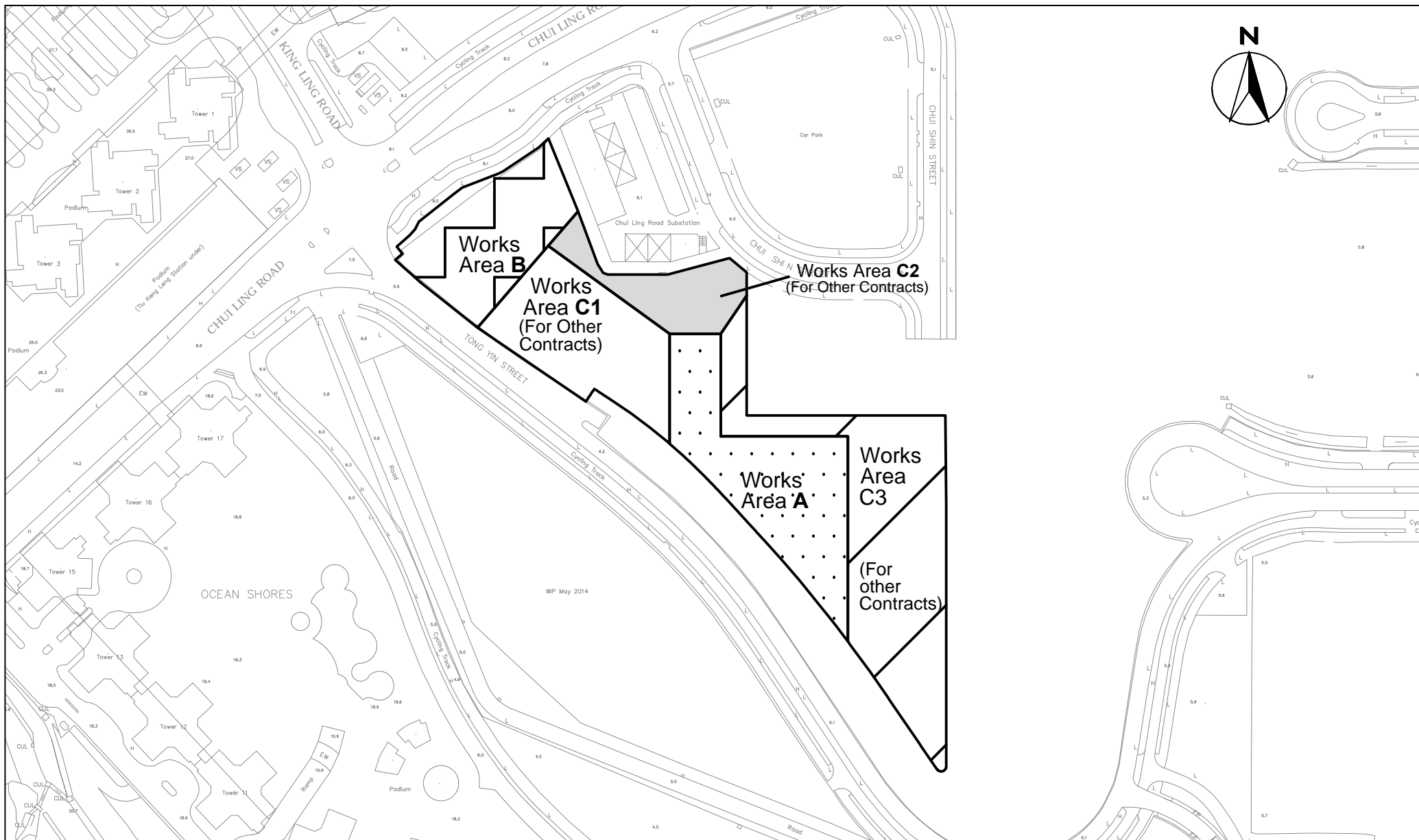
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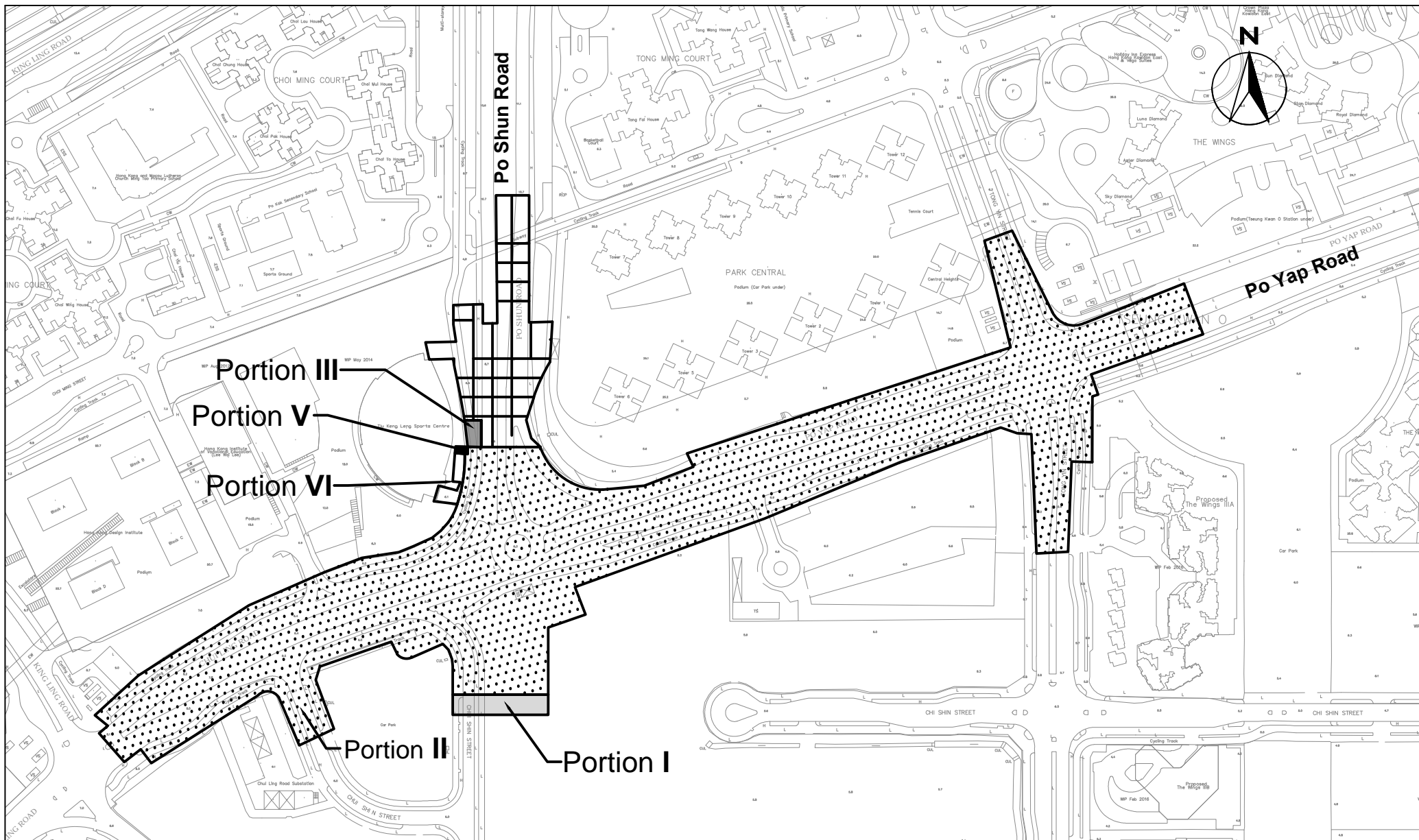
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		REV	-



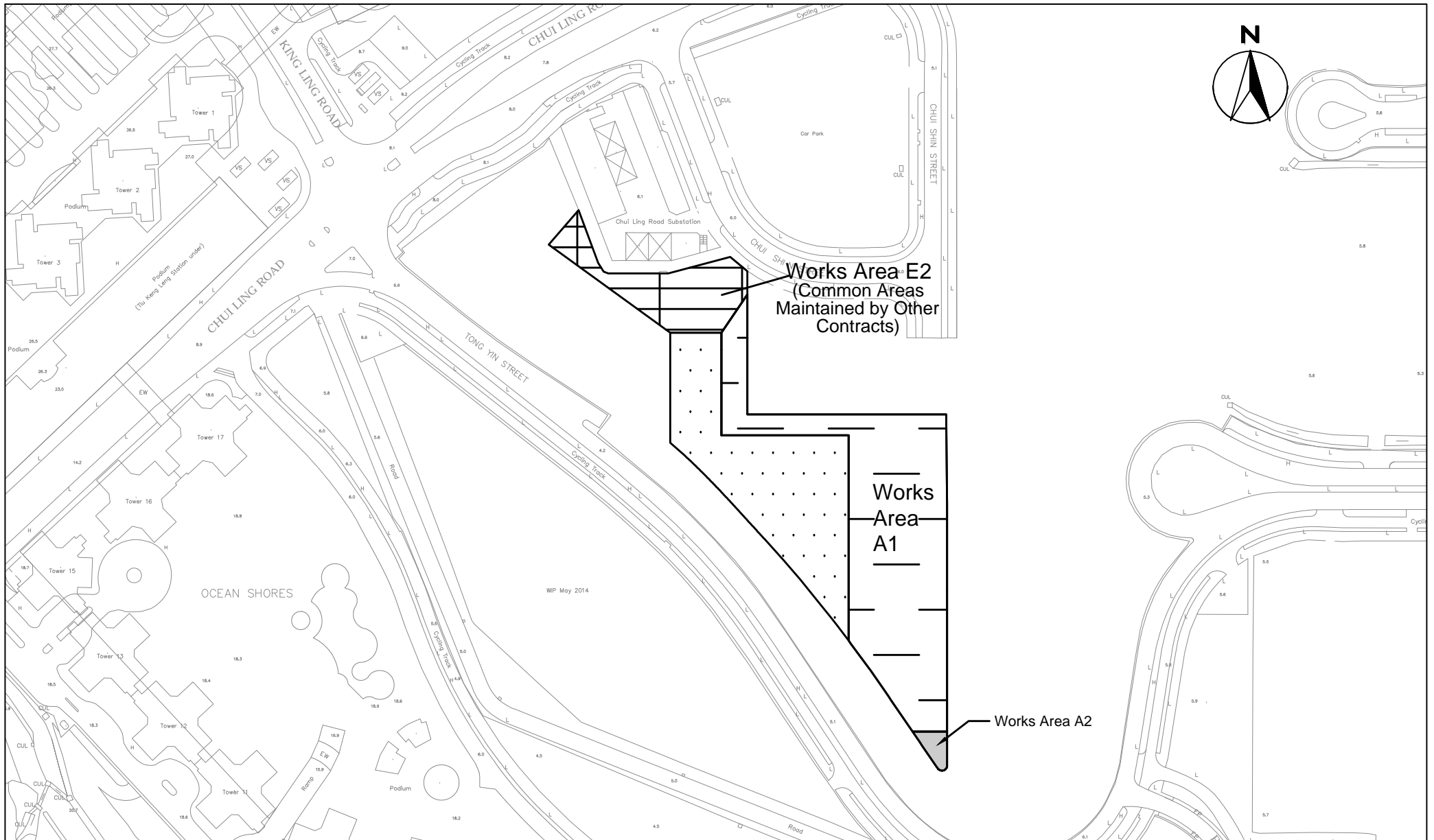
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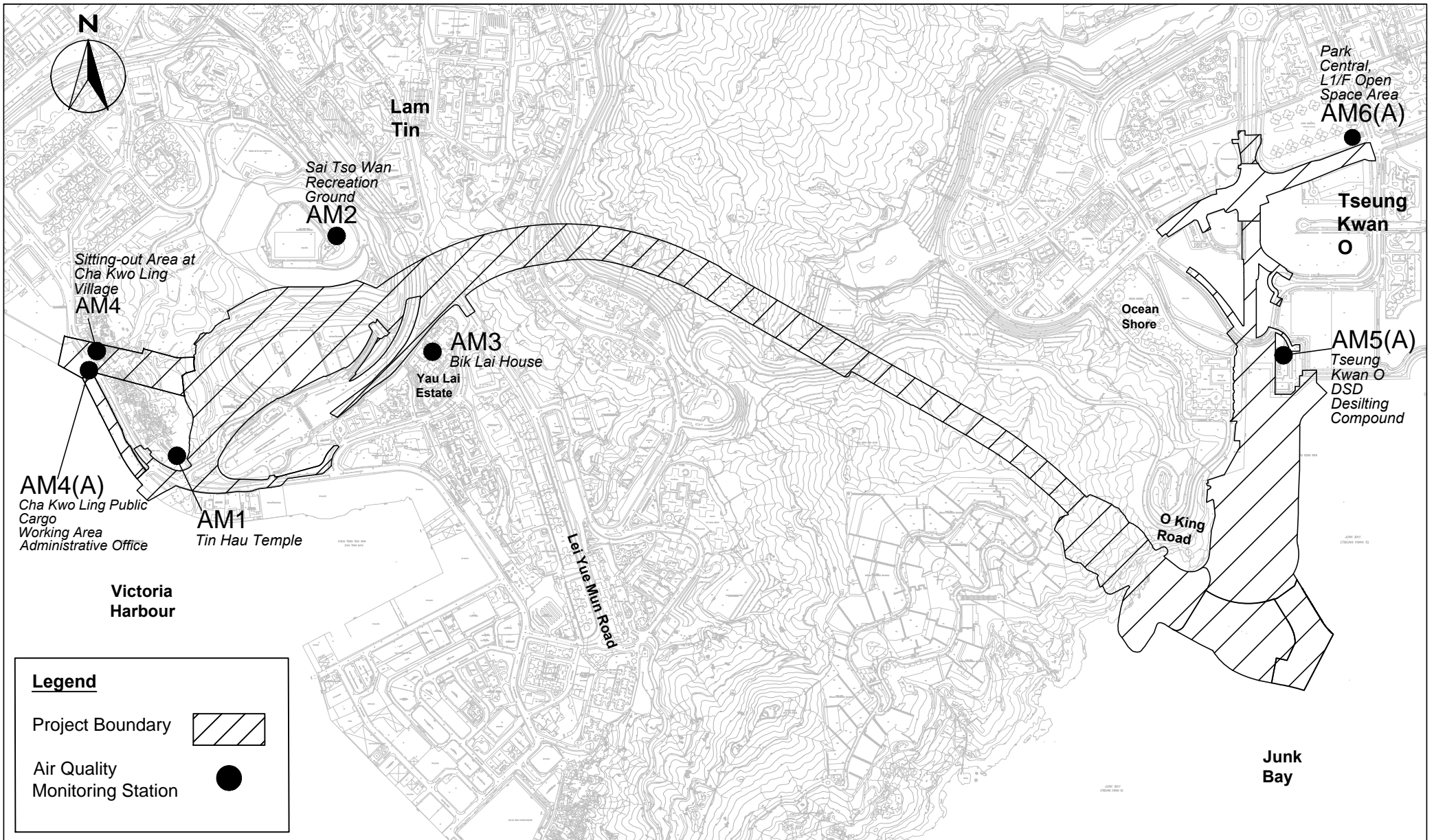
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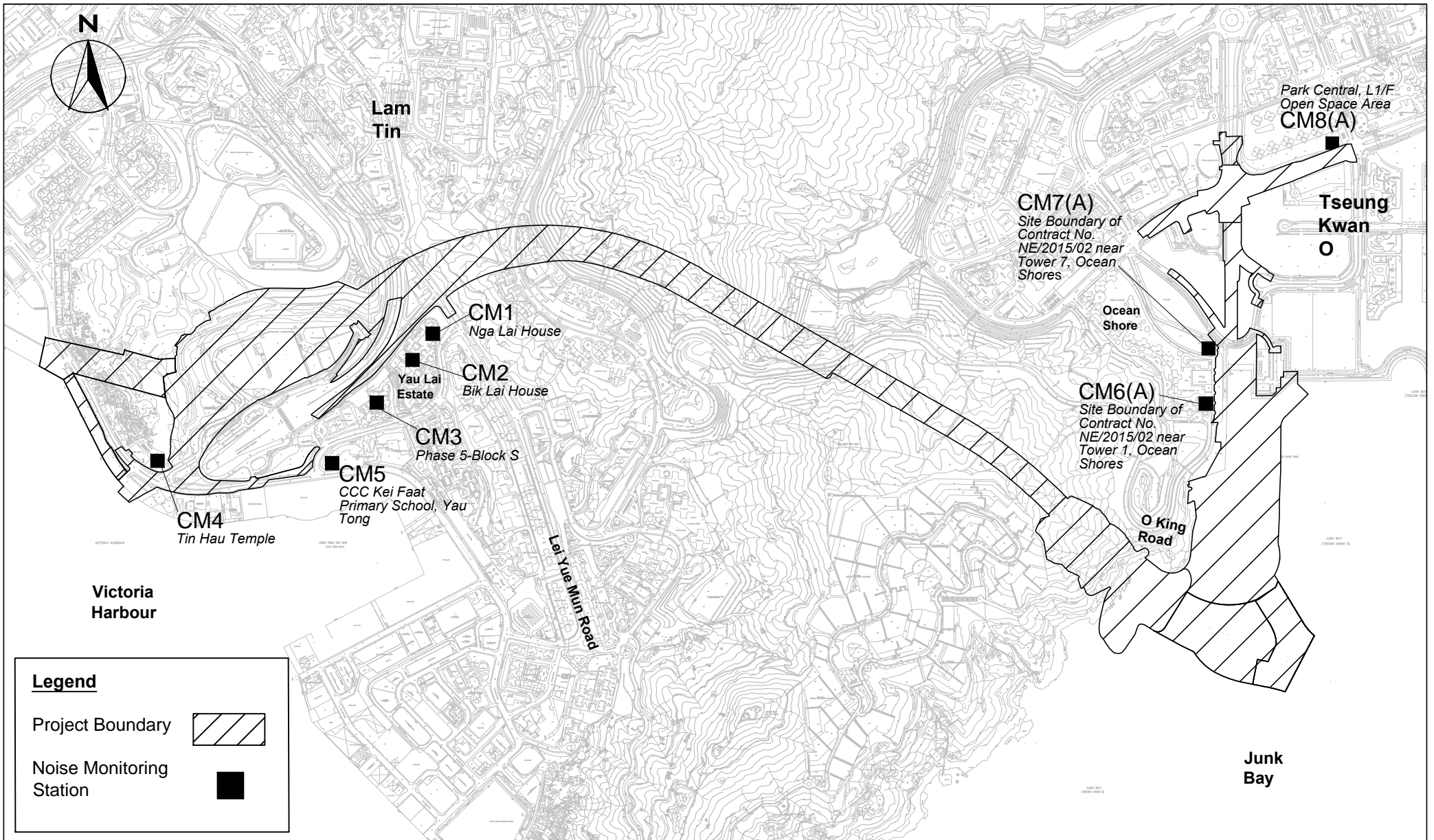
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JOB No.	MA16034	FIGURE NO.	1h	REV -



Agreement No. CE 59/2015 (EP)
 Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Air Quality Monitoring Station

SCALE	1:13000@A4	DATE	11 March 2021	
CHECK	CC	DRAWN	KC	
JOB No.	MA16034	FIGURE NO.	2	REV -



Agreement No. CE 59/2015 (EP)
 Environmental Team for Tseung Kwan O – Lam Tin Tunnel– Design and Construction

Noise Monitoring Stations

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JOB No.	MA16034	FIGURE NO.	3	REV -

**APPENDIX A
ACTION AND LIMIT LEVELS**

APPENDIX A – Action and Limit Levels

Air Quality

1-hr TSP

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	Tin Hau Temple	275	500
AM2	Sai Tso Wan Recreation Ground	273	
AM3	Yau Lai Estate Bik Lai House	271	
AM4	Sitting-out Area at Cha Kwo Ling Village	278	
AM5(A)	Tseung Kwan O DSD Desilting Compound	273	
AM6(A)	Park Central, L1/F Open Space Area	285	

24-hr TSP

Monitoring Stations	Location	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
AM1	Tin Hau Temple	173	260
AM2	Sai Tso Wan Recreation Ground	192	
AM3	Yau Lai Estate Bik Lai House	167	
AM4(A)	Cha Kwo Ling Public Cargo Working Area Administrative Office	210	
AM5(A)	Tseung Kwan O DSD Desilting Compound	175	
AM6(A)	Park Central, L1/F Open Space Area	165	

Noise

Time Period	Action Level	Limit Level
0700-1900 hrs on normal weekdays	When one documented complaint is received	75 dB(A) ⁽¹⁾
1900-2300 on all days and 0700-2300 on general holidays (including Sundays)		60/65/70 dB(A) ⁽²⁾⁽³⁾
2300-0700 on all days		45/50/55 dB(A) ⁽²⁾⁽³⁾

¹ 70 dB(A) for schools and 65 dB(A) for schools during examination period.

² Acceptable Noise Levels for Area Sensitivity Rating of A/B/C

³ 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.

Water Quality

Groundwater

Parameters	Action	Limit
DO in mg L ⁻¹	7.6	7.6
pH	6.0 – 8.9	6.0 – 9.0
BOD ₅ in mg L ⁻¹	2.0	2.0
TOC in mg L ⁻¹	Stream 1 and Stream 2: 9	Stream 1 and Stream 2: 9
	Stream 3: 6	Stream 3: 6
Total Nitrogen in mg L ⁻¹	2.0	2.1
Ammonia-N in mg L ⁻¹	0.15	0.20
Total Phosphate in mg L ⁻¹	0.05	0.05
SS in mg L ⁻¹	7.6	12.1
Turbidity in NTU	2.1	2.3

Notes:

1. For pH, non-compliance of the water quality limits occurs when monitoring result is out of the range of the limits.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. For turbidity, SS, 5-day biochemical oxygen demand (BOD₅), Total organic carbon (TOC), Total Nitrogen, Ammonia-N and Total Phosphate, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
4. All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered as necessary.

Groundwater Level Monitoring

Drill Hole No.	38568-LDH1	TKO-LBH907
Action Level (mPD)	+74.65	+17.59

Marine Water Quality

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2, 4 and 5)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u> or 120% of upstream control station's Turbidity at the same tide of the same day	<u>22.2 NTU</u> or 130% of upstream control station's Turbidity at the same tide of the same day
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2, 4 and 5)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>6.9mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.4 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u> or 120% of upstream control station's SS at the same tide of the same day	<u>7.9 mg/L</u> or 130% of upstream control station's SS at the same tide of the same day
	<u>Station M6</u>		
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.
5. Refer to Appendix I – Marine Water Quality Monitoring Results and Graphical Presentations for results of upstream control stations at each tide on each day.

Water Quality Monitoring in Temporary Marine Embayment

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 2)	Depth Average	<u>4.8 mg/L</u> ⁽⁴⁾	<u>4 mg/L</u> ⁽³⁾
	Bottom	<u>2.4 mg/L</u> ⁽⁴⁾	<u>2 mg/L</u> ⁽³⁾

Notes:

1. "depth-averaged" is calculated by taking the arithmetic means of reading of all sampling depths.
2. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
3. Current Water Quality Objectives (WQOs) for marine waters of Hong Kong
4. As an alert for adverse water quality impact, the Action Level is set as 120% of the Current WQOs for marine waters of Hong Kong.

Ecology

Post-translocation Coral Monitoring

Parameter	Action Level Definition	Limit Level Definition
Mortality	If during Impact Monitoring a 15% increase in the percentage of partial mortality on hard corals occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Action Level is exceeded.	If during the Impact Monitoring a 25% increase in the percentage of partial mortality occurs at more than 20% of the tagged coral at any one Impact Monitoring Site that is not recorded at the Control Site, then the Limit Level is exceeded.

Landfill Gas Monitoring

Parameter	Limit Level
Oxygen	<19%
	<18%
Methane	>10% LEL (i.e. > 0.5% by volume)
	>20% LEL (i.e. > 1% by volume)
Carbon Dioxide	>0.5%
	>1.5%

Alert, Alarm, Action Levels for Built Heritage Monitoring

Parameter	Alert Level	Alarm Level	Action Level
Vibration	ppv:4.5mm/s	ppv: 4.8mm/s	ppv: 5mm/s Maximum Allowable Vibration Amplitude: 0.1mm
Building Settlement Point	6mm	8mm	10mm
Building Tilting	1:2000	1:1500	1:1000

**APPENDIX B
COPIES OF CALIBRATION
CERTIFICATES**

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


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 Serial No.: 972778
 Equipment No.: SA-01-07 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 735 CPM
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 735 CPM

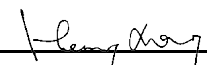
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration (µg/m ³) X-axis	Mass concentration (µg/m ³) Y-axis
1	62.0	146.0
2	57.0	139.0
3	49.0	130.0
Average	56.0	138.3
By Linear Regression of Y on X Slope , mw = <u>1.2209</u> Intercept, bw = <u>69.9612</u> Correlation coefficient* = <u>0.9982</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler (µg/m ³)		138.3
Particulate Concentration by Dust Meter (µg/m ³)		56.0
Measureing time, (min)		60.0
Set Correlation Factor , SCF SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] <u>2.5</u>		

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.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Technical Officer. (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


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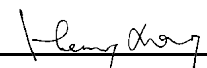
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration (µg/m ³) X-axis	Mass concentration (µg/m ³) Y-axis
1	63.0	146.0
2	58.0	139.0
3	51.0	130.0
Average	57.3	138.3
By Linear Regression of Y on X Slope , mw = <u>1.3303</u> Intercept, bw = <u>62.0642</u> Correlation coefficient* = <u>0.9997</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler (µg/m ³)	138.3	
Particulate Concentration by Dust Meter (µg/m ³)	57.3	
Measureing time, (min)	60.0	
Set Correlation Factor , SCF		
SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)]	<u>2.4</u>	

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.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


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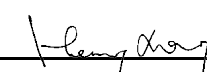
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration (µg/m ³) X-axis	Mass concentration (µg/m ³) Y-axis
1	59.0	146.0
2	54.0	139.0
3	49.0	130.0
Average	54.0	138.3
By Linear Regression of Y on X Slope , mw = <u>1.6000</u> Intercept, bw = <u>51.9333</u> Correlation coefficient* = <u>0.9974</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler (µg/m ³)		138.3
Particulate Concentration by Dust Meter (µg/m ³)		54.0
Measureing time, (min)		60.0
Set Correlation Factor , SCF SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] <u>2.6</u>		

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.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration

It is certified that the item under calibration has been calibrated by corresponding calibrated High Volume Sampler


Description: Digital Dust Indicator Date of Calibration 1-Jun-21
 Manufacturer: Sibata Scientific Technology LTD. Validity of Calibration Record 1-Aug-21
 Model No.: LD-5R
 Serial No.: 972781
 Equipment No.: SA-01-10 Sensitivity 0.001 mg/m3
 High Volume Sampler No.: A-01-03 Before Sensitivity Adjustment 734 CPM
 Tisch Calibration Orifice No.: 3864 After Sensitivity Adjustment 734 CPM

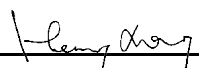
Calibration of 1 hr TSP		
Calibration Point	Laser Dust Monitor	HVS
	Mass Concentration (µg/m ³) X-axis	Mass concentration (µg/m ³) Y-axis
1	69.0	146.0
2	60.0	139.0
3	48.0	130.0
Average	59.0	138.3
By Linear Regression of Y on X Slope , mw = <u>0.7613</u> Intercept, bw = <u>93.4189</u> Correlation coefficient* = <u>0.9999</u>		
Set Correlation Factor		
Particulate Concentration by High Volume Sampler (µg/m ³)		138.3
Particulate Concentration by Dust Meter (µg/m ³)		59.0
Measureing time, (min)		60.0
Set Correlation Factor , SCF SCF = [K=High Volume Sampler / Dust Meter, (µg/m ³)] <u>2.3</u>		

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.

Those filter papers are weighted by HOKLAS laboratory (HPCT Litimed)

Calibrated by: 
 Technical Officer (Wong Shing Kwai)

Approved by: 
 Project Manager (Henry Leung)

Certificate of Calibration - Wind Monitoring Station

Description: Ng Wah Catholic Secondary School - Weather Stations
 Manufacturer: Davis Instruments
 Model No.: Davis 6152, Vantage Pro2
 Serial No.: BC180522050
 Equipment No.: SA-03-03
 Date of Calibration: 9-Apr-21
 Next Due Date: 9-Oct-21

1. Performance check of Wind Speed

Wind Speed, m/s		Difference D (m/s)
Wind Speed Reading (V1)	Anemometer Value (V1)	$D = V1 - V2$
0.0	0.0	0.0
1.6	1.5	0.1
2.0	2.0	0.0
3.0	3.1	-0.1


2. Performance check of Wind Direction

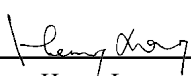
Wind Direction (°)		Difference D (°)
Wind Direction Reading (V1)	Marine Compass Value (V1)	$D = W1 - W2$
0	0	0.0
90	90	0.0
180	180	0.0
270	270	0.0

Test Specification:

1. Performance Wind Speed Test - The wind meter was on-site calibrated against the anemometer

2. Performance Wind Direction Test - The wind meter was on-site calibrated against the marine compass at four direction

Calibrated by: 
Wong Shing Kwai

Approved by: 
Henry Leung

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/05/0030

Project No. AM1 - Tin Hau Temple
 Date: 10-Jun-21 Next Due Date: 10-Aug-21 Operator: SK
 Equipment No.: A-01-05 Model No.: GS2310 Serial No. 10599

Ambient Condition			
Temperature, Ta (K)	301.8	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	11-Jan-22				

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	12.8	3.54	60.63	9.3	3.02
2	9.4	3.03	51.96	7.0	2.62
3	7.5	2.71	46.42	5.4	2.30
4	4.8	2.17	37.15	3.4	1.83
5	2.5	1.56	26.82	2.0	1.40

By Linear Regression of Y on X

Slope, mw = 0.0487 Intercept, bw = 0.0608
 Correlation coefficient* = 0.9987

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.74

Remarks: _____

Conducted by: SK Wong Signature: Date: 10 June 2021

Checked by: Henry Leung Signature: Date: 10 June 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/08/0030

Project No. AM2 - Sai Tso Wan Recreation Ground
 Date: 10-Jun-21 Next Due Date: 10-Aug-21 Operator: SK
 Equipment No.: A-01-08 Model No.: GS2310 Serial No. 1287

Ambient Condition			
Temperature, Ta (K)	301.8	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	11-Jan-22				

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	13.3	3.61	61.80	8.9	2.95
2	10.1	3.15	53.86	6.3	2.48
3	7.9	2.78	47.64	4.9	2.19
4	5.1	2.24	38.29	3.3	1.80
5	3.0	1.71	29.38	2.0	1.40


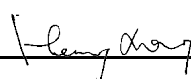
By Linear Regression of Y on X

Slope, mw = 0.0470 Intercept, bw = -0.0070
 Correlation coefficient* = 0.9976

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 43 CFM	
From the Regression Equation, the "Y" value according to	
$mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) =	<u>4.14</u>

Remarks: _____

Conducted by: SK Wong Signature:  Date: 10 June 2021
 Checked by: Henry Leung Signature:  Date: 10 June 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/03/0030

Project No. AM3 - Yau Lai Estate, Bik Lai House
 Date: 10-Jun-21 Next Due Date: 10-Aug-21 Operator: SK
 Equipment No.: A-01-03 Model No.: GS2310 Serial No. 10379

Ambient Condition			
Temperature, Ta (K)	301.8	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Q_{std} + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Q_{std} = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	11-Jan-22				

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	12.9	3.55	60.86	8.5	2.89
2	9.7	3.08	52.78	6.4	2.50
3	7.9	2.78	47.64	4.9	2.19
4	5.1	2.24	38.29	3.2	1.77
5	3.0	1.71	29.38	2.0	1.40


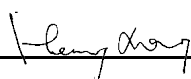
By Linear Regression of Y on X

Slope, mw = 0.0476 Intercept, bw = -0.0290
 Correlation coefficient* = 0.9984

*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	
$mw \times Q_{std} + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) =	<u>4.15</u>

Remarks: _____

Conducted by: SK Wong Signature:  Date: 10 June 2021
 Checked by: Henry Leung Signature:  Date: 10 June 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/54/0030

Project No. AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office
 Date: 10-Jun-21 Next Due Date: 10-Aug-21 Operator: SK
 Equipment No.: A-01-54 Model No.: TE-5170 Serial No. 1536

Ambient Condition			
Temperature, Ta (K)	301.8	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	11-Jan-22				

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	13.2	3.60	61.56	9.0	2.97
2	9.9	3.11	53.32	6.4	2.50
3	7.5	2.71	46.42	5.0	2.21
4	5.4	2.30	39.40	3.3	1.80
5	3.0	1.71	29.38	1.9	1.36

By Linear Regression of Y on X

Slope, mw = 0.0499 Intercept, bw = -0.1277
 Correlation coefficient* = 0.9986

*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 = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ <u>4.16</u>	

Remarks: _____

Conducted by: SK Wong Signature: Date: 10 June 2021
 Checked by: Henry Leung Signature: Date: 10 June 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/37/0030

Project No. AM5(A) - Tseung Kwan O DSD Desilting Compound
 Date: 10-Jun-21 Next Due Date: 10-Aug-21 Operator: SK
 Equipment No.: A-01-37 Model No.: GS2310 Serial No. 1704

Ambient Condition			
Temperature, Ta (K)	301.8	Pressure, Pa (mmHg)	754

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$ $Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			
Next Calibration Date:	11-Jan-22				

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	13.2	3.60	61.56	9.1	2.99
2	10.0	3.13	53.59	6.5	2.52
3	8.3	2.85	48.83	5.5	2.32
4	5.5	2.32	39.76	3.4	1.83
5	3.0	1.71	29.38	2.0	1.40

By Linear Regression of Y on X

Slope, mw = 0.0493 Intercept, bw = -0.0884
 Correlation coefficient* = 0.9980

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation	
From the TSP Field Calibration Curve, take Qstd = 43 CFM	
From the Regression Equation, the "Y" value according to	
$mw \times Qstd + bw = [\Delta W \times (Pa/760) \times (298/Ta)]^{1/2}$	
Therefore, Set Point; W = (mw x Qstd + bw) ² x (760 / Pa) x (Ta / 298) =	<u>4.22</u>

Remarks: _____

Conducted by: SK Wong Signature: Date: 10 June 2021
 Checked by: Henry Leung Signature: Date: 10 June 2021

High-Volume TSP Sampler

5-POINT CALIBRATION DATA SHEET



File No. MA16034/07/0030

Project No. AM6 - Park Central
 Date: 5-Jul-21 Next Due Date: 5-Sep-21 Operator: SK
 Equipment No.: A-01-07 Model No.: GS2310 Serial No. 10592

Ambient Condition			
Temperature, Ta (K)	303.2	Pressure, Pa (mmHg)	755.4

Orifice Transfer Standard Information					
Serial No.	3864	Slope, mc	0.05846	Intercept, bc	-0.00313
Last Calibration Date:	11-Jan-21	$mc \times Qstd + bc = [\Delta H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	11-Jan-22	$Qstd = \{[\Delta H \times (Pa/760) \times (298/Ta)]^{1/2} - bc\} / mc$			

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	13.0	3.56	61.01	8.4	2.86
2	8.9	2.95	50.49	6.1	2.44
3	7.5	2.71	46.36	4.8	2.17
4	4.4	2.07	35.52	3.2	1.77
5	3.0	1.71	29.34	2.1	1.43

By Linear Regression of Y on X

Slope, mw = 0.0448 Intercept, bw = 0.1390
 Correlation coefficient* = 0.9976

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

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

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

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

Therefore, Set Point; W = $(mw \times Qstd + bw)^2 \times (760 / Pa) \times (Ta / 298) =$ 4.37

Remarks: _____

Conducted by: Wong Shing Kwai Signature: Date: 5-Jul-21

Checked by: Henry Leung Signature: Date: 5-Jul-21



Equipment no.: N-13-01

Calibration Certificate**0025247**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001608 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025247 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Equipment no. : N-13-02

Calibration Certificate**0025249**

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : ST-120 sound calibrator Serial No. /Ref. No. : 181001636 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Soundtek
Date of calibration: 05/11/2020 Date of the recommended re-calibration: 05/11/2021	Certificate No.: 0025249 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.7dB	-0.3dB	+/- 0.3dB	1
114.0dB	113.6dB	-0.4dB	+/- 0.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** **the allowable deviation.**

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager



Calibration Certificate

0025917

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : B&K4231 sound calibrator Serial No. /Ref. No. : 2326353 / N-02-01 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : Bruel & Kjaer
Date of calibration: 22/01/2021 Date of the recommended re-calibration: 22/01/2022	Certificate No.: 0025917 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	94.0dB	0.0dB	+/- 0.2dB	1
114.0dB	114.1dB	+0.1dB	+/- 0.2dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Level Meter and 1kHz Sound Source .

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.


Measured value(s) **within** the allowable deviation.

Performed by



Calibration Technician

Approved by



Quality Manager



Calibration Certificate

0025914

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : SVAN957 SLM Serial No. /Ref. No. : 23851 / N-08-12 Object 2 : Microphone Serial No. /Ref. No. : 43676
Customer Code : SVEC09005	Manufacturer : Svantek
Date of calibration: 22/01/2021 Date of the recommended re-calibration: 22/01/2022	Certificate No.: 0025914 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.6dB	-0.4dB	+/- 1.5dB	1
114.0dB	113.5dB	-0.5dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2 dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Approved by

Quality Manager



Equipment no.: N-12-01

Calibration Certificate

0024993

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570183 / 550233 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024993 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.4dB	-0.6dB	+/- 1.5dB	1
114.0dB	113.2dB	-0.8dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



Equipment no.: N-12-02

Calibration Certificate

0024995

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong Customer Code : SVEC09005	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570187 / 550841 Object 2 : Serial No. /Ref. No. : Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024995 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	93.1dB	-0.9dB	+/- 1.5dB	1
114.0dB	113.1dB	-0.9dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Mr. K.S. Ng

Quality Manager



Equipment no.: N-12-03

Calibration Certificate

0024996

Customer : Cinotech Consultants Limited RM 1710, Technology Park, 18 On Lai Street, Shatin, N.T. Hong Kong	Object 1 : BSWA 308 SLM Serial No. /Ref. No. : 570188 / 550850 Object 2 : Serial No. /Ref. No. :
Customer Code : SVEC09005	Manufacturer : BSWAtech
Date of calibration: 07/10/2020 Date of the recommended re-calibration: 07/10/2021	Certificate No.: 0024996 Handle by: E0002

Measuring results

Reference value	Indication value	Deviation	Allowed deviation	Object
94.0dB	92.9dB	-1.1dB	+/- 1.5dB	1
114.0dB	112.8dB	-1.2dB	+/- 1.5dB	1

Measuring equipment

index	Calibrator / Master	Traceability
1	Master Sound Meter, SVAN949,sn:8571	IEC61672
2	Sound Calibrator, SV30A sn:32580	IEC60942

Ambient conditions

Temperature (20...26)°C

Humidity (20...60)%RH

Measuring procedure

Calibrated by Type 1 Sound Calibrator with Master Sound Level Meter under 1kHz Frequency.

Uncertainty

+/- 0.2dB for probability not less than 95%.

Conformity

- 1.The resulted values were those obtained at the time of test and applies only to the item calibrated.
- 2.The measurement uncertainty was calculated according to the regulations of GUM with the coverage factor k=2 and contains the uncertainty of the measuring procedure and the uncertainty of the measuring system.
- 3.The equipment being used in this calibration are regularly calibrated by laboratory according to ISO/IEC17025.
- 4.HKAS has accredited this laboratory (HOKLAS 267) for specific calibration activities as listed in the HOKLAS directory of accredited laboratories.
- 5.The calibrations certificate may not be reproduced.

Measured value(s) **within** the allowable deviation.

Performed by

Calibration Technician

Mr. K.L. Ng

Approved by

Quality Manager

Mr. K.S. Ng



APPLICANT: **Cinotech Consultants Limited**
 RM 1710, Technology Park,
 18 On Lai Street,
 Shatin, N.T., Hong Kong

Test Report No.:	00092
Date of Issue:	2021-02-26
Date Received:	2021-02-17
Date Tested:	2021-02-17 to 2021-02-25
Date Completed:	2021-02-26

ATTN: **Mr. Henry Leung**

Certificate of Calibration

Item for calibration

YSI EXO1 Multi-parameter Sonde	Equipment No.: SW-08-166
Manufacturer:	YSI Incorporated, a Xylem brand
Description:	Serial No.
- EXO Optical DO Sensor, Ti	17K101625
- EXO conductivity/Temperature Sensor, Ti	17H103448
- EXO Turbidity Sensor, Ti	17K100333
- EXO pH Sensor Assembly, Guarded, Ti	17B100260

Test conditions:

Room Temperature : 22-25 degree Celsius
Relative Humidity : 35-70%

Test Specifications:

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

Method reference:

According to manufacturer instruction manual, APHA 23rd Ed 4500-O G



Test Report

Results:

Conductivity performance checking

Expected Reading (mS/cm)	Instrument Readings (mS/cm)	Acceptance Criteria	Comment
1332	1298	1265-1399	Pass
6075	6089	5771-6379	Pass
12150	12188	11543-12758	Pass

Temperature performance checking

Expected Reading (oC)	Instrument Readings (oC)	Acceptance Criteria	Comment
10.7	10.306	± 2.0	Pass
25.0	24.953	± 2.0	Pass
36.6	36.231	± 2.0	Pass

pH performance checking

Expected Reading (pH unit)	Instrument Readings (pH unit)	Acceptance Criteria	Comment
4.0	4.11	4.0 ± 0.2	Pass
7.0	7.10	7.0 ± 0.2	Pass
10.0	10.02	10.0 ± 0.2	Pass

D.O. performance checking

Expected Reading	Instrument Readings (mg/L)	Acceptance Criteria	Comment
0.00	0.15	--	--
7.97	7.88	± 0.20	Pass

Turbidity performance checking

Expected Reading(NTU)	Instrument Readings (NTU)	Acceptance Criteria	Comment
0	0.07	--	--
10	10.76	9.0-11.0	Pass
50	51.34	45.0-55.0	Pass
124	121.17	111.6-136.4	Pass

Remark: "Instrument Readings " presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures

-----**End of Report**-----

PREPARED AND CHECKED BY:

For and On Behalf of **High Precision Chemical Testing Limited**

Laboratory Director



RECALIBRATION DUE DATE:
January 11, 2022

Certificate of Calibration

Calibration Certification Information			
Cal. Date: January 11, 2021	Rootsmeter S/N: 438320	Ta: 297	°K
Operator: Jim Tisch		Pa: 750.1	mm Hg
Calibration Model #: TE-5025A	Calibrator S/N: 3864		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4470	3.2	2.00
2	3	4	1	1.0210	6.4	4.00
3	5	6	1	0.9140	8.0	5.00
4	7	8	1	0.8670	8.8	5.50
5	9	10	1	0.7140	12.9	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)
0.9860	0.6814	1.4073	0.9957	0.6881	0.8899
0.9818	0.9616	1.9902	0.9915	0.9711	1.2585
0.9797	1.0719	2.2251	0.9893	1.0824	1.4071
0.9786	1.1288	2.3337	0.9883	1.1399	1.4757
0.9732	1.3630	2.8146	0.9828	1.3765	1.7798
QSTD	m=	2.06566	QA	m=	1.29348
	b=	0.00315		b=	0.00199
	r=	0.99996		r=	0.99996

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

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

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone
 BG14852)
 Model No.: 716A0403
 Serial No.: BE15890
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____


 (Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with
 main unit BE15890)
 Part Number: 714A9701
 Serial No.: BG14852
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit
 BE15890)
 Model No.: 714A9801
 Serial No.: BH11455
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method MM-002
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG16955)
 Model No.: 716A0403
 Serial No.: BE16223
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with
 main unit BE16223)
 Part Number: 714A9701
 Serial No.: BG16955
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit
 BE16223)
 Model No.: 714A9801
 Serial No.: BH11458
 Calibration Date: 22 March 2021
 Next Calibration Date: 22 March 2022
 Method Used: In-house Method MM-002
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 22 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG15353)
Model No.: 716A0403
Serial No.: BE15891
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE15891)
Part Number: 714A9701
Serial No.: BG15353
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG15180)
 Model No.: 716A0403
 Serial No.: BE15894
 Calibration Date: 1 March 2021
 Next Calibration Date: 1 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____


 (Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with
 main unit BE15894)
 Part Number: 714A9701
 Serial No.: BG15180
 Calibration Date: 1 March 2021
 Next Calibration Date: 1 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE15894)
 Model No.: 714A9801
 Serial No.: BH10228
 Calibration Date: 1 March 2021
 Next Calibration Date: 1 March 2022
 Method Used: In-house Method MM-002
 In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____


 (Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone
BG20673)
Model No.: 716A0403
Serial No.: BE13849
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

Test References	Model	Serial No.
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE13849)
Part Number: 714A9701
Serial No.: BG20673
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE13849)
Model No.: 714A9801
Serial No.: BH13154
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method MM-002
In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone
 BG16512)
 Model No.: 716A0403
 Serial No.: BE13853
 Calibration Date: 1 March 2021
 Next Calibration Date: 1 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

INSTANTEL INC. hereby certifies that this unit has been calibrated and that the results are consistent with the specifications published regarding this instrument. The SENSORCHECK feature of the unit is sufficiently reliable to indicate proper operation, although it is recommended that this unit be sent to INSTANTEL or an authorized service center for regular calibration.

Authorized by: _____


 (Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with
 main unit BE13853)
 Part Number: 714A9701
 Serial No.: BG16512
 Calibration Date: 1 March 2021
 Next Calibration Date: 1 March 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 1 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Minimate Plus Unit (Calibration with Geophone BG17240)
Model No.: 716A0403
Serial No.: BE20015
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: TRIAXIAL GEOPHONE (Calibration with main unit BE20015)
Part Number: 714A9701
Serial No.: BG17240
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method B3-001
In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Linear Microphone (Calibration with main unit BE20015)
Model No.: 714A9801
Serial No.: BH12658
Calibration Date: 11 March 2021
Next Calibration Date: 11 March 2022
Method Used: In-house Method MM-002
In-house Testing Procedure No.: MM-002

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
Linear Microphone	714A9801	BH11561
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Microphone*	4193	2677340
Low Frequency Calibrator*	42AE	105366
Bruel & Kjaer Conditional Amplifier*	269	2152173

*References are traceable to NIST or equivalent.

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Authorized by: _____


(Au Yeung Hang Chuen, Isaac)

Date: 11 March 2021

CALIBRATION CERTIFICATE

Calibration Item: Micromate System ISEE (Calibration with
 Geophone UM13703)
 Model No.: 721A2501
 Serial No.: UM13703
 Calibration Date: 14 April 2021
 Next Calibration Date: 14 April 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

*References are traceable to NIST or equivalent.

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Authorized by: _____

(Au Yeung Hang Chuen, Isaac)

Date: 14 April 2021

CALIBRATION CERTIFICATE


Calibration Item: TRIAXIAL GEOPHONE (Calibration with
 main unit UM13703)
 Part Number: 721A2901
 Serial No.: UM13703
 Calibration Date: 14 April 2021
 Next Calibration Date: 14 April 2022
 Method Used: In-house Method B3-001
 In-house Testing Procedure No.: B3-001

<u>Test References</u>	<u>Model</u>	<u>Serial No.</u>
Blastmate III	714A0801	BA15521
ISEE Triaxial Geophone	714A9701	BG14463
15MHz Function Generator*	33120A	US34003309
Stanford Spectrum Analyzer	SR760	41550
Keysight Multimeter*	34470A	MY57700765
HP Distortion Meter*	339A	2025A04515
Bruel & Kjaer Accelerometer*	4370	31474
Bruel & Kjaer Charge Amplifier*	2647	2731339
Bruel & Kjaer Conditional Amplifier*	2690	2437929
LDS Air Cooled Vibrator	V556	92794/1
LDS Field Power Supply	FPS10L	ARA 04/05
LDS Power Amplifier	PA1000L	ARA 07/06

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Authorized by: _____


 (Au Yeung Hang Chuen, Isaac)

Date: 14 April 2021

APPENDIX C
WEATHER INFORMATION

Table I: Weather over the Reporting Month

June 2021				
Table I				
Day	Mean Pressure (hPa)	Air Temperature	Mean Relative Humidity (%)	Total Rainfall (mm)
		Mean (°C)		
1	1010.2	29.9	78.0	Trace
2	1009.5	29.0	82.0	6.4
3	1008.6	29.8	76.0	Trace
4	1008.0	30.1	75.0	Trace
5	1007.3	30.0	78.0	2.6
6	1007.2	26.8	89.0	183.8
7	1005.6	27.7	91.0	107.4
8	1006.2	28.6	88.0	40.9
9	1008.2	29.4	83.0	1.3
10	1008.8	29.8	78.0	0.2
11	1007.4	30.2	76.0	Trace
12	1005.4	30.4	75.0	-
13	1004.0	29.8	81.0	11.7
14	1008.3	28.0	84.0	29.3
15	1011.1	29.3	79.0	0.2
16	1009.7	28.6	81.0	9.4
17	1008.3	29.1	77.0	0.9
18	1008.5	29.5	77.0	0.1
19	1009.2	29.9	74.0	Trace
20	1008.5	30.0	74.0	-
21	1006.3	30.2	76.0	Trace
22	1006.4	30.4	77.0	Trace
23	1007.1	30.3	77.0	-
24	1006.5	30.4	77.0	-
25	1006.4	30.2	76.0	0.1
26	1007.9	30.3	77.0	1.3
27	1008.4	30.2	77.0	1.2
28	1007.8	30.4	75.0	Trace
29	1006.1	30.5	74.0	0.4
30	1004.6	30.7	74.0	Trace

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
1 Jun 2021	12:00 AM	0.4	NE
1 Jun 2021	1:00 AM	0.5	NE
1 Jun 2021	2:00 AM	1.0	ENE
1 Jun 2021	3:00 AM	0.5	WSW
1 Jun 2021	4:00 AM	0.5	SW
1 Jun 2021	5:00 AM	0.0	ENE
1 Jun 2021	6:00 AM	0.5	SW
1 Jun 2021	7:00 AM	1.4	ENE
1 Jun 2021	8:00 AM	2.3	SW
1 Jun 2021	9:00 AM	0.0	E
1 Jun 2021	10:00 AM	1.9	ENE
1 Jun 2021	11:00 AM	1.4	ENE
1 Jun 2021	12:00 PM	1.0	SSE
1 Jun 2021	1:00 PM	1.0	SW
1 Jun 2021	2:00 PM	1.4	ENE
1 Jun 2021	3:00 PM	2.3	SW
1 Jun 2021	4:00 PM	2.3	SW
1 Jun 2021	5:00 PM	1.0	SSW
1 Jun 2021	6:00 PM	1.0	SW
1 Jun 2021	7:00 PM	0.5	ENE
1 Jun 2021	8:00 PM	0.5	SW
1 Jun 2021	9:00 PM	0.5	SW
1 Jun 2021	10:00 PM	1.4	ENE
1 Jun 2021	11:00 PM	1.0	SW
2 Jun 2021	12:00 AM	1.0	SW
2 Jun 2021	1:00 AM	0.0	SSW
2 Jun 2021	2:00 AM	0.0	SW
2 Jun 2021	3:00 AM	0.5	SW
2 Jun 2021	4:00 AM	0.5	WSW
2 Jun 2021	5:00 AM	0.5	SW
2 Jun 2021	6:00 AM	1.0	SW
2 Jun 2021	7:00 AM	0.5	SW
2 Jun 2021	8:00 AM	1.0	SW
2 Jun 2021	9:00 AM	1.4	SW
2 Jun 2021	10:00 AM	1.0	SW
2 Jun 2021	11:00 AM	1.9	ENE
2 Jun 2021	12:00 PM	1.9	ENE
2 Jun 2021	1:00 PM	1.4	SW
2 Jun 2021	2:00 PM	1.4	ESE
2 Jun 2021	3:00 PM	1.4	SW
2 Jun 2021	4:00 PM	1.0	SE
2 Jun 2021	5:00 PM	2.3	SW
2 Jun 2021	6:00 PM	1.4	SW
2 Jun 2021	7:00 PM	1.4	SW
2 Jun 2021	8:00 PM	1.4	SW

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
2 Jun 2021	9:00 PM	0.5	SW
2 Jun 2021	10:00 PM	0.1	N
2 Jun 2021	11:00 PM	0.1	---
3 Jun 2021	12:00 AM	0.5	NNE
3 Jun 2021	1:00 AM	0.5	WSW
3 Jun 2021	2:00 AM	1.4	SW
3 Jun 2021	3:00 AM	0.5	SW
3 Jun 2021	4:00 AM	0.5	SW
3 Jun 2021	5:00 AM	0.5	N
3 Jun 2021	6:00 AM	0.5	WSW
3 Jun 2021	7:00 AM	0.5	SW
3 Jun 2021	8:00 AM	0.5	ENE
3 Jun 2021	9:00 AM	0.5	SE
3 Jun 2021	10:00 AM	1.0	SW
3 Jun 2021	11:00 AM	1.9	SW
3 Jun 2021	12:00 PM	0.5	SW
3 Jun 2021	1:00 PM	1.4	ENE
3 Jun 2021	2:00 PM	1.4	ENE
3 Jun 2021	3:00 PM	1.0	ESE
3 Jun 2021	4:00 PM	0.5	S
3 Jun 2021	5:00 PM	0.1	S
3 Jun 2021	6:00 PM	0.5	S
3 Jun 2021	7:00 PM	0.5	S
3 Jun 2021	8:00 PM	1.0	SW
3 Jun 2021	9:00 PM	1.0	SW
3 Jun 2021	10:00 PM	0.0	SW
3 Jun 2021	11:00 PM	1.0	SW
4 Jun 2021	12:00 AM	0.1	SW
4 Jun 2021	1:00 AM	0.1	SW
4 Jun 2021	2:00 AM	0.0	SW
4 Jun 2021	3:00 AM	0.0	SW
4 Jun 2021	4:00 AM	0.0	WSW
4 Jun 2021	5:00 AM	0.0	ESE
4 Jun 2021	6:00 AM	0.1	NE
4 Jun 2021	7:00 AM	0.0	SW
4 Jun 2021	8:00 AM	0.0	SW
4 Jun 2021	9:00 AM	1.9	ENE
4 Jun 2021	10:00 AM	2.8	ENE
4 Jun 2021	11:00 AM	1.9	ENE
4 Jun 2021	12:00 PM	1.4	SW
4 Jun 2021	1:00 PM	1.4	SW
4 Jun 2021	2:00 PM	1.4	SW
4 Jun 2021	3:00 PM	1.0	SSW
4 Jun 2021	4:00 PM	0.5	E
4 Jun 2021	5:00 PM	1.0	ENE

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
4 Jun 2021	6:00 PM	1.0	ENE
4 Jun 2021	7:00 PM	1.0	NE
4 Jun 2021	8:00 PM	1.0	ENE
4 Jun 2021	9:00 PM	0.0	ESE
4 Jun 2021	10:00 PM	0.0	ESE
4 Jun 2021	11:00 PM	0.0	NE
5 Jun 2021	12:00 AM	0.0	NNE
5 Jun 2021	1:00 AM	0.5	NE
5 Jun 2021	2:00 AM	0.5	NE
5 Jun 2021	3:00 AM	0.5	NNE
5 Jun 2021	4:00 AM	1.4	ENE
5 Jun 2021	5:00 AM	1.9	ENE
5 Jun 2021	6:00 AM	2.3	ENE
5 Jun 2021	7:00 AM	2.3	ENE
5 Jun 2021	8:00 AM	2.8	ENE
5 Jun 2021	9:00 AM	3.7	ENE
5 Jun 2021	10:00 AM	3.7	ENE
5 Jun 2021	11:00 AM	4.1	ENE
5 Jun 2021	12:00 PM	3.2	ENE
5 Jun 2021	1:00 PM	2.3	ENE
5 Jun 2021	2:00 PM	2.3	ENE
5 Jun 2021	3:00 PM	1.4	ENE
5 Jun 2021	4:00 PM	1.4	ENE
5 Jun 2021	5:00 PM	1.4	ENE
5 Jun 2021	6:00 PM	2.3	ENE
5 Jun 2021	7:00 PM	1.4	ENE
5 Jun 2021	8:00 PM	1.4	ENE
5 Jun 2021	9:00 PM	1.4	ENE
5 Jun 2021	10:00 PM	1.0	NNE
5 Jun 2021	11:00 PM	1.0	NNE
6 Jun 2021	12:00 AM	1.0	NNE
6 Jun 2021	1:00 AM	1.0	NNE
6 Jun 2021	2:00 AM	1.4	ENE
6 Jun 2021	3:00 AM	1.0	NE
6 Jun 2021	4:00 AM	1.0	NNE
6 Jun 2021	5:00 AM	2.3	ENE
6 Jun 2021	6:00 AM	2.8	ENE
6 Jun 2021	7:00 AM	2.8	ENE
6 Jun 2021	8:00 AM	4.1	ENE
6 Jun 2021	9:00 AM	3.2	ENE
6 Jun 2021	10:00 AM	1.9	ENE
6 Jun 2021	11:00 AM	1.9	ENE
6 Jun 2021	12:00 PM	3.2	ENE
6 Jun 2021	1:00 PM	3.2	ENE
6 Jun 2021	2:00 PM	2.8	ENE

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
6 Jun 2021	3:00 PM	2.8	ENE
6 Jun 2021	4:00 PM	1.4	ENE
6 Jun 2021	5:00 PM	2.3	ENE
6 Jun 2021	6:00 PM	2.3	ENE
6 Jun 2021	7:00 PM	2.3	ENE
6 Jun 2021	8:00 PM	1.9	ENE
6 Jun 2021	9:00 PM	1.9	ENE
6 Jun 2021	10:00 PM	1.4	ENE
6 Jun 2021	11:00 PM	1.0	NE
7 Jun 2021	12:00 AM	1.4	ENE
7 Jun 2021	1:00 AM	1.0	NNE
7 Jun 2021	2:00 AM	0.5	ENE
7 Jun 2021	3:00 AM	1.4	ENE
7 Jun 2021	4:00 AM	1.0	SW
7 Jun 2021	5:00 AM	1.0	SW
7 Jun 2021	6:00 AM	1.4	ENE
7 Jun 2021	7:00 AM	1.4	ESE
7 Jun 2021	8:00 AM	1.4	ESE
7 Jun 2021	9:00 AM	1.9	E
7 Jun 2021	10:00 AM	1.9	ESE
7 Jun 2021	11:00 AM	1.9	SW
7 Jun 2021	12:00 PM	1.9	E
7 Jun 2021	1:00 PM	1.4	E
7 Jun 2021	2:00 PM	1.4	ESE
7 Jun 2021	3:00 PM	2.3	ENE
7 Jun 2021	4:00 PM	1.0	SW
7 Jun 2021	5:00 PM	2.3	ENE
7 Jun 2021	6:00 PM	1.4	SE
7 Jun 2021	7:00 PM	1.4	ENE
7 Jun 2021	8:00 PM	1.9	ENE
7 Jun 2021	9:00 PM	1.4	ESE
7 Jun 2021	10:00 PM	1.0	SSE
7 Jun 2021	11:00 PM	1.0	SW
8 Jun 2021	12:00 AM	1.4	ENE
8 Jun 2021	1:00 AM	1.4	SW
8 Jun 2021	2:00 AM	1.4	SW
8 Jun 2021	3:00 AM	1.4	SSW
8 Jun 2021	4:00 AM	1.4	E
8 Jun 2021	5:00 AM	1.0	SW
8 Jun 2021	6:00 AM	1.9	SW
8 Jun 2021	7:00 AM	2.3	ENE
8 Jun 2021	8:00 AM	1.4	E
8 Jun 2021	9:00 AM	1.9	ENE
8 Jun 2021	10:00 AM	1.9	E
8 Jun 2021	11:00 AM	1.4	ESE

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
8 Jun 2021	12:00 PM	1.4	ESE
8 Jun 2021	1:00 PM	1.0	ESE
8 Jun 2021	2:00 PM	1.4	E
8 Jun 2021	3:00 PM	1.4	ENE
8 Jun 2021	4:00 PM	2.8	ENE
8 Jun 2021	5:00 PM	2.3	ENE
8 Jun 2021	6:00 PM	2.3	ENE
8 Jun 2021	7:00 PM	2.3	ENE
8 Jun 2021	8:00 PM	2.3	ENE
8 Jun 2021	9:00 PM	1.9	ENE
8 Jun 2021	10:00 PM	1.9	ENE
8 Jun 2021	11:00 PM	1.4	ENE
9 Jun 2021	12:00 AM	1.4	ENE
9 Jun 2021	1:00 AM	1.4	ESE
9 Jun 2021	2:00 AM	1.9	ENE
9 Jun 2021	3:00 AM	0.5	S
9 Jun 2021	4:00 AM	0.5	E
9 Jun 2021	5:00 AM	0.5	SSW
9 Jun 2021	6:00 AM	0.5	S
9 Jun 2021	7:00 AM	0.5	E
9 Jun 2021	8:00 AM	0.5	E
9 Jun 2021	9:00 AM	0.5	E
9 Jun 2021	10:00 AM	0.5	SSW
9 Jun 2021	11:00 AM	0.5	S
9 Jun 2021	12:00 PM	0.5	S
9 Jun 2021	1:00 PM	0.5	S
9 Jun 2021	2:00 PM	0.5	E
9 Jun 2021	3:00 PM	0.0	E
9 Jun 2021	4:00 PM	0.5	SSW
9 Jun 2021	5:00 PM	1.0	SSW
9 Jun 2021	6:00 PM	0.5	ESE
9 Jun 2021	7:00 PM	0.5	E
9 Jun 2021	8:00 PM	0.5	E
9 Jun 2021	9:00 PM	1.0	S
9 Jun 2021	10:00 PM	0.5	S
9 Jun 2021	11:00 PM	0.0	S
10 Jun 2021	12:00 AM	0.5	ESE
10 Jun 2021	1:00 AM	0.0	S
10 Jun 2021	2:00 AM	0.0	S
10 Jun 2021	3:00 AM	0.5	SSW
10 Jun 2021	4:00 AM	0.5	ESE
10 Jun 2021	5:00 AM	0.5	ESE
10 Jun 2021	6:00 AM	0.5	E
10 Jun 2021	7:00 AM	0.1	SSW
10 Jun 2021	8:00 AM	0.5	E

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
10 Jun 2021	9:00 AM	0.1	ESE
10 Jun 2021	10:00 AM	0.5	E
10 Jun 2021	11:00 AM	0.5	ESE
10 Jun 2021	12:00 PM	0.5	ESE
10 Jun 2021	1:00 PM	1.0	SSW
10 Jun 2021	2:00 PM	2.3	SSW
10 Jun 2021	3:00 PM	1.9	SSW
10 Jun 2021	4:00 PM	0.5	S
10 Jun 2021	5:00 PM	1.0	SSE
10 Jun 2021	6:00 PM	1.0	SW
10 Jun 2021	7:00 PM	1.0	ENE
10 Jun 2021	8:00 PM	1.9	SW
10 Jun 2021	9:00 PM	0.1	SW
10 Jun 2021	10:00 PM	0.1	SSW
10 Jun 2021	11:00 PM	0.5	ENE
11 Jun 2021	12:00 AM	0.5	ENE
11 Jun 2021	1:00 AM	1.4	ENE
11 Jun 2021	2:00 AM	1.9	ENE
11 Jun 2021	3:00 AM	1.4	ENE
11 Jun 2021	4:00 AM	1.4	ENE
11 Jun 2021	5:00 AM	1.0	E
11 Jun 2021	6:00 AM	1.9	SSW
11 Jun 2021	7:00 AM	1.4	S
11 Jun 2021	8:00 AM	1.4	WSW
11 Jun 2021	9:00 AM	1.9	ENE
11 Jun 2021	10:00 AM	1.9	ENE
11 Jun 2021	11:00 AM	1.9	ENE
11 Jun 2021	12:00 PM	1.4	ENE
11 Jun 2021	1:00 PM	1.4	ENE
11 Jun 2021	2:00 PM	1.0	NNE
11 Jun 2021	3:00 PM	1.4	NNE
11 Jun 2021	4:00 PM	1.0	NNE
11 Jun 2021	5:00 PM	1.0	NNE
11 Jun 2021	6:00 PM	1.0	NE
11 Jun 2021	7:00 PM	0.5	ENE
11 Jun 2021	8:00 PM	1.0	NNE
11 Jun 2021	9:00 PM	1.0	ENE
11 Jun 2021	10:00 PM	0.5	E
11 Jun 2021	11:00 PM	0.5	NE
12 Jun 2021	12:00 AM	0.5	ENE
12 Jun 2021	1:00 AM	1.0	ENE
12 Jun 2021	2:00 AM	1.9	ENE
12 Jun 2021	3:00 AM	1.0	SW
12 Jun 2021	4:00 AM	0.5	SW
12 Jun 2021	5:00 AM	1.0	SW

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
12 Jun 2021	6:00 AM	0.5	SW
12 Jun 2021	7:00 AM	1.0	ENE
12 Jun 2021	8:00 AM	1.0	SSW
12 Jun 2021	9:00 AM	1.4	SW
12 Jun 2021	10:00 AM	1.0	SW
12 Jun 2021	11:00 AM	1.0	SW
12 Jun 2021	12:00 PM	0.5	SW
12 Jun 2021	1:00 PM	1.0	SW
12 Jun 2021	2:00 PM	1.0	SW
12 Jun 2021	3:00 PM	0.5	SW
12 Jun 2021	4:00 PM	1.0	SW
12 Jun 2021	5:00 PM	1.0	SSW
12 Jun 2021	6:00 PM	0.5	S
12 Jun 2021	7:00 PM	1.0	SSW
12 Jun 2021	8:00 PM	0.1	ESE
12 Jun 2021	9:00 PM	0.5	S
12 Jun 2021	10:00 PM	0.5	NNE
6 Dec 2021	11:00 PM	0.5	SSW
12 Jun 2021	12:00 AM	1.0	SSW
13 Jun 2021	1:00 AM	1.0	S
13 Jun 2021	2:00 AM	1.9	SW
13 Jun 2021	3:00 AM	1.0	SSW
13 Jun 2021	4:00 AM	1.0	S
13 Jun 2021	5:00 AM	1.4	ENE
13 Jun 2021	6:00 AM	1.4	ENE
13 Jun 2021	7:00 AM	1.4	E
13 Jun 2021	8:00 AM	1.9	SW
13 Jun 2021	9:00 AM	1.4	ESE
13 Jun 2021	10:00 AM	1.0	E
13 Jun 2021	11:00 AM	1.0	NNE
13 Jun 2021	12:00 PM	1.0	ENE
13 Jun 2021	1:00 PM	1.4	ENE
13 Jun 2021	2:00 PM	1.4	ENE
13 Jun 2021	3:00 PM	1.0	ENE
13 Jun 2021	4:00 PM	0.5	ENE
13 Jun 2021	5:00 PM	0.5	N
13 Jun 2021	6:00 PM	0.5	SW
13 Jun 2021	7:00 PM	0.5	SSW
13 Jun 2021	8:00 PM	0.5	WSW
13 Jun 2021	9:00 PM	1.0	SSW
13 Jun 2021	10:00 PM	0.5	SW
13 Jun 2021	11:00 PM	0.5	SW
14 Jun 2021	12:00 AM	1.0	SW
14 Jun 2021	1:00 AM	1.4	SW
14 Jun 2021	2:00 AM	1.4	SSW

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
14 Jun 2021	3:00 AM	1.0	ENE
14 Jun 2021	4:00 AM	1.9	ENE
14 Jun 2021	5:00 AM	2.8	ENE
14 Jun 2021	6:00 AM	1.9	NNE
14 Jun 2021	7:00 AM	1.9	ENE
14 Jun 2021	8:00 AM	1.9	NE
14 Jun 2021	9:00 AM	1.9	ENE
14 Jun 2021	10:00 AM	1.9	ENE
14 Jun 2021	11:00 AM	1.4	ENE
14 Jun 2021	12:00 PM	1.4	NNE
14 Jun 2021	1:00 PM	1.4	NNE
14 Jun 2021	2:00 PM	1.4	ENE
14 Jun 2021	3:00 PM	1.4	NE
14 Jun 2021	4:00 PM	1.0	ENE
14 Jun 2021	5:00 PM	1.4	ENE
14 Jun 2021	6:00 PM	1.0	NNE
14 Jun 2021	7:00 PM	1.0	NNE
14 Jun 2021	8:00 PM	1.0	NNE
14 Jun 2021	9:00 PM	1.0	NNE
14 Jun 2021	10:00 PM	1.4	ENE
14 Jun 2021	11:00 PM	1.4	NNE
15 Jun 2021	12:00 AM	1.4	NNE
15 Jun 2021	1:00 AM	1.4	NE
15 Jun 2021	2:00 AM	1.4	NNE
15 Jun 2021	3:00 AM	1.4	NNE
15 Jun 2021	4:00 AM	1.4	NNE
15 Jun 2021	5:00 AM	1.4	NNE
15 Jun 2021	6:00 AM	2.3	ENE
15 Jun 2021	7:00 AM	2.3	ENE
15 Jun 2021	8:00 AM	1.9	ENE
15 Jun 2021	9:00 AM	1.9	NNE
15 Jun 2021	10:00 AM	1.9	NNE
15 Jun 2021	11:00 AM	1.4	NNE
15 Jun 2021	12:00 PM	1.4	NNE
15 Jun 2021	1:00 PM	1.0	NNE
15 Jun 2021	2:00 PM	1.4	ENE
15 Jun 2021	3:00 PM	1.4	ENE
15 Jun 2021	4:00 PM	1.4	NNE
15 Jun 2021	5:00 PM	1.4	NNE
15 Jun 2021	6:00 PM	1.4	NNE
15 Jun 2021	7:00 PM	1.0	NNE
15 Jun 2021	8:00 PM	1.4	NNE
15 Jun 2021	9:00 PM	1.0	NNE
15 Jun 2021	10:00 PM	1.0	NNE
15 Jun 2021	11:00 PM	1.0	NNE

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
16 Jun 2021	12:00 AM	1.0	NNE
16 Jun 2021	1:00 AM	1.0	NNE
16 Jun 2021	2:00 AM	1.4	NNE
16 Jun 2021	3:00 AM	1.4	NE
16 Jun 2021	4:00 AM	1.9	NNE
16 Jun 2021	5:00 AM	1.9	NNE
16 Jun 2021	6:00 AM	1.9	NNE
16 Jun 2021	7:00 AM	1.4	ENE
16 Jun 2021	8:00 AM	1.9	NNE
16 Jun 2021	9:00 AM	1.4	NE
16 Jun 2021	10:00 AM	1.0	NNE
16 Jun 2021	11:00 AM	1.9	ENE
16 Jun 2021	12:00 PM	1.4	ENE
16 Jun 2021	1:00 PM	1.4	ENE
16 Jun 2021	2:00 PM	1.4	ENE
16 Jun 2021	3:00 PM	1.4	ENE
16 Jun 2021	4:00 PM	1.4	ENE
16 Jun 2021	5:00 PM	1.4	ENE
16 Jun 2021	6:00 PM	1.4	ENE
16 Jun 2021	7:00 PM	1.4	ENE
16 Jun 2021	8:00 PM	1.0	NE
16 Jun 2021	9:00 PM	1.0	ENE
16 Jun 2021	10:00 PM	1.0	NE
16 Jun 2021	11:00 PM	1.0	ENE
17 Jun 2021	12:00 AM	1.0	N
17 Jun 2021	1:00 AM	1.4	NNE
17 Jun 2021	2:00 AM	2.8	ENE
17 Jun 2021	3:00 AM	3.2	ENE
17 Jun 2021	4:00 AM	3.2	ENE
17 Jun 2021	5:00 AM	1.9	ENE
17 Jun 2021	6:00 AM	1.9	ENE
17 Jun 2021	7:00 AM	1.9	ENE
17 Jun 2021	8:00 AM	1.4	SW
17 Jun 2021	9:00 AM	0.5	SSW
17 Jun 2021	10:00 AM	1.4	ENE
17 Jun 2021	11:00 AM	1.9	ENE
17 Jun 2021	12:00 PM	1.4	ENE
17 Jun 2021	1:00 PM	1.4	ENE
17 Jun 2021	2:00 PM	1.4	ENE
17 Jun 2021	3:00 PM	1.0	ENE
17 Jun 2021	4:00 PM	1.4	ENE
17 Jun 2021	5:00 PM	1.4	ENE
17 Jun 2021	6:00 PM	1.0	NE
17 Jun 2021	7:00 PM	0.5	NE
17 Jun 2021	8:00 PM	0.5	NE

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
17 Jun 2021	9:00 PM	0.5	NE
17 Jun 2021	10:00 PM	0.5	N
17 Jun 2021	11:00 PM	0.5	N
18 Jun 2021	12:00 AM	1.0	N
18 Jun 2021	1:00 AM	0.5	NE
18 Jun 2021	2:00 AM	1.0	ENE
18 Jun 2021	3:00 AM	1.0	ENE
18 Jun 2021	4:00 AM	2.3	ENE
18 Jun 2021	5:00 AM	1.9	ENE
18 Jun 2021	6:00 AM	1.9	SW
18 Jun 2021	7:00 AM	1.9	SW
18 Jun 2021	8:00 AM	2.8	ENE
18 Jun 2021	9:00 AM	3.2	ENE
18 Jun 2021	10:00 AM	2.8	ENE
18 Jun 2021	11:00 AM	2.3	ENE
18 Jun 2021	12:00 PM	1.0	SW
18 Jun 2021	1:00 PM	0.1	NNE
18 Jun 2021	2:00 PM	0.5	NE
18 Jun 2021	3:00 PM	1.0	ENE
18 Jun 2021	4:00 PM	1.0	ENE
18 Jun 2021	5:00 PM	0.5	NNE
18 Jun 2021	6:00 PM	0.5	NNE
18 Jun 2021	7:00 PM	0.5	NNE
18 Jun 2021	8:00 PM	0.5	NNE
18 Jun 2021	9:00 PM	1.0	NNE
18 Jun 2021	10:00 PM	0.5	NNE
18 Jun 2021	11:00 PM	1.0	NNE
19 Jun 2021	12:00 AM	0.5	NNE
19 Jun 2021	1:00 AM	1.0	ENE
19 Jun 2021	2:00 AM	0.5	ENE
19 Jun 2021	3:00 AM	1.0	SW
19 Jun 2021	4:00 AM	1.0	SSW
19 Jun 2021	5:00 AM	1.4	ESE
19 Jun 2021	6:00 AM	1.4	ENE
19 Jun 2021	7:00 AM	1.4	SW
19 Jun 2021	8:00 AM	1.4	E
19 Jun 2021	9:00 AM	1.4	SSW
19 Jun 2021	10:00 AM	1.4	ESE
19 Jun 2021	11:00 AM	1.0	ENE
19 Jun 2021	12:00 PM	1.0	ESE
19 Jun 2021	1:00 PM	1.0	ENE
19 Jun 2021	2:00 PM	2.3	ENE
19 Jun 2021	3:00 PM	1.9	ENE
19 Jun 2021	4:00 PM	1.9	ENE
19 Jun 2021	5:00 PM	2.3	ENE

Appendix C - Weather Conditions during Monitoring Period

June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
19 Jun 2021	6:00 PM	2.3	ENE
19 Jun 2021	7:00 PM	2.3	ENE
19 Jun 2021	8:00 PM	1.9	ENE
19 Jun 2021	9:00 PM	1.9	ENE
19 Jun 2021	10:00 PM	1.0	ESE
19 Jun 2021	11:00 PM	1.0	SW
20 Jun 2021	12:00 AM	1.0	ESE
20 Jun 2021	1:00 AM	1.0	SW
20 Jun 2021	2:00 AM	1.0	ENE
20 Jun 2021	3:00 AM	1.4	ESE
20 Jun 2021	4:00 AM	1.4	ENE
20 Jun 2021	5:00 AM	1.9	E
20 Jun 2021	6:00 AM	1.4	E
20 Jun 2021	7:00 AM	1.9	ESE
20 Jun 2021	8:00 AM	1.9	ESE
20 Jun 2021	9:00 AM	1.9	S
20 Jun 2021	10:00 AM	1.4	ESE
20 Jun 2021	11:00 AM	1.0	S
20 Jun 2021	12:00 PM	1.4	SW
20 Jun 2021	1:00 PM	1.0	E
20 Jun 2021	2:00 PM	1.4	ENE
20 Jun 2021	3:00 PM	2.3	ENE
20 Jun 2021	4:00 PM	1.0	ENE
20 Jun 2021	5:00 PM	1.0	ENE
20 Jun 2021	6:00 PM	1.0	SW
20 Jun 2021	7:00 PM	1.0	E
20 Jun 2021	8:00 PM	1.0	SE
20 Jun 2021	9:00 PM	1.0	ENE
20 Jun 2021	10:00 PM	1.9	ENE
20 Jun 2021	11:00 PM	1.0	SW
21 Jun 2021	12:00 AM	1.0	SW
21 Jun 2021	1:00 AM	1.0	SW
21 Jun 2021	2:00 AM	1.0	ENE
21 Jun 2021	3:00 AM	1.4	SSW
21 Jun 2021	4:00 AM	1.4	E
21 Jun 2021	5:00 AM	0.5	ESE
21 Jun 2021	6:00 AM	0.5	ESE
21 Jun 2021	7:00 AM	0.5	SSW
21 Jun 2021	8:00 AM	0.1	SSW
21 Jun 2021	9:00 AM	0.5	SSW
21 Jun 2021	10:00 AM	0.5	SSW
21 Jun 2021	11:00 AM	1.4	SW
21 Jun 2021	12:00 PM	1.0	SW
21 Jun 2021	1:00 PM	1.0	ENE
21 Jun 2021	2:00 PM	1.0	SW

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
21 Jun 2021	3:00 PM	1.0	SSE
21 Jun 2021	4:00 PM	1.4	SW
21 Jun 2021	5:00 PM	1.4	ENE
21 Jun 2021	6:00 PM	1.0	SW
21 Jun 2021	7:00 PM	1.4	SW
21 Jun 2021	8:00 PM	1.4	SSW
21 Jun 2021	9:00 PM	1.4	ENE
21 Jun 2021	10:00 PM	1.4	ESE
21 Jun 2021	11:00 PM	1.0	E
22 Jun 2021	12:00 AM	1.0	SW
22 Jun 2021	1:00 AM	1.4	SW
22 Jun 2021	2:00 AM	1.4	SW
22 Jun 2021	3:00 AM	1.9	E
22 Jun 2021	4:00 AM	1.4	ENE
22 Jun 2021	5:00 AM	1.9	ENE
22 Jun 2021	6:00 AM	1.4	ENE
22 Jun 2021	7:00 AM	1.4	ESE
22 Jun 2021	8:00 AM	1.4	E
22 Jun 2021	9:00 AM	1.4	ESE
22 Jun 2021	10:00 AM	1.0	E
22 Jun 2021	11:00 AM	1.4	SW
22 Jun 2021	12:00 PM	1.0	E
22 Jun 2021	1:00 PM	0.5	S
22 Jun 2021	2:00 PM	1.9	ENE
22 Jun 2021	3:00 PM	1.4	ENE
22 Jun 2021	4:00 PM	1.9	ENE
22 Jun 2021	5:00 PM	1.0	ENE
22 Jun 2021	6:00 PM	1.0	E
22 Jun 2021	7:00 PM	1.0	ENE
22 Jun 2021	8:00 PM	1.4	ENE
22 Jun 2021	9:00 PM	2.3	ENE
22 Jun 2021	10:00 PM	1.0	ENE
22 Jun 2021	11:00 PM	1.0	ENE
23 Jun 2021	12:00 AM	1.0	ENE
23 Jun 2021	1:00 AM	1.4	ESE
23 Jun 2021	2:00 AM	1.0	SE
23 Jun 2021	3:00 AM	1.4	ESE
23 Jun 2021	4:00 AM	1.9	ENE
23 Jun 2021	5:00 AM	1.0	SSW
23 Jun 2021	6:00 AM	1.0	SSW
23 Jun 2021	7:00 AM	1.4	SSW
23 Jun 2021	8:00 AM	2.3	SSW
23 Jun 2021	9:00 AM	2.3	SSW
23 Jun 2021	10:00 AM	1.4	SSW
23 Jun 2021	11:00 AM	2.3	SSW

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
23 Jun 2021	12:00 PM	1.4	SSW
23 Jun 2021	1:00 PM	0.5	SSW
23 Jun 2021	2:00 PM	1.4	SSW
23 Jun 2021	3:00 PM	0.5	SSW
23 Jun 2021	4:00 PM	1.0	SSW
23 Jun 2021	5:00 PM	0.5	ESE
23 Jun 2021	6:00 PM	1.0	SSW
23 Jun 2021	7:00 PM	1.0	ENE
23 Jun 2021	8:00 PM	1.0	ESE
23 Jun 2021	9:00 PM	0.5	E
23 Jun 2021	10:00 PM	0.5	ENE
23 Jun 2021	11:00 PM	0.0	NNE
24 Jun 2021	12:00 AM	0.5	ENE
24 Jun 2021	1:00 AM	1.9	ENE
24 Jun 2021	2:00 AM	1.4	ENE
24 Jun 2021	3:00 AM	1.4	ENE
24 Jun 2021	4:00 AM	1.9	ENE
24 Jun 2021	5:00 AM	1.0	ENE
24 Jun 2021	6:00 AM	1.9	ENE
24 Jun 2021	7:00 AM	2.3	SW
24 Jun 2021	8:00 AM	2.3	ENE
24 Jun 2021	9:00 AM	1.9	ENE
24 Jun 2021	10:00 AM	0.5	NE
24 Jun 2021	11:00 AM	0.5	SW
24 Jun 2021	12:00 PM	1.0	ENE
24 Jun 2021	1:00 PM	1.0	ENE
24 Jun 2021	2:00 PM	1.4	ENE
24 Jun 2021	3:00 PM	2.3	ENE
24 Jun 2021	4:00 PM	1.0	ENE
24 Jun 2021	5:00 PM	1.4	ENE
24 Jun 2021	6:00 PM	0.5	ENE
24 Jun 2021	7:00 PM	0.5	NE
24 Jun 2021	8:00 PM	1.0	ENE
24 Jun 2021	9:00 PM	0.5	NE
24 Jun 2021	10:00 PM	0.5	NE
24 Jun 2021	11:00 PM	1.4	NE
25 Jun 2021	12:00 AM	1.4	SW
25 Jun 2021	1:00 AM	0.5	SW
25 Jun 2021	2:00 AM	0.5	SW
25 Jun 2021	3:00 AM	1.0	SW
25 Jun 2021	4:00 AM	1.4	SW
25 Jun 2021	5:00 AM	1.4	SW
25 Jun 2021	6:00 AM	1.4	SW
25 Jun 2021	7:00 AM	1.0	SW
25 Jun 2021	8:00 AM	1.0	SW

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
25 Jun 2021	9:00 AM	1.4	SW
25 Jun 2021	10:00 AM	1.4	ENE
25 Jun 2021	11:00 AM	1.9	SW
25 Jun 2021	12:00 PM	1.4	SW
25 Jun 2021	1:00 PM	0.5	NE
25 Jun 2021	2:00 PM	1.0	SW
25 Jun 2021	3:00 PM	1.4	SW
25 Jun 2021	4:00 PM	1.4	ENE
25 Jun 2021	5:00 PM	1.4	ENE
25 Jun 2021	6:00 PM	1.9	ENE
25 Jun 2021	7:00 PM	1.4	ENE
25 Jun 2021	8:00 PM	1.4	ENE
25 Jun 2021	9:00 PM	1.0	NNE
25 Jun 2021	10:00 PM	1.0	NE
25 Jun 2021	11:00 PM	1.0	NNE
26 Jun 2021	12:00 AM	1.0	NNE
26 Jun 2021	1:00 AM	1.4	ENE
26 Jun 2021	2:00 AM	1.0	SW
26 Jun 2021	3:00 AM	1.9	ENE
26 Jun 2021	4:00 AM	1.4	NNE
26 Jun 2021	5:00 AM	2.3	ENE
26 Jun 2021	6:00 AM	1.4	SSW
26 Jun 2021	7:00 AM	1.0	ENE
26 Jun 2021	8:00 AM	1.0	NNE
26 Jun 2021	9:00 AM	3.2	ENE
26 Jun 2021	10:00 AM	1.9	ENE
26 Jun 2021	11:00 AM	1.9	NE
26 Jun 2021	12:00 PM	1.4	NE
26 Jun 2021	1:00 PM	1.4	NE
26 Jun 2021	2:00 PM	1.4	NE
26 Jun 2021	3:00 PM	1.4	NE
26 Jun 2021	4:00 PM	1.0	NNE
26 Jun 2021	5:00 PM	1.4	ENE
26 Jun 2021	6:00 PM	1.4	ENE
26 Jun 2021	7:00 PM	1.9	ENE
26 Jun 2021	8:00 PM	1.0	NE
26 Jun 2021	9:00 PM	1.0	NNE
26 Jun 2021	10:00 PM	1.4	ENE
26 Jun 2021	11:00 PM	1.4	ENE
27 Jun 2021	12:00 AM	0.5	NE
27 Jun 2021	1:00 AM	1.0	SW
27 Jun 2021	2:00 AM	1.4	ENE
27 Jun 2021	3:00 AM	1.4	ENE
27 Jun 2021	4:00 AM	2.8	ENE
27 Jun 2021	5:00 AM	1.9	ENE

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
27 Jun 2021	6:00 AM	1.4	ENE
27 Jun 2021	7:00 AM	1.4	ENE
27 Jun 2021	8:00 AM	2.3	ENE
27 Jun 2021	9:00 AM	2.3	ENE
27 Jun 2021	10:00 AM	1.4	ENE
27 Jun 2021	11:00 AM	2.3	ENE
27 Jun 2021	12:00 PM	1.9	NE
27 Jun 2021	1:00 PM	1.4	ENE
27 Jun 2021	2:00 PM	1.0	NNE
27 Jun 2021	3:00 PM	1.4	NE
27 Jun 2021	4:00 PM	1.0	NNE
27 Jun 2021	5:00 PM	1.0	ENE
27 Jun 2021	6:00 PM	1.4	NE
27 Jun 2021	7:00 PM	0.5	NE
27 Jun 2021	8:00 PM	1.0	ENE
27 Jun 2021	9:00 PM	1.0	SSW
27 Jun 2021	10:00 PM	1.0	ENE
27 Jun 2021	11:00 PM	0.5	NNE
28 Jun 2021	12:00 AM	1.0	SW
28 Jun 2021	1:00 AM	0.5	NE
28 Jun 2021	2:00 AM	1.0	ENE
28 Jun 2021	3:00 AM	1.4	ENE
28 Jun 2021	4:00 AM	1.9	ENE
28 Jun 2021	5:00 AM	1.9	ENE
28 Jun 2021	6:00 AM	1.9	ENE
28 Jun 2021	7:00 AM	3.2	ENE
28 Jun 2021	8:00 AM	2.8	ENE
28 Jun 2021	9:00 AM	1.9	SSW
28 Jun 2021	10:00 AM	1.4	SSW
28 Jun 2021	11:00 AM	0.5	NNE
28 Jun 2021	12:00 PM	0.5	NNE
28 Jun 2021	1:00 PM	0.5	NNE
28 Jun 2021	2:00 PM	1.0	NNE
28 Jun 2021	3:00 PM	0.5	NNE
28 Jun 2021	4:00 PM	0.5	NNE
28 Jun 2021	5:00 PM	1.0	NNE
28 Jun 2021	6:00 PM	0.5	NE
28 Jun 2021	7:00 PM	0.5	NNE
28 Jun 2021	8:00 PM	0.5	NNE
28 Jun 2021	9:00 PM	1.4	NE
28 Jun 2021	10:00 PM	1.0	NNE
28 Jun 2021	11:00 PM	0.5	N
29 Jun 2021	12:00 AM	0.5	ENE
29 Jun 2021	1:00 AM	0.5	NE
29 Jun 2021	2:00 AM	1.0	ENE

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June 2021			
Table II: Wind Speed and Directions			
Date	Time	Wind Speed m-s	Direction
29 Jun 2021	3:00 AM	0.5	N
29 Jun 2021	4:00 AM	1.4	NNE
29 Jun 2021	5:00 AM	1.9	NNE
29 Jun 2021	6:00 AM	2.3	NNE
29 Jun 2021	7:00 AM	1.9	NE
29 Jun 2021	8:00 AM	1.9	NNE
29 Jun 2021	9:00 AM	1.9	NNE
29 Jun 2021	10:00 AM	2.3	NNE
29 Jun 2021	11:00 AM	1.4	NNE
29 Jun 2021	12:00 PM	1.4	NNE
29 Jun 2021	1:00 PM	1.4	NNE
29 Jun 2021	2:00 PM	1.4	NNE
29 Jun 2021	3:00 PM	1.9	NNE
29 Jun 2021	4:00 PM	1.4	NNE
29 Jun 2021	5:00 PM	1.4	NNE
29 Jun 2021	6:00 PM	1.4	NNE
29 Jun 2021	7:00 PM	1.0	NNE
29 Jun 2021	8:00 PM	1.4	ENE
29 Jun 2021	9:00 PM	1.0	NNE
29 Jun 2021	10:00 PM	1.0	NNE
29 Jun 2021	11:00 PM	0.5	S
30 Jun 2021	12:00 AM	1.0	SSE
30 Jun 2021	1:00 AM	1.0	S
30 Jun 2021	2:00 AM	1.0	NNE
30 Jun 2021	3:00 AM	1.9	NNE
30 Jun 2021	4:00 AM	1.4	NNE
30 Jun 2021	5:00 AM	1.4	NNE
30 Jun 2021	6:00 AM	1.9	NNE
30 Jun 2021	7:00 AM	1.4	NNE
30 Jun 2021	8:00 AM	1.0	NNE
30 Jun 2021	9:00 AM	3.2	ENE
30 Jun 2021	10:00 AM	1.9	ENE
30 Jun 2021	11:00 AM	1.9	NE
30 Jun 2021	12:00 PM	1.4	NE
30 Jun 2021	1:00 PM	1.4	NE
30 Jun 2021	2:00 PM	1.4	NE
30 Jun 2021	3:00 PM	1.4	NE
30 Jun 2021	4:00 PM	1.0	NNE
30 Jun 2021	5:00 PM	1.4	ENE
30 Jun 2021	6:00 PM	1.4	ENE
30 Jun 2021	7:00 PM	1.9	ENE
30 Jun 2021	8:00 PM	1.0	NE
30 Jun 2021	9:00 PM	1.0	NNE
30 Jun 2021	10:00 PM	1.4	ENE
30 Jun 2021	11:00 PM	1.4	ENE

**APPENDIX D
ENVIRONMENTAL MONITORING
SCHEDULES**

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Impact Air Quality and Noise Monitoring Schedule (June 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Jun	2-Jun	3-Jun	4-Jun	5-Jun
		1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Daytime (07:00-19:00)] [CM6(A), CM7(A), CM8(A)] [CM1, CM2, CM3, CM4, CM5] Noise [Evening time (19:00-23:00)] [CM6(A)]			Noise [Evening time (19:00-23:00)] [CM1, CM2, CM3] Noise [Night-time (23:00-07:00)] [CM1, CM2, CM3]	24hr TSP
6-Jun	7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun
	1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Daytime (07:00-19:00)] [CM6(A), CM7(A), CM8(A)] [CM1, CM2, CM3, CM4, CM5] Noise [Evening time (19:00-23:00)] [CM6(A)]		24hr TSP	1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Evening time (19:00-23:00)] [CM1, CM2, CM3] Noise [Night-time (23:00-07:00)] [CM1, CM2, CM3]		
13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
			1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Daytime (07:00-19:00)] [CM6(A), CM7(A), CM8(A)] [CM1, CM2, CM3, CM4, CM5] Noise [Evening time (19:00-23:00)] [CM6(A)]		Noise [Evening time (19:00-23:00)] [CM1, CM2, CM3] Noise [Night-time (23:00-07:00)] [CM1, CM2, CM3]	
20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun
		1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Daytime (07:00-19:00)] [CM6(A), CM7(A), CM8(A)] [CM1, CM2, CM3, CM4, CM5] Noise [Evening time (19:00-23:00)] [CM6(A)]			Noise [Evening time (19:00-23:00)] [CM1, CM2, CM3] Noise [Night-time (23:00-07:00)] [CM1, CM2, CM3]	24hr TSP
27-Jun	28-Jun	29-Jun	30-Jun			
	1 hr TSP X3 [AM5(A), AM6(A)] [AM1, AM2, AM3, AM4] Noise [Daytime (07:00-19:00)] [CM6(A), CM7(A), CM8(A)] [CM1, CM2, CM3, CM4, CM5] Noise [Evening time (19:00-23:00)] [CM6(A)]		24hr TSP			

Air Quality Monitoring Station

AM1 - Tin Hau Temple
 AM2 - Sai Tso Wan Recreation Ground
 AM3 - Yau Lai Estate Bik Lai House
 AM4⁽¹⁾ - Sitting-out Area at Cha Kwo Ling Village
 AM4(A)⁽²⁾ - Cha Kwo Ling Public Cargo Working Area Administrative Office
 AM5(A) - Tseung Kwan O DSD Desilting Compound
 AM6(A) - Park Central, L1/F Open Space Area

Noise Monitoring Station

CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong
 CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong
 CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong
 CM4 - Tin Hau Temple, Cha Kwo Ling
 CM5 - CCC Kei Faat Primary School, Yau Tong
 CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores
 CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores
 CM8(A) - Park Central, L1/F Open Space Area

Note (1) For 1-hour TSP monitoring; (2) For 24-hour TSP monitoring

Agreement No. CE/59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Tentative Impact Water Quality Monitoring Schedule (Jun 2021)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				27-May	28-May	29-May
30-May	31-May	1-Jun	2-Jun	3-Jun	4-Jun	5-Jun
	Mid-Ebb 8:53 Mid-Flood 16:23		Mid-Flood 18:18		Mid-Ebb 8:49 Mid-Flood 14:05	
6-Jun	7-Jun	8-Jun	9-Jun	10-Jun	11-Jun	12-Jun
	Mid-Ebb 10:56 Mid-Flood 17:11		Mid-Ebb 11:57 Mid-Flood 18:39		Mid-Ebb 12:58	
13-Jun	14-Jun	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun
		Mid-Flood 7:21 Mid-Ebb 15:07		Mid-Flood 9:43 Mid-Ebb 17:08		Mid-Ebb 7:26 Mid-Flood 13:02
20-Jun	21-Jun	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun
	Mid-Ebb 9:27 Mid-Flood 15:50		Mid-Ebb 11:02 Mid-Flood 18:03		Mid-Ebb 12:41	
27-Jun	28-Jun	29-Jun	30-Jun			
	Mid-Flood 7:59 Mid-Ebb 15:10		Mid-Flood 9:37 Mid-Ebb 16:40			

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

Monitoring Station:

C1, C2, G1, G2, G3, G4, M1, M2, M3, M4, M5, M6

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

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM1 - Tin Hau Temple			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Jun-21	13:36	Fine	50.0
1-Jun-21	14:36	Fine	52.0
1-Jun-21	15:36	Fine	54.0
7-Jun-21	13:00	Sunny	36.0
7-Jun-21	14:00	Sunny	34.0
7-Jun-21	15:00	Sunny	36.0
10-Jun-21	13:00	Sunny	18.0
10-Jun-21	14:00	Sunny	22.0
10-Jun-21	15:00	Sunny	20.0
16-Jun-21	13:00	Cloudy	36.0
16-Jun-21	14:00	Cloudy	40.0
16-Jun-21	15:00	Cloudy	38.0
22-Jun-21	9:00	Cloudy	30.8
22-Jun-21	10:00	Cloudy	37.4
22-Jun-21	11:00	Cloudy	33.0
28-Jun-21	13:00	Sunny	63.8
28-Jun-21	14:00	Sunny	66.0
28-Jun-21	15:00	Sunny	61.6
Average			40.5
Maximum			66.0
Minimum			18.0

Location AM2 - Sai Tso Wan Recreation Ground			
Date	Time	Weather	Particulate Concentration ($\mu\text{g}/\text{m}^3$)
1-Jun-21	9:00	Sunny	54.0
1-Jun-21	10:00	Sunny	52.0
1-Jun-21	11:00	Sunny	52.0
7-Jun-21	15:32	Sunny	44.0
7-Jun-21	16:32	Sunny	37.4
7-Jun-21	17:32	Sunny	35.2
10-Jun-21	9:00	Sunny	16.0
10-Jun-21	10:00	Sunny	20.0
10-Jun-21	11:00	Sunny	18.0
16-Jun-21	16:00	Cloudy	39.9
16-Jun-21	17:00	Cloudy	35.7
16-Jun-21	18:00	Cloudy	31.5
22-Jun-21	16:00	Sunny	28.6
22-Jun-21	17:00	Sunny	30.8
22-Jun-21	18:00	Sunny	24.2
28-Jun-21	9:00	Sunny	132.0
28-Jun-21	10:00	Sunny	121.0
28-Jun-21	11:00	Sunny	114.4
Average			49.3
Maximum			132.0
Minimum			16.0

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM3 - Yau Lai Estate Bik Lai House			
Date	Time	Weather	<i>Particulate Concentration ($\mu\text{g}/\text{m}^3$)</i>
1-Jun-21	16:00	Sunny	76.0
1-Jun-21	17:00	Sunny	80.0
1-Jun-21	18:00	Sunny	82.0
7-Jun-21	9:00	Sunny	44.0
7-Jun-21	10:00	Sunny	52.0
7-Jun-21	11:00	Sunny	48.0
10-Jun-21	9:00	Sunny	26.0
10-Jun-21	10:00	Sunny	28.0
10-Jun-21	11:00	Sunny	22.0
16-Jun-21	9:00	Sunny	40.0
16-Jun-21	10:00	Sunny	34.0
16-Jun-21	11:00	Sunny	32.0
22-Jun-21	16:00	Sunny	24.2
22-Jun-21	17:00	Sunny	19.8
22-Jun-21	18:00	Sunny	19.8
28-Jun-21	9:00	Sunny	81.4
28-Jun-21	10:00	Sunny	77.0
28-Jun-21	11:00	Sunny	81.4
		Average	48.2
		Maximum	82.0
		Minimum	19.8

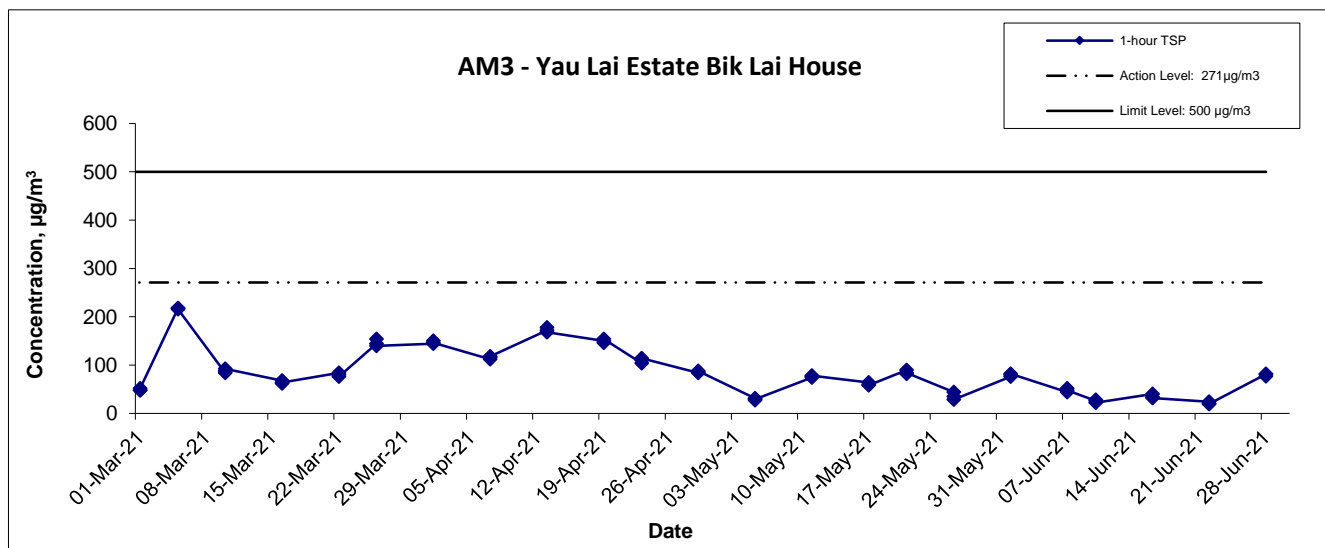
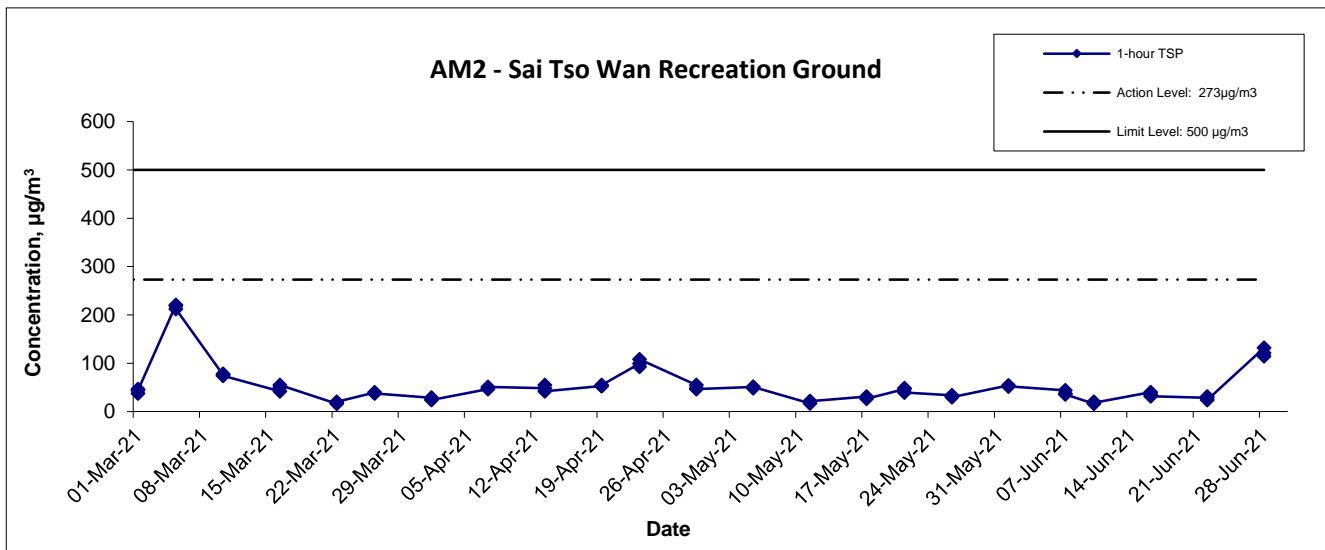
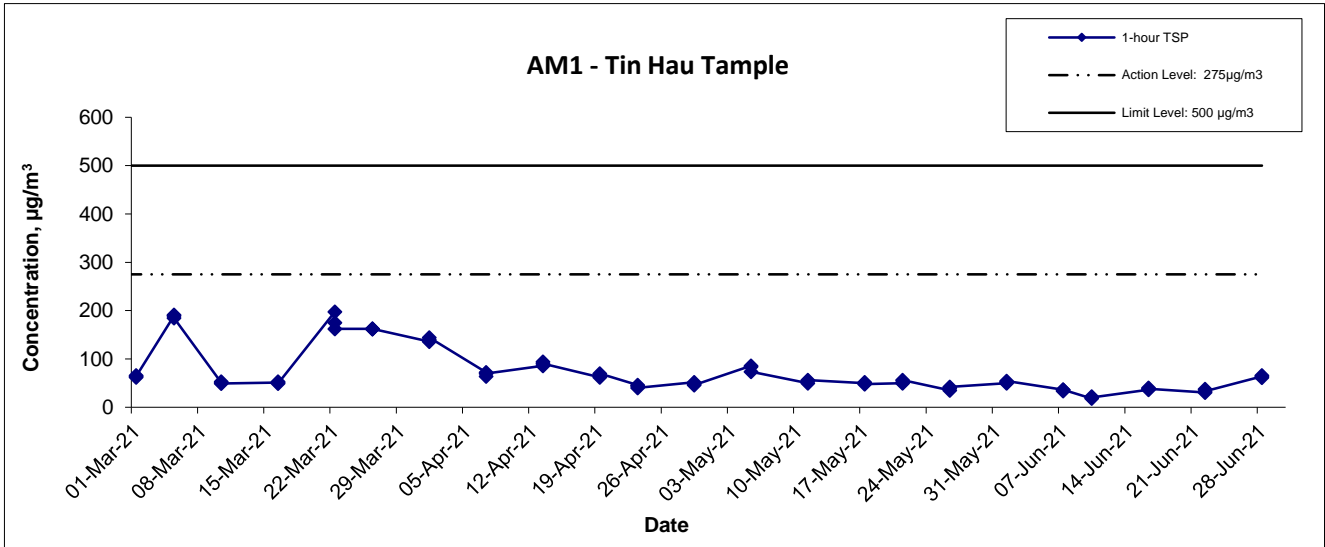
Location AM4 - Sitting-out Area at Cha Kwo Ling Village			
Date	Time	Weather	<i>Particulate Concentration ($\mu\text{g}/\text{m}^3$)</i>
1-Jun-21	16:00	Sunny	32.0
1-Jun-21	17:00	Sunny	36.0
1-Jun-21	18:00	Sunny	30.0
7-Jun-21	16:00	Sunny	32.0
7-Jun-21	17:00	Sunny	40.0
7-Jun-21	18:00	Sunny	42.0
10-Jun-21	15:00	Sunny	20.0
10-Jun-21	16:00	Sunny	24.0
10-Jun-21	17:00	Sunny	20.0
16-Jun-21	16:00	Fine	40.0
16-Jun-21	17:00	Fine	42.0
16-Jun-21	18:00	Fine	36.0
22-Jun-21	15:00	Sunny	39.6
22-Jun-21	16:00	Sunny	35.2
22-Jun-21	17:00	Sunny	39.6
28-Jun-21	16:00	Sunny	70.4
28-Jun-21	17:00	Sunny	81.4
28-Jun-21	18:00	Sunny	72.6
		Average	40.7
		Maximum	81.4
		Minimum	20.0

APPENDIX E - 1-HOUR TSP MONITORING RESULTS

Location AM5(A) - Tseung Kwan O DSD Desilting Compound			
Date	Time	Weather	<i>Particulate Concentration ($\mu\text{g}/\text{m}^3$)</i>
1-Jun-21	16:00	Sunny	38.0
1-Jun-21	17:00	Sunny	36.0
1-Jun-21	18:00	Sunny	32.0
7-Jun-21	13:00	Sunny	33.0
7-Jun-21	14:00	Sunny	37.4
7-Jun-21	15:00	Sunny	39.6
10-Jun-21	13:00	Sunny	36.0
10-Jun-21	14:00	Sunny	40.0
10-Jun-21	15:00	Sunny	38.0
16-Jun-21	13:00	Sunny	37.8
16-Jun-21	14:00	Sunny	37.8
16-Jun-21	15:00	Sunny	42.0
22-Jun-21	16:00	Sunny	46.2
22-Jun-21	17:00	Sunny	41.8
22-Jun-21	18:00	Sunny	57.2
28-Jun-21	13:00	Sunny	114.4
28-Jun-21	14:00	Sunny	112.2
28-Jun-21	15:00	Sunny	103.4
Average			51.3
Maximum			57.2
Minimum			32.0

Location AM6(A) - Park Central, L1/F Open Space Area			
Date	Time	Weather	<i>Particulate Concentration ($\mu\text{g}/\text{m}^3$)</i>
1-Jun-21	13:00	Sunny	70.0
1-Jun-21	14:00	Sunny	46.0
1-Jun-21	15:00	Sunny	60.0
7-Jun-21	9:00	Sunny	35.2
7-Jun-21	10:00	Sunny	37.4
7-Jun-21	11:00	Sunny	35.2
10-Jun-21	16:00	Sunny	46.0
10-Jun-21	17:00	Sunny	34.0
10-Jun-21	18:00	Sunny	36.0
16-Jun-21	14:00	Sunny	35.7
16-Jun-21	15:00	Sunny	39.9
16-Jun-21	16:00	Sunny	39.9
22-Jun-21	13:00	Sunny	35.2
22-Jun-21	14:00	Sunny	30.8
22-Jun-21	15:00	Sunny	35.2
28-Jun-21	16:00	Sunny	125.4
28-Jun-21	17:00	Sunny	118.8
28-Jun-21	18:00	Sunny	99.0
Average			53.3
Maximum			125.4
Minimum			30.8

1-hr TSP Concentration Levels



Agreement No. CE/59/2015 (EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel -
 Design and Construction

Graphical Presentation of 1-hour TSP Monitoring Results

Scale
 N.T.S

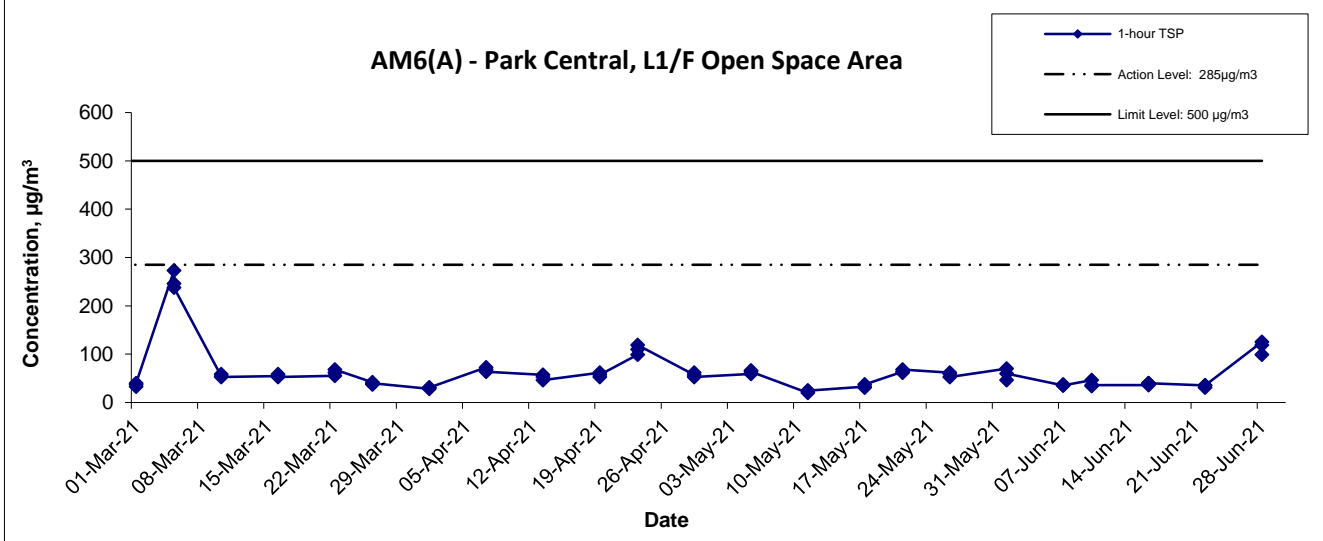
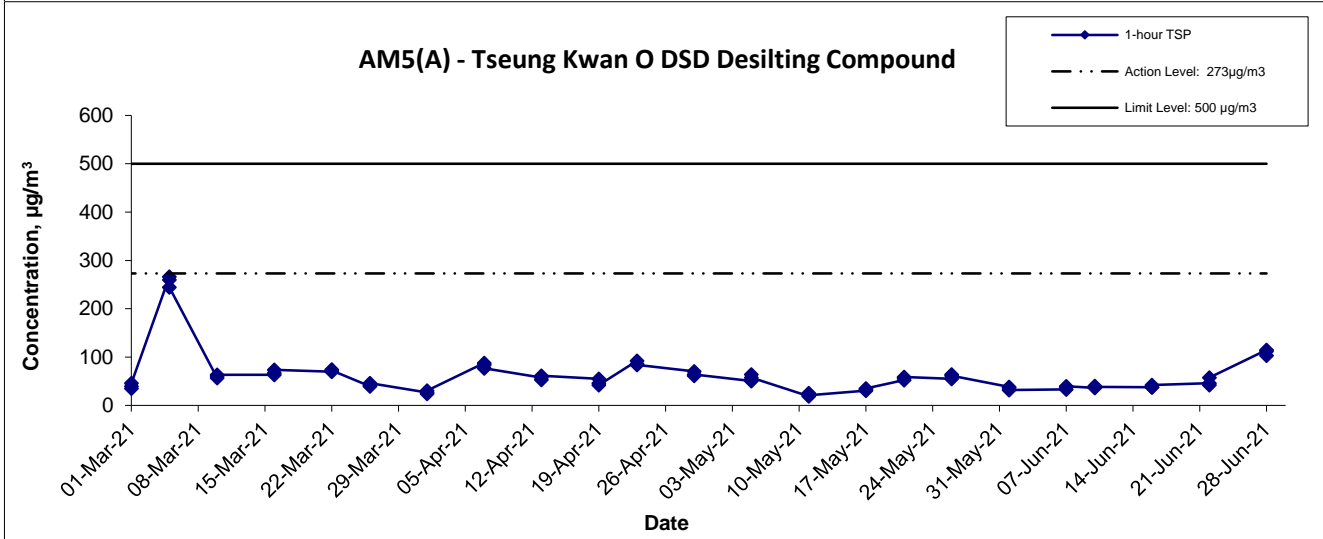
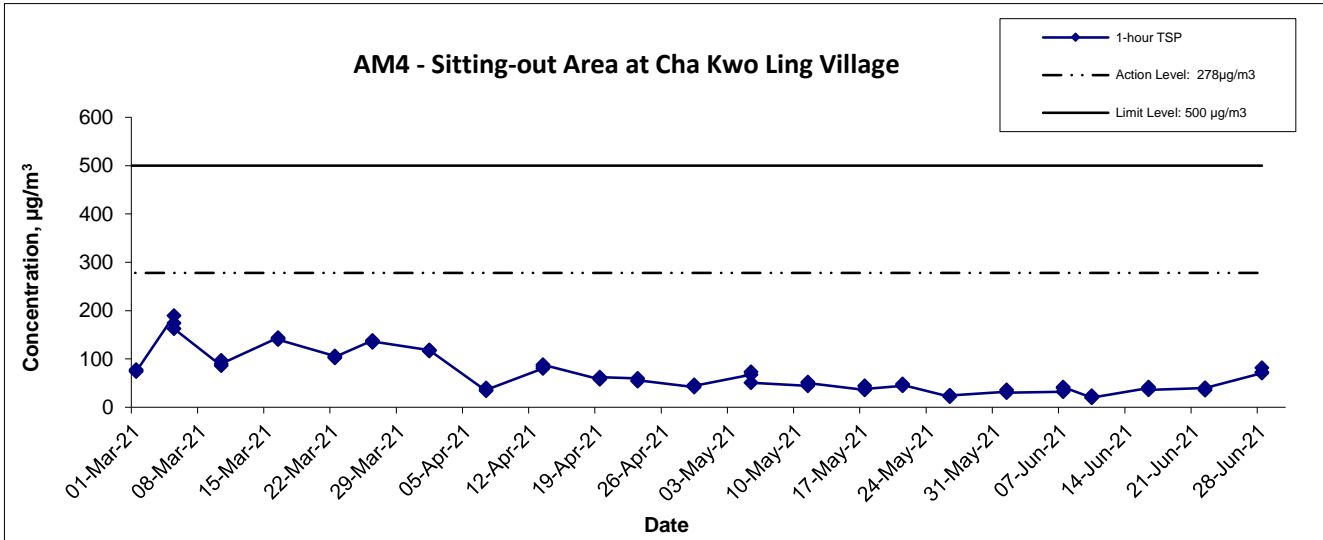
Date
 Jul 2021

Project
 No. MA16034

Appendix
 E



1-hr TSP Concentration Levels



Agreement No. CE/59/2015 (EP)
 Environmental Team for Tseung Kwan O - Lam Tin Tunnel -
 Design and Construction

Graphical Presentation of 1-hour TSP Monitoring Results

Scale
 N.T.S

Date
 Jul 2021

Project
 No. MA16034

Appendix
 E



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

Appendix F - 24-hour TSP Monitoring Results

Location AM1 - Tin Hau Temple

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.7009	3.7944	0.0935	8425.7	8449.7	24.0	1.20	1.20	1.20	1726.9	54.1
9-Jun-21	Sunny	3.6976	3.7895	0.0919	702.0	726.0	24.0	1.19	1.19	1.19	1717.5	53.5
15-Jun-21	Sunny	2.7670	2.8024	0.0354	726.0	750.0	24.0	1.19	1.19	1.19	1714.2	20.7
21-Jun-21	Cloudy	3.6654	3.7950	0.1296	750.0	774.0	24.0	1.19	1.19	1.19	1711.7	75.7
26-Jun-21	Cloudy	3.6999	3.7375	0.0376	774.0	798.0	24.0	1.20	1.19	1.19	1718.5	21.9
30-Jun-21	Sunny	3.6911	4.8963	1.2052	798.0	822.0	24.0	1.19	1.20	1.19	1716.9	702.0
											Min	20.7
											Max	702.0
											Average	154.6

*No electricity supply due the Tin Hau Temple's renovation works.

Location AM2 - Sai Tso Wan Recreation Ground

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.6738	3.8006	0.1268	29179.0	29203.0	24.0	1.20	1.20	1.20	1727.6	73.4
9-Jun-21	Sunny	3.6870	3.7155	0.0285	29203.0	29227.0	24.0	1.19	1.19	1.19	1718.5	16.6
15-Jun-21	Sunny	2.7676	2.8106	0.0430	29227.0	29251.0	24.0	1.19	1.19	1.19	1715.4	25.1
21-Jun-21	Cloudy	3.6745	3.7004	0.0259	29251.0	29275.0	24.0	1.19	1.19	1.19	1712.9	15.1
26-Jun-21	Cloudy	3.7011	3.7416	0.0405	29275.0	29299.0	24.0	1.20	1.19	1.19	1719.6	23.6
30-Jun-21	Sunny	3.7350	3.7837	0.0487	29299.0	29323.0	24.0	1.19	1.20	1.19	1718.0	28.3
											Min	15.1
											Max	73.4
											Average	30.3

Location AM3 - Yau Lai Estate, Bik Lai House

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.688	3.8823	0.1943	3920.8	3944.8	24.0	1.20	1.20	1.20	1726.3	112.6
9-Jun-21	Sunny	3.6982	3.7660	0.0678	3944.8	3968.8	24.0	1.19	1.19	1.19	1716.5	39.5
15-Jun-21	Sunny	2.7752	2.8492	0.0740	3968.8	3992.8	24.0	1.19	1.19	1.19	1713.1	43.2
21-Jun-21	Cloudy	3.6594	3.7428	0.0834	3992.8	4016.8	24.0	1.19	1.19	1.19	1710.5	48.8
26-Jun-21	Cloudy	3.6916	3.7350	0.0434	4016.8	4040.8	24.0	1.20	1.19	1.19	1717.6	25.3
30-Jun-21	Sunny	3.6943	3.7807	0.0864	4040.8	4064.8	24.0	1.19	1.20	1.19	1715.9	50.4
											Min	25.3
											Max	112.6
											Average	53.3

Appendix F - 24-hour TSP Monitoring Results

Location AM4(A) - Cha Kwo Ling Public Cargo Working Area Administrative Office

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.6995	3.8154	0.1159	14277.74	14301.7	24.0	1.20	1.20	1.20	1729.2	67.0
9-Jun-21	Sunny	3.7047	3.7655	0.0608	14301.74	14325.7	24.0	1.20	1.19	1.19	1720.4	35.3
15-Jun-21	Sunny	2.7833	2.8155	0.0322	14325.74	14349.7	24.0	1.19	1.19	1.19	1717.4	18.7
21-Jun-21	Cloudy	3.7049	3.7963	0.0914	14349.74	14373.7	24.0	1.19	1.19	1.19	1715.0	53.3
26-Jun-21	Cloudy	2.7796	2.8017	0.0221	14373.74	14397.7	24.0	1.20	1.19	1.20	1721.4	12.8
30-Jun-21	Sunny	3.7146	3.7905	0.0759	14397.74	14421.7	24.0	1.19	1.20	1.19	1719.9	44.1
											Min	12.8
											Max	67.0
											Average	38.6

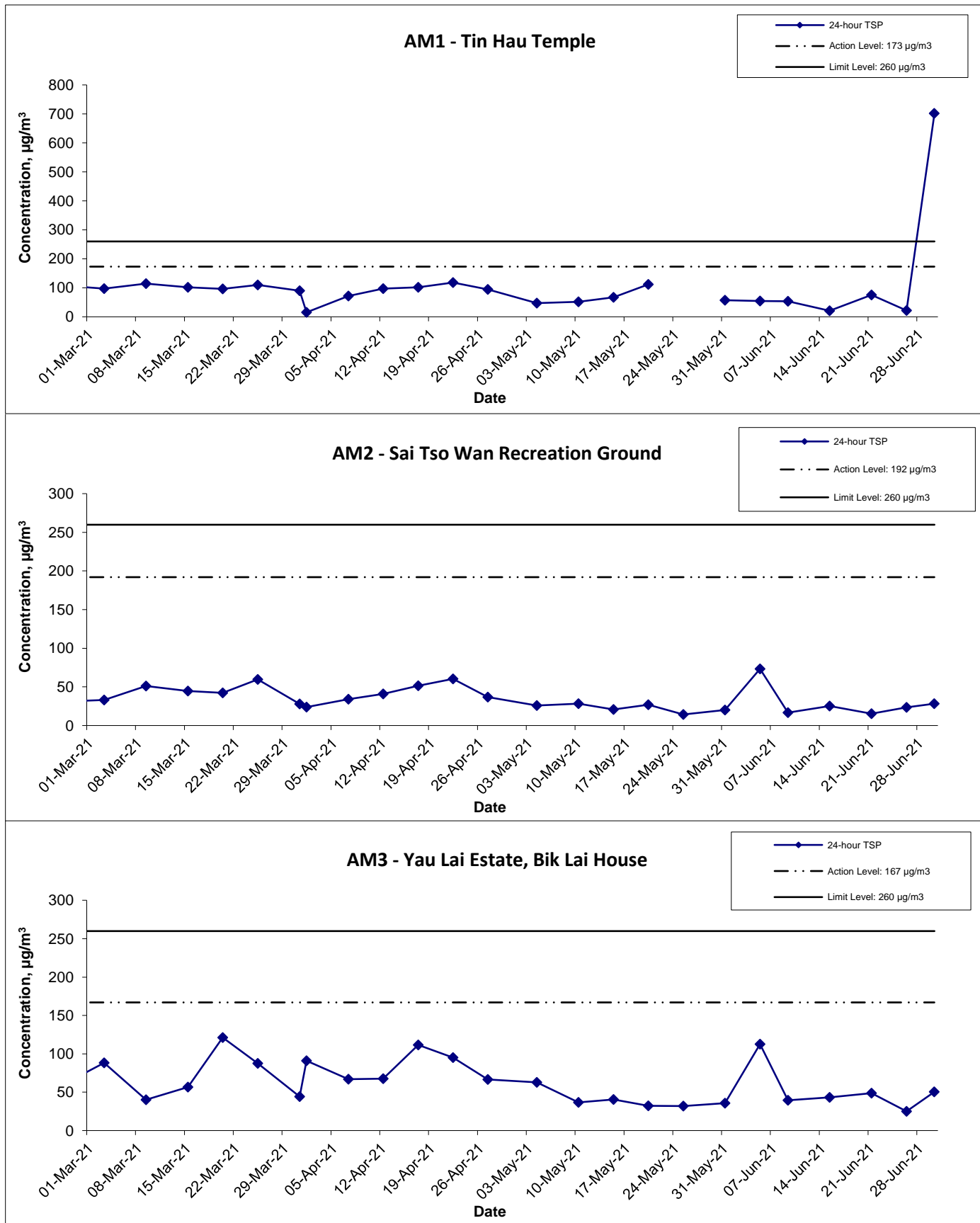
Location AM5(A) - Tseung Kwan O DSD Desilting Compound

Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.7296	3.8056	0.0760	31218.6	31242.6	24.0	1.20	1.20	1.20	1729.3	43.9
9-Jun-21	Sunny	3.7059	3.7558	0.0499	31242.6	31266.6	24.0	1.20	1.19	1.19	1720.5	29.0
15-Jun-21	Sunny	2.7413	2.8177	0.0764	31266.6	31290.6	24.0	1.19	1.19	1.19	1709.1	44.7
21-Jun-21	Cloudy	3.6915	3.7847	0.0932	31290.6	31314.6	24.0	1.19	1.19	1.19	1715.0	54.3
26-Jun-21	Cloudy	3.6749	3.7493	0.0744	31314.6	31338.6	24.0	1.20	1.19	1.20	1721.5	43.2
30-Jun-21	Sunny	3.7287	3.8326	0.1039	31338.6	31362.6	24.0	1.19	1.20	1.19	1719.9	60.4
											Min	29.0
											Max	60.4
											Average	45.9

Location AM6(A) - Park Central, L1/F Open Space Area


Start Date	Weather	Filter Weight (g)		Particulate	Elapse Time		Sampling	Flow Rate (m ³ /min.)		Av. flow	Total vol.	Conc.
	Condition	Initial	Final	Weight (g)	Initial	Final	Time(hrs.)	Initial	Final	(m ³ /min)	(m ³)	(µg/m ³)
5-Jun-21	Sunny	3.6996	3.7740	0.0744	3108.8	3132.8	24.0	1.19	1.20	1.20	1721.1	43.2
9-Jun-21	Sunny	3.71	3.7394	0.0294	3132.8	3156.8	24.0	1.21	1.21	1.21	1742.8	16.9
15-Jun-21	Sunny	3.7026	3.7862	0.0836	3156.8	3180.8	24.0	1.21	1.21	1.21	1742.8	48.0
21-Jun-21	Cloudy	3.6915	3.7356	0.0441	3180.8	3204.8	24.0	1.21	1.21	1.21	1739.4	25.4
26-Jun-21	Cloudy	3.7174	3.7566	0.0392	3204.8	3228.8	24.0	1.21	1.21	1.21	1736.7	22.6
30-Jun-21	Sunny	3.7273	3.7604	0.0331	3228.8	3252.8	24.0	1.21	1.21	1.21	1744.0	19.0
											Min	16.9
											Max	48.0
											Average	29.2

24-hr TSP Concentration Levels

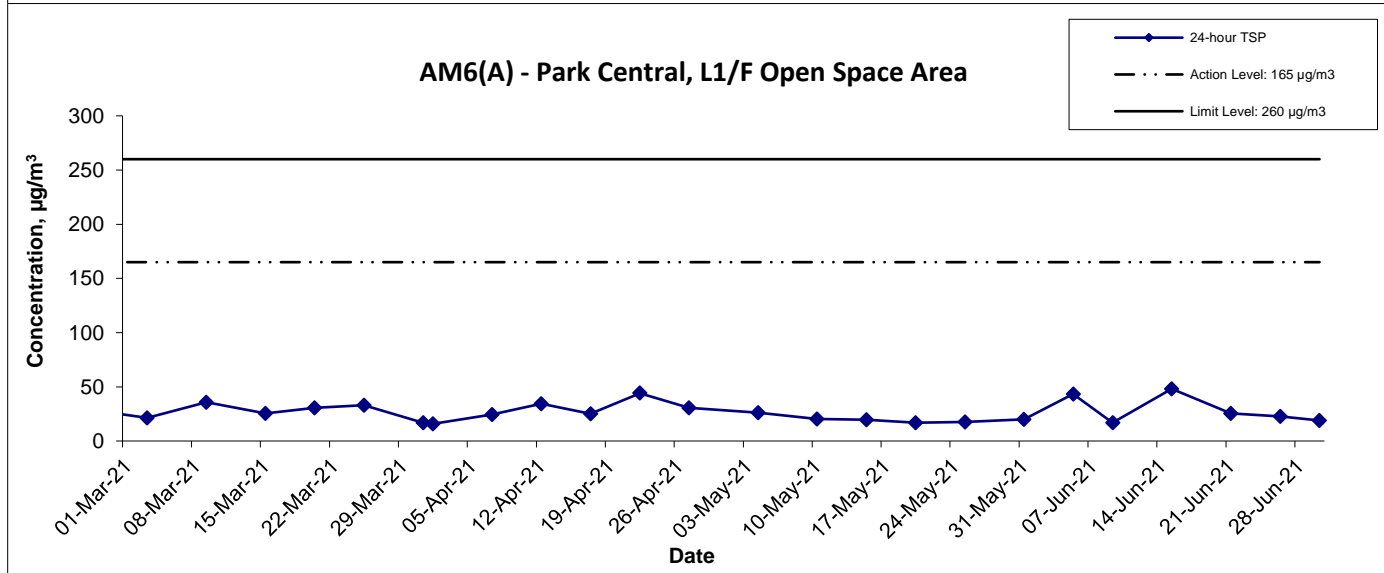
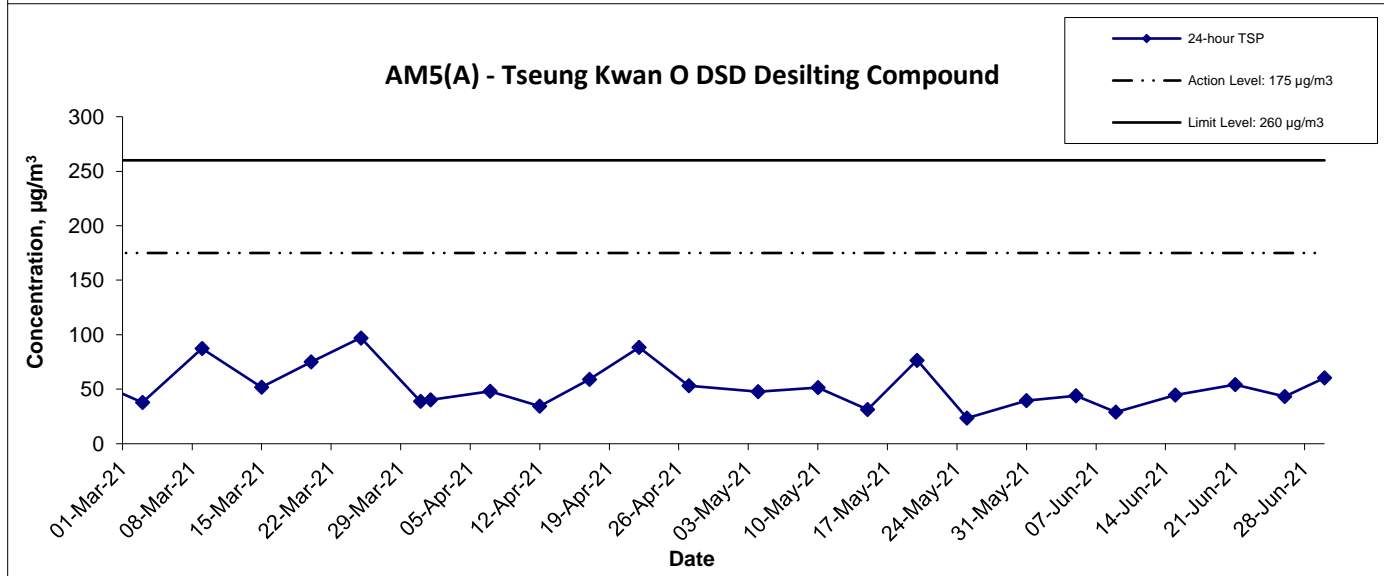
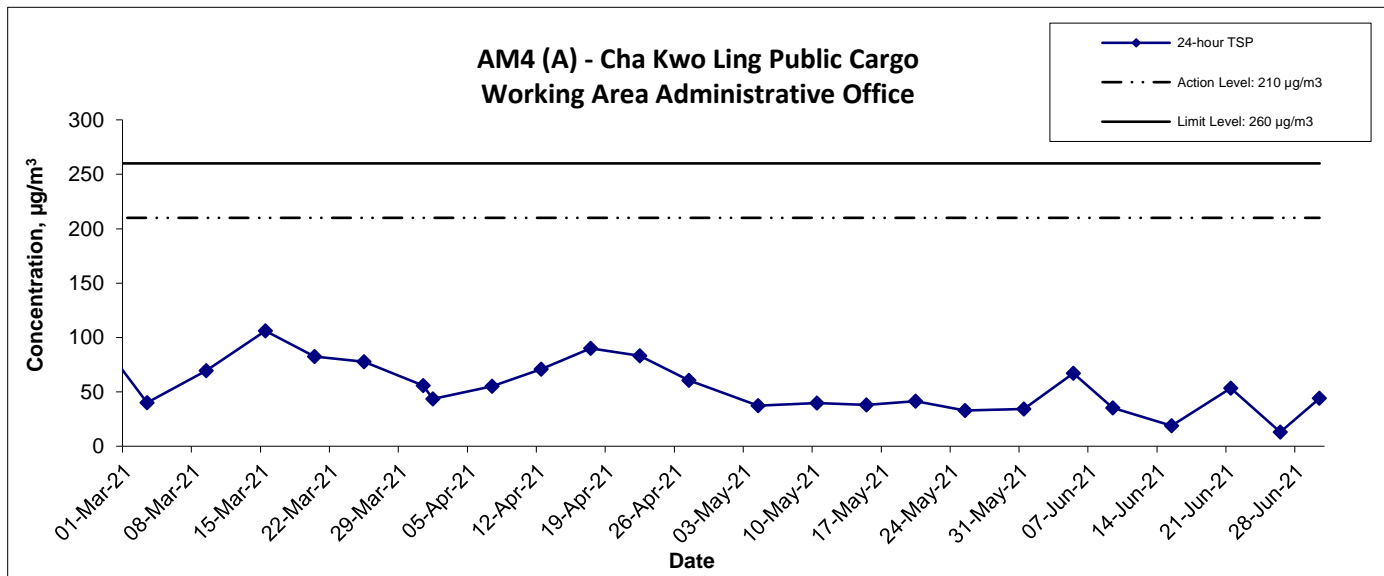


*No electricity supply due the Tin Hau Temple's renovation works on 25 May 2021.

The HVS at AM2 was broken-down during the first two week of February 2021.

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24-hr TSP Concentration Levels



Monitoring at Lam Tin side was suspended during 9th Dec 2020 - 23rd Dec 2020 due to COVID-19 outbreak

Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA16034	
	Date Jun-21	Appendix F	

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

Appendix G - Noise Monitoring Results

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	9:45	Fine	71.6	73.5	68.9	65.5	70
07-Jun-21	9:30	Sunny	72.0	74.2	68.6	65.5	71
16-Jun-21	10:15	Sunny	68.6	70.2	66.9	65.5	66
22-Jun-21	11:40	Cloudy	69.0	70.5	66.9	65.5	66
28-Jun-21	16:20	Cloudy	67.2	68.5	65.7	65.5	62

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong

Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	9:00	Fine	71.2	73.5	68.6	63.6	70
07-Jun-21	9:00	Sunny	72.2	74.3	69.7	63.6	72
16-Jun-21	9:30	Sunny	70.9	73.1	68.5	63.6	70
22-Jun-21	11:00	Cloudy	69.5	71.0	67.3	63.6	68
28-Jun-21	15:45	Cloudy	67.9	69.0	66.6	63.6	66

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong

Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	10:30	Fine	71.4	73.5	67.3	65.6	70
07-Jun-21	10:15	Sunny	71.7	73.4	67.2	65.6	70
16-Jun-21	11:45	Sunny	69.2	72.3	65.1	65.6	67
22-Jun-21	0:00	Cloudy	66.2	68.2	62.7	65.6	57
28-Jun-21	17:00	Cloudy	65.2	66.5	63.9	65.6	65 Measured \leq Baseline

Location CM4 - Tin Hau Temple, Cha Kwo Ling

Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	13:00	Fine	65.5	68.2	63.1	62.0	63
07-Jun-21	13:00	Sunny	66.7	68.0	64.4	62.0	65
16-Jun-21	14:10	Sunny	64.5	67.6	59.0	62.0	61
22-Jun-21	14:30	Cloudy	68.8	71.9	62.2	62.0	68
28-Jun-21	14:00	Cloudy	67.1	70.2	58.0	62.0	65

Location CM5 - CCC Kei Faat Primary School, Yau Tong

Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	11:30	Fine	64.2	66.3	61.8	68.2	64 Measured \leq Baseline
07-Jun-21	11:15	Sunny	65.7	68.2	63.5	68.2	66 Measured \leq Baseline
16-Jun-21	14:45	Sunny	70.4	73.4	66.1	68.2	66
22-Jun-21	16:30	Cloudy	77.1	82.5	67.6	68.2	77
28-Jun-21	15:00	Cloudy	67.8	69.9	64.5	68.2	68 Measured \leq Baseline

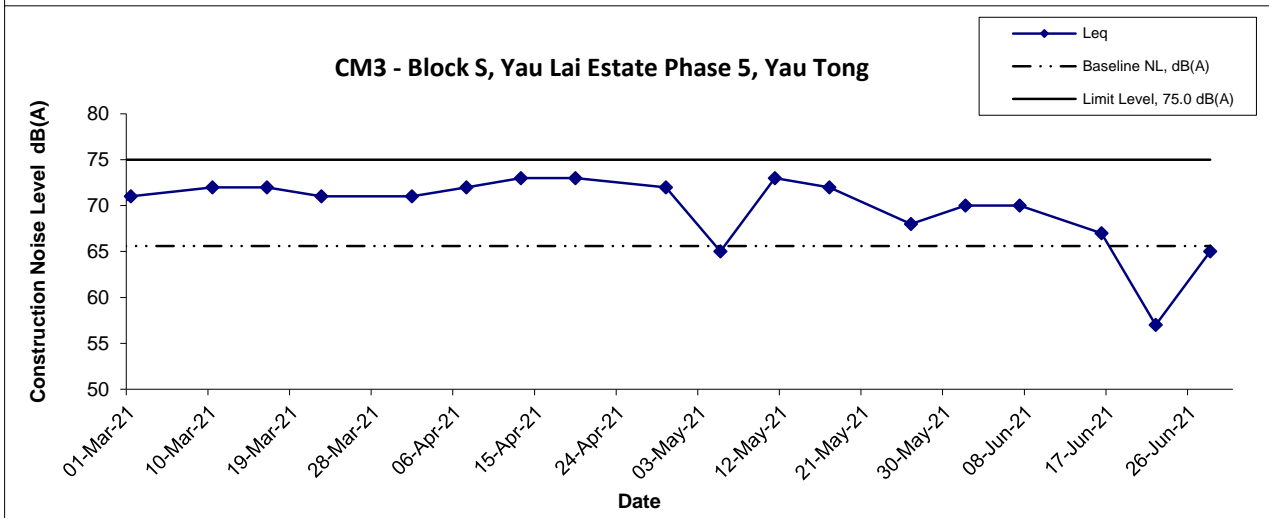
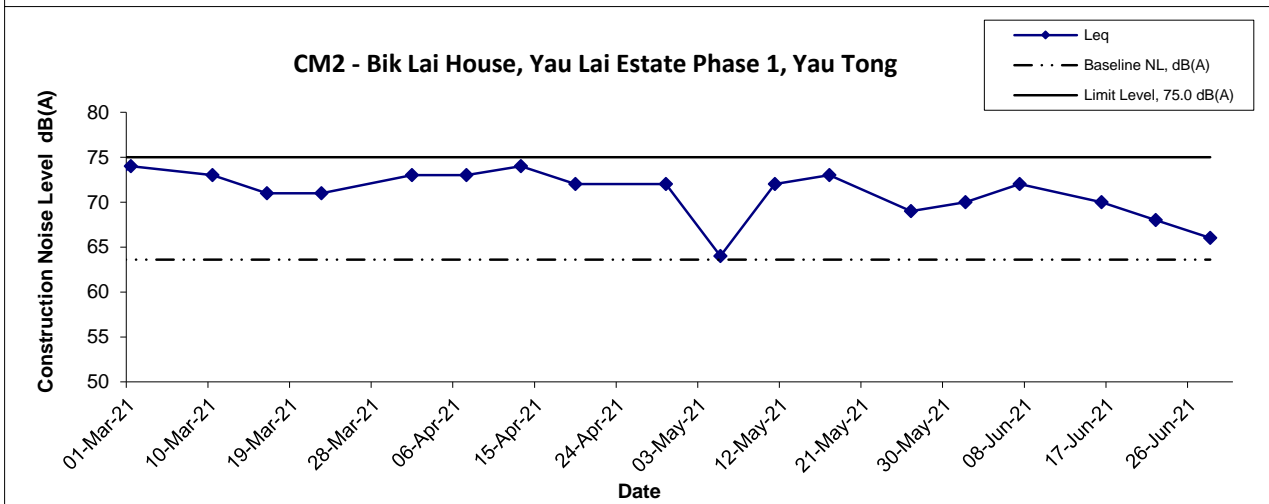
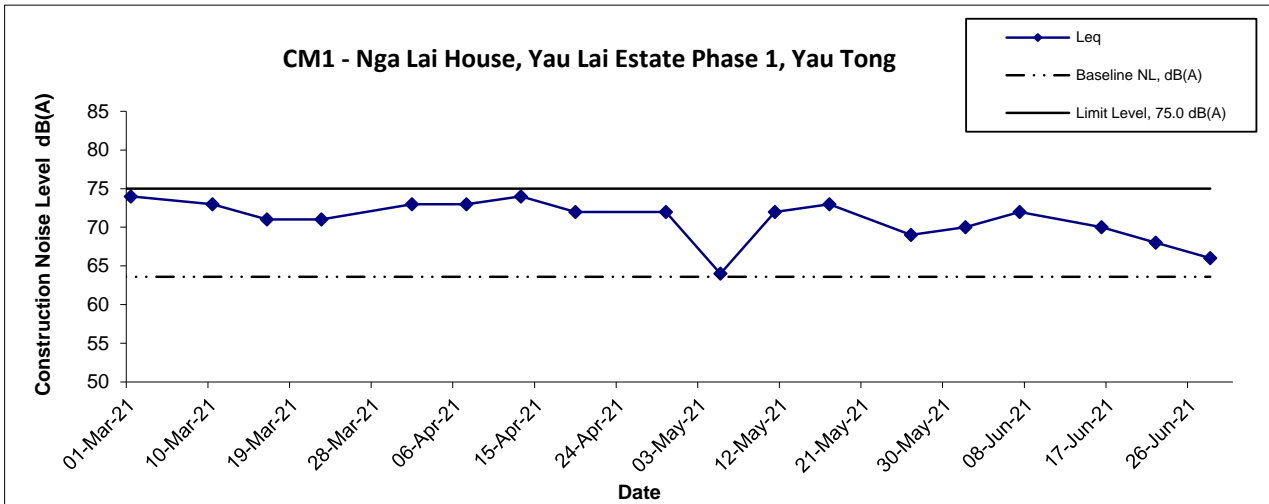
Appendix G - Noise Monitoring Results

Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	11:30	Cloudy	53.1	54.5	51.1	61.9	53 Measured ≤ Baseline
07-Jun-21	15:45	Sunny	66.8	69.9	62.2	61.9	65
16-Jun-21	4:30	Cloudy	61.0	62.5	58.5	61.9	61 Measured ≤ Baseline
22-Jun-21	13:00	Cloudy	62.2	65.4	59.1	61.9	50
28-Jun-21	16:45	Cloudy	61.6	62.5	56.1	61.9	62 Measured ≤ Baseline

Location CM7(A) - Site Boundary of Contract No. NE/2015/02 near Tower 7, Ocean Shores							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	11:30	Cloudy	61.4	64.5	55.5	58.3	58
07-Jun-21	15:00	Sunny	61.5	62.7	58.2	58.3	59
16-Jun-21	15:30	Cloudy	65.2	66.2	64.1	58.3	64
22-Jun-21	14:00	Cloudy	64.2	67.5	61.1	58.3	63
28-Jun-21	16:00	Cloudy	60.1	61.9	56.4	58.3	55

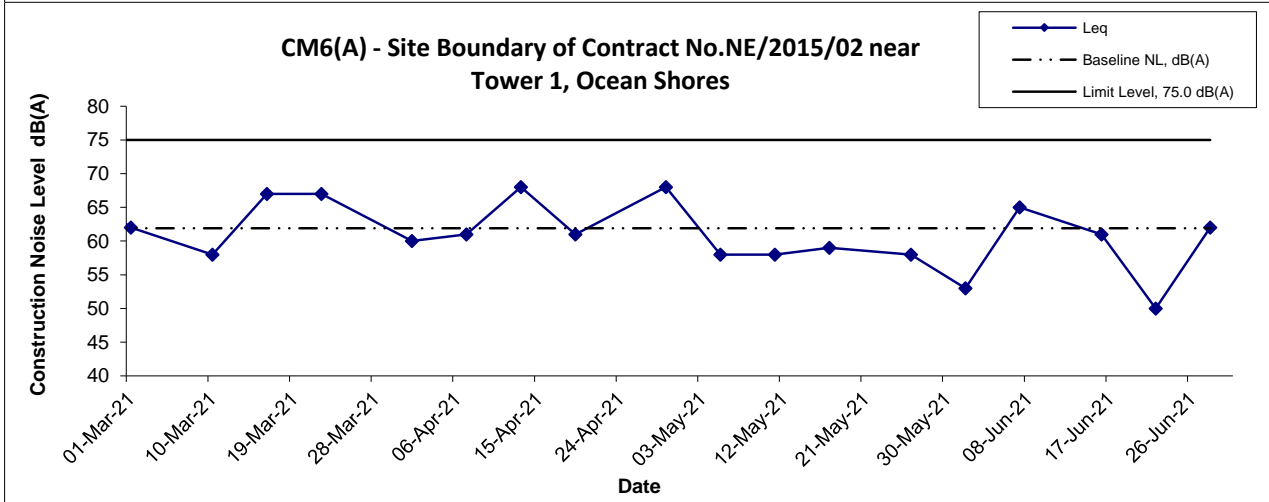
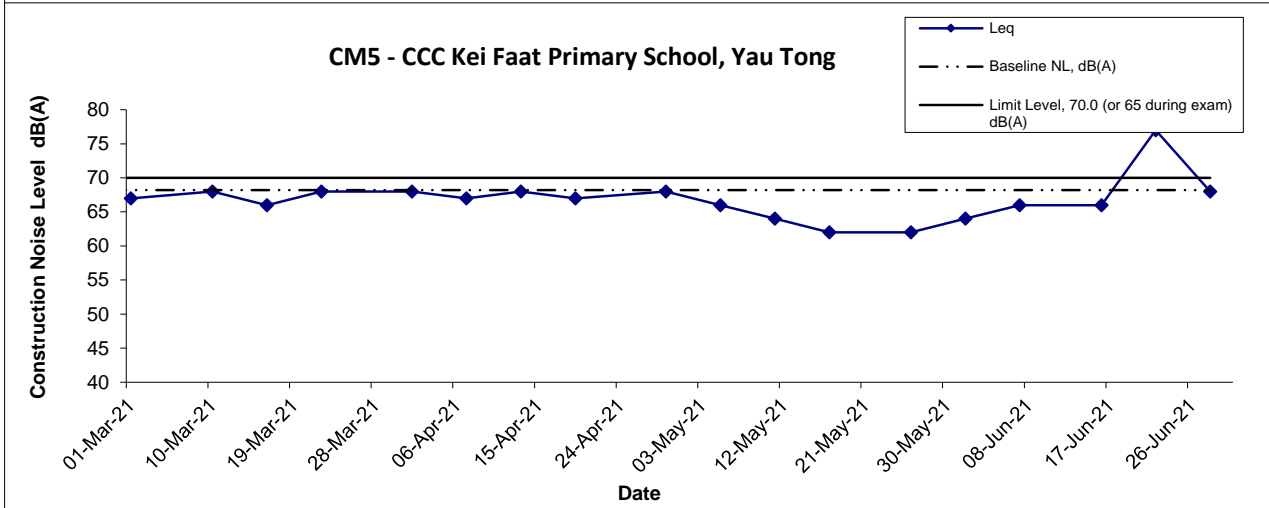
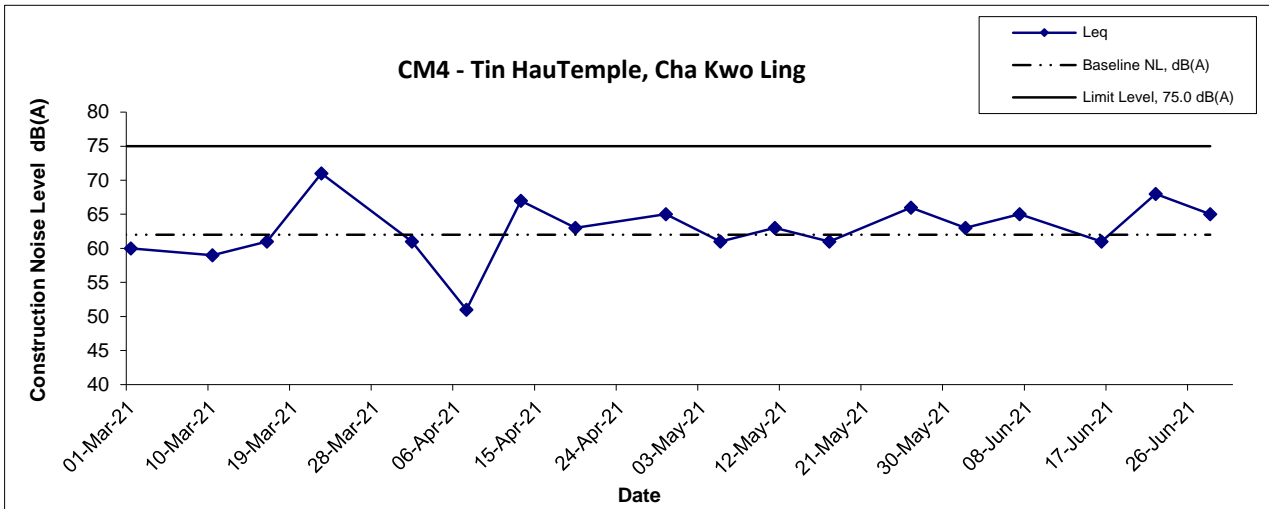
Location CM8(A) - Park Central, L1/F Open Space Area							
Date	Time	Weather	Unit: dB (A) (30-min)				
			Measured Noise Level			Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}	L _{eq}
01-Jun-21	11:00	Cloudy	62.8	65.4	59.9	69.1	63 Measured ≤ Baseline
07-Jun-21	13:30	Sunny	62.8	64.3	60.6	69.1	63 Measured ≤ Baseline
16-Jun-21	15:00	Cloudy	66.9	71.3	60.6	69.1	67 Measured ≤ Baseline
22-Jun-21	16:00	Cloudy	62.1	65.4	58.9	69.1	62 Measured ≤ Baseline
28-Jun-21	14:30	Cloudy	62.4	64.2	57.9	69.1	62 Measured ≤ Baseline

Noise Levels



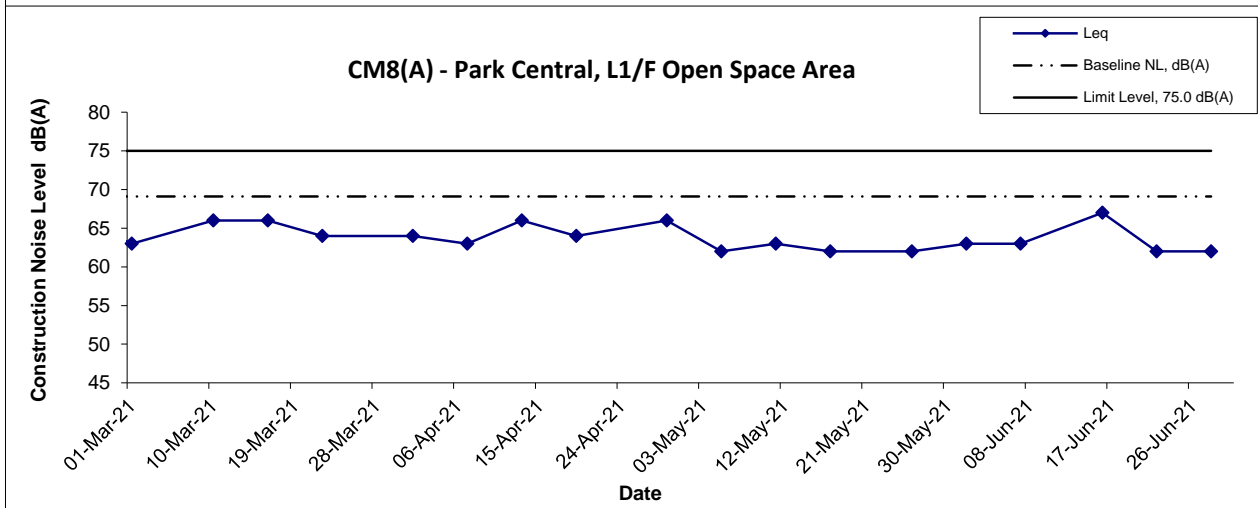
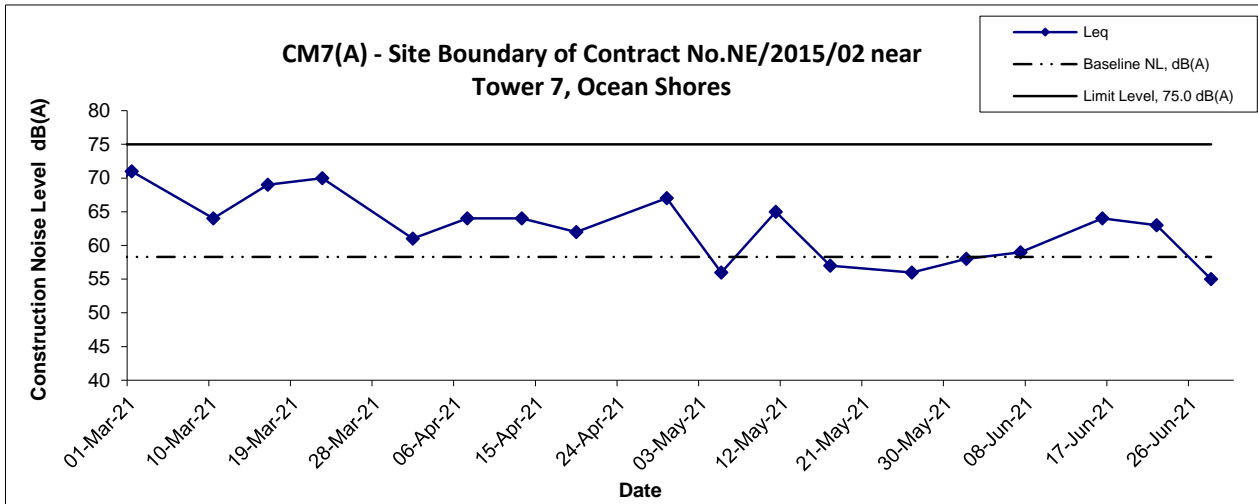
Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA16034	CINOTECH
	Date Jun 21	Appendix G	

Noise Levels



Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale N.T.S	Project No. MA16034	
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Noise Levels



Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Construction Noise Monitoring Results	Scale	Project	CINOTECH
	N.T.S	No. MA16034	
	Date	Appendix	
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Appendix G - Noise Monitoring Results

(Restricted Hours - 19:00 to 23:00 on all other days & 07:00 to 23:00 holidays)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong												
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}				
4-Jun-21	22:00	Fine	57.6	59.2	55.8	57.6	64.4	58 Measured ≤ Baseline				
	22:05		57.8	59.0	55.7							
	22:10		57.5	58.7	55.4							
11-Jun-21	21:00	Fine	62.3	64.5	60.6	62.3			64.4	62 Measured ≤ Baseline		
	21:05		62.2	64.6	60.4							
	21:10		62.3	64.5	60.6							
18-Jun-21	10:00	Cloudy	61.4	62.8	59.9	61.5					64.4	62 Measured ≤ Baseline
	10:05		61.6	63.1	59.9							
	10:10		61.5	62.0	59.6							
25-Jun-21	22:00	Fine	61.1	63.5	59.3	61.2	64.4	61 Measured ≤ Baseline				
	22:05		61.0	63.5	59.4							
	22:10		61.4	63.5	59.2							

Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong												
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}				
4-Jun-21	22:20	Fine	57.9	59.1	56.6	57.7	62.2	58 Measured ≤ Baseline				
	22:25		57.9	59.5	56.8							
	22:30		57.4	59.4	55.8							
11-Jun-21	21:30	Fine	61.9	63.9	58.5	62.1			62.2	62 Measured ≤ Baseline		
	21:35		62.1	63.7	59.6							
	21:40		62.3	64.2	60.4							
18-Jun-21	22:20	Cloudy	60.6	62.0	59.0	60.3					62.2	60 Measured ≤ Baseline
	22:25		60.3	61.8	58.5							
	22:30		60.1	61.7	58.0							
25-Jun-21	22:20	Fine	61.5	63.9	58.9	61.6	62.2	62 Measured ≤ Baseline				
	22:25		62.0	64.2	59.1							
	22:30		61.2	63.9	58.7							

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong												
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}				
4-Jun-21	22:40	Fine	56.8	58.5	54.1	56.7	64.7	57 Measured ≤ Baseline				
	22:45		56.6	58.2	54.3							
	22:50		56.7	58.4	54.0							
11-Jun-21	10:00	Fine	61.5	63.3	57.7	61.4			64.7	61 Measured ≤ Baseline		
	10:05		61.2	63.0	56.9							
	10:10		61.6	63.6	58.0							
18-Jun-21	22:45	Cloudy	60.0	62.3	57.3	59.5					64.7	60 Measured ≤ Baseline
	22:50		59.5	61.2	57.1							
	22:55		59.1	60.6	56.8							
25-Jun-21	22:40	Fine	60.2	62.4	58.3	60.3	64.7	60 Measured ≤ Baseline				
	22:45		60.5	62.5	58.3							
	22:50		60.1	62.4	58.2							

Location CM6(A) - Site Boundary of Contract No. NE/2015/02 near Tower 1, Ocean Shores												
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level			
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}				
1-Jun-21	19:00	Fine	56.3	49.5	47.2	53.2	60.2	53 Measured ≤ Baseline				
	19:05		49.3	50.0	47.2							
	19:10		50.5	52.3	47.8							
7-Jun-21	19:00	Sunny	59.6	61.5	55.7	59.9			60.2	60 Measured ≤ Baseline		
	19:05		60.3	62.0	56.2							
	19:10		59.9	61.0	55.1							
16-Jun-21	22:00	Fine	51.4	53.1	48.5	51.4					60.2	51 Measured ≤ Baseline
	22:05		51.3	53.3	48.4							
	22:10		51.6	53.7	48.4							
22-Jun-21	19:05	Fine	59.3	61.2	55.4	59.3	60.2	59 Measured ≤ Baseline				
	19:10		59.2	61.3	55.1							
	19:15		59.5	61.2	55.4							
28-Jun-21	19:00	Cloudy	56.9	58.6	53.1	56.4			60.2	56 Measured ≤ Baseline		
	19:05		55.8	57.2	52.5							
	19:10		56.4	58	52.8							

Appendix G - Noise Monitoring Results

(Restricted Hours - 2300-0700 on all days)

Location CM1 - Nga Lai House, Yau Lai Estate Phase 1, Yau Tong									
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}	
4-Jun-21	23:00	Fine	56.7	58.4	55.4	56.8	63.7	57 Measured ≤ Baseline	
	23:05		56.8	58.4	55.1				
	23:10		56.9	58.7	55.6				
11-Jun-21	11:00	Fine	58.6	60.2	63.4	58.6	61.9	59 Measured ≤ Baseline	
	11:05		58.5	60.4	63.2				
	11:10		58.7	61.7	57.0				
18-Jun-21	23:15	Cloudy	58.6	63.4	56.1	60.6	62.8	61 Measured ≤ Baseline	
	23:20		61.2	63.1	59.4				
	23:25		61.5	63.8	59.0				
25-Jun-21	23:00	Fine	60.3	62.4	57.1	60.2	62.8	60 Measured ≤ Baseline	
	23:05		60.4	62.5	57.1				
	23:10		60.0	62.6	57.0				

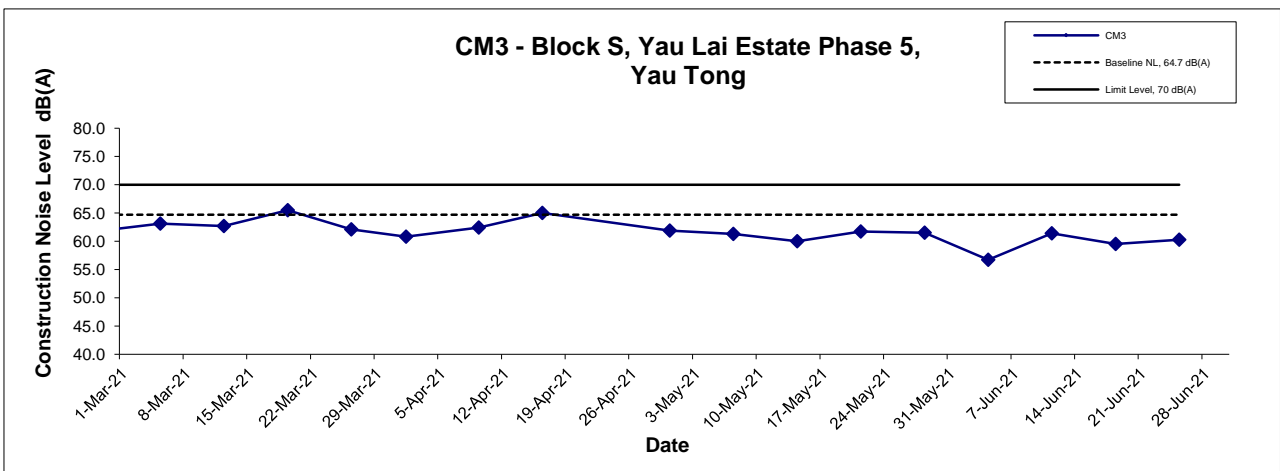
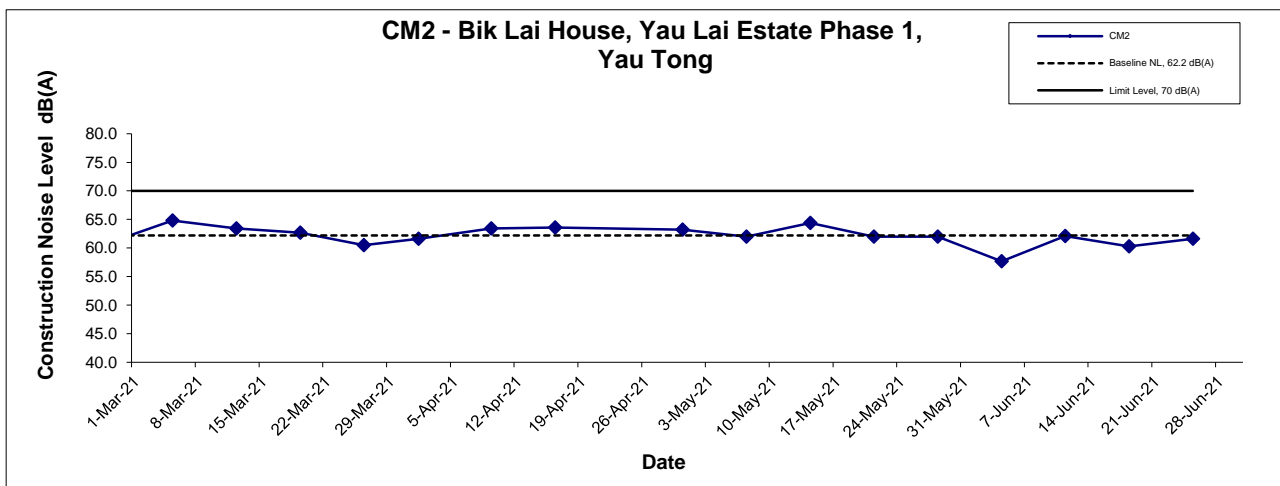
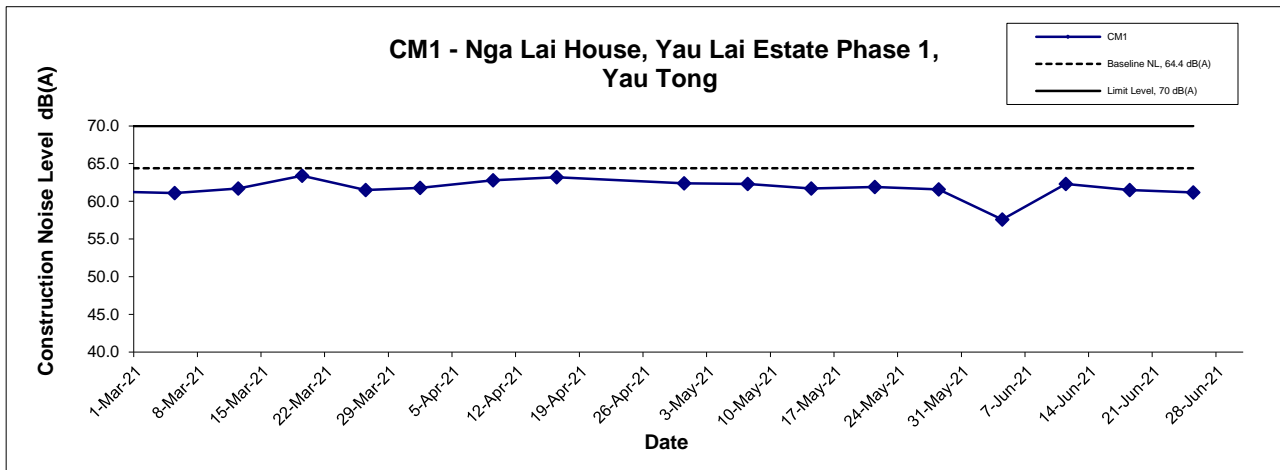
Location CM2 - Bik Lai House, Yau Lai Estate Phase 1, Yau Tong									
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}	
4-Jun-21	23:30	Fine	57.1	60.6	55.8	57.2	59.7	57 Measured ≤ Baseline	
	23:35		57.0	60.5	56.1				
	23:40		57.4	60.9	56.3				
11-Jun-21	23:20	Fine	59.9	62.1	57.1	59.6	61.6	60 Measured ≤ Baseline	
	23:25		59.4	62.4	56.7				
	23:30		59.5	61.6	57.2				
18-Jun-21	23:45	Cloudy	61.9	63.5	60.0	61.8	61.6	48	
	23:50		61.8	63.3	59.7				
	23:55		61.8	63.4	59.7				
25-Jun-21	23:20	Fine	60.2	62.5	57.1	60.2	61.6	60 Measured ≤ Baseline	
	23:25		60.0	62.6	57.2				
	23:30		60.3	62.6	57.1				

Location CM3 - Block S, Yau Lai Estate Phase 5, Yau Tong									
Date	Time	Weather	dB (A) (5-min)				Average L _{eq}	Baseline Level	Construction Noise Level
			L _{eq}	L ₁₀	L ₉₀	L _{eq}		L _{eq}	
4-Jun-21	0:00	Fine	57.6	61.7	55.9	57.7	57.9	58 Measured ≤ Baseline	
	0:05		57.8	61.8	56.1				
	0:10		57.8	61.7	56.3				
11-Jun-21	23:40	Fine	61.2	63.2	59.3	61.2	59.8	<u>56</u>	
	23:45		61.5	63.9	59.2				
	23:50		60.9	63.3	57.9				
18-Jun-21	0:30	Fine	59.2	60.6	56.9	59.3	64.0	59 Measured ≤ Baseline	
	0:35		59.3	60.9	56.9				
	0:40		59.5	61.1	57.1				
25-Jun-21	23:40	Fine	61.0	63.4	58.7	61.0	64.0	61 Measured ≤ Baseline	
	23:45		61.1	63.5	58.7				
	23:50		60.9	63.1	58.6				

Remark:

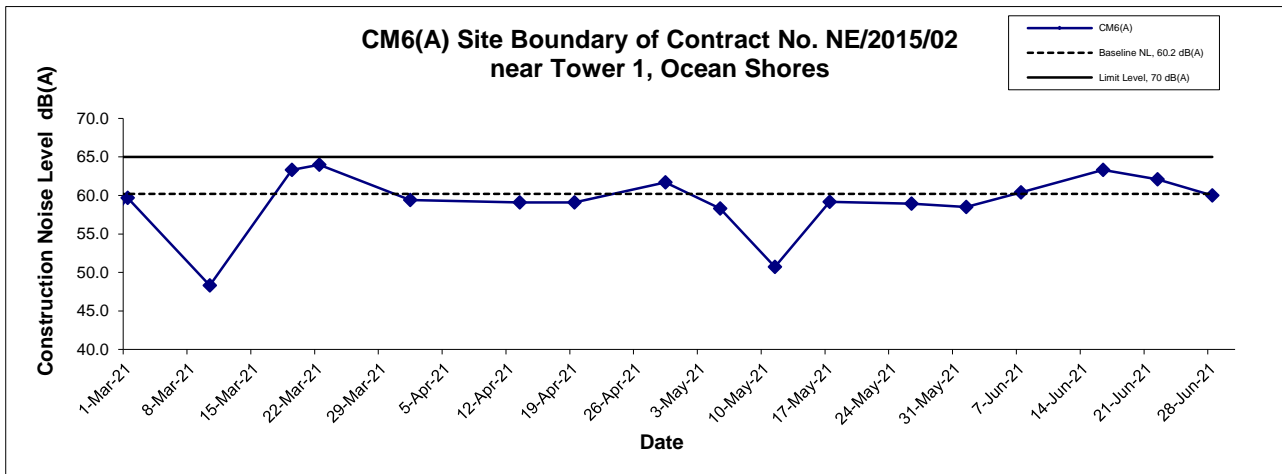
"Measured ≤ Baseline" means that the averaged measured Leq is smaller than the baseline Leq, and therefore the measured levels are not valid exceedances.

Noise Levels (Restricted Hours - 19:00 - 23:00 on normal weekdays)



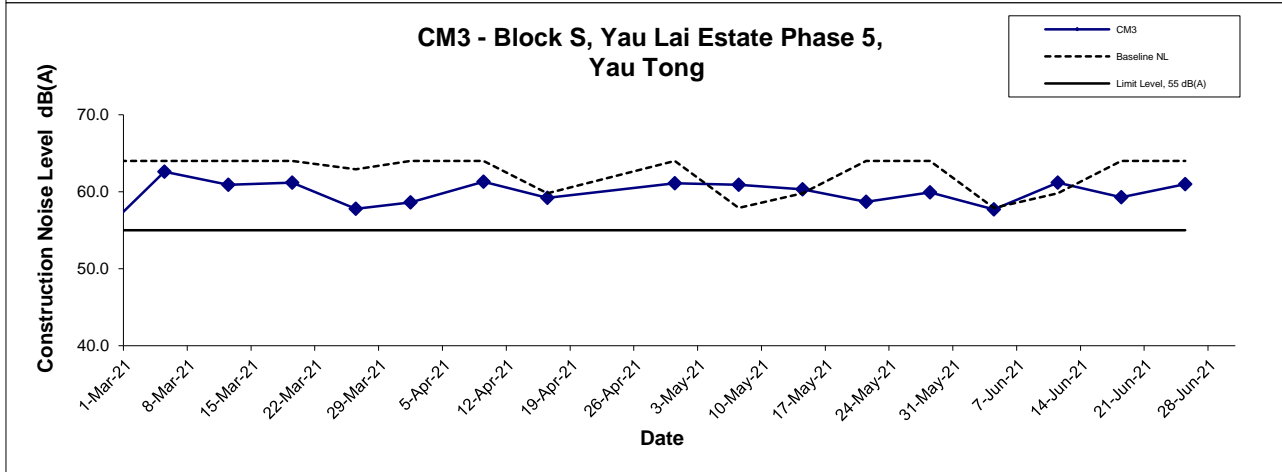
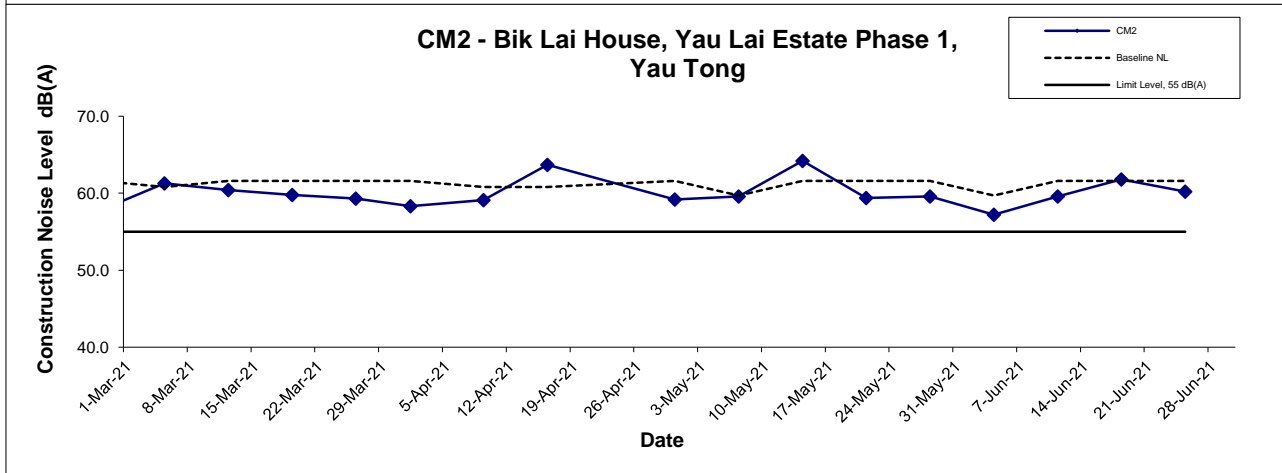
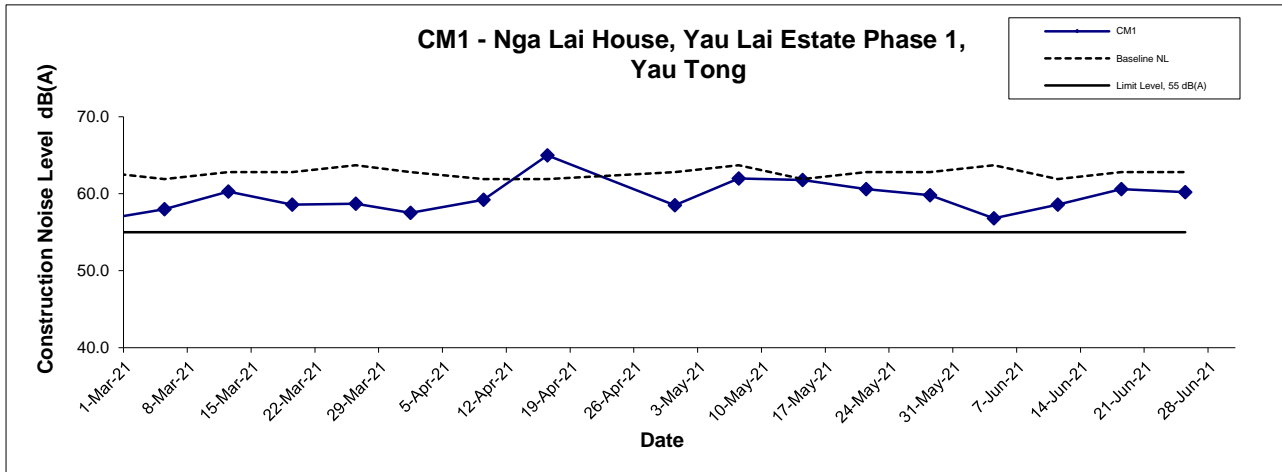
Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale N.T.S	Project No. MA16034	
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Noise Levels
(Restricted Hours - 19:00 - 23:00 on normal weekdays)



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	Date Jun-2021	Appendix G	

Noise Levels (Restricted Hours - 2300-0700 on normal weekdays)



Title Agreement No. CE/59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction Graphical Presentation of Restricted Noise Monitoring Results	Scale	Project No.	CINOTECH
	Date	Appendix	
	N.T.S	MA16034	
	Jun-2021	G	

**APPENDIX I
MARINE WATER QUALITY
MONITORING RESULTS AND
GRAPHICAL PRESENTATIONS**

Action and Limit Levels for Marine Water Quality on 2 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>CI: 2.2 NTU</u>	<u>CI: 2.4 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: n.a. mg/L</u>	<u>CI: n.a. mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: n.a. mg/L</u>	<u>CI: n.a. mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>CI: n.a. mg/L</u>		<u>CI: n.a. mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 04 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	Value
C1	Sunny	Moderate	9:00	Surface	1.5	26.1	25.9	8.3	8.3	31.2	31.6	91.4	88.1	6.2	6.0	5.7	1.7	1.7	2.5	2.6	2.4	2.0		
				Middle	9.1	25.0	25.0	8.3	8.3	33.1	33.2	77.9	78.1	5.3	5.3	5.3	2.0	2.0	1.9	1.7	1.5		1.7	
				Bottom	18.1	24.9	24.9	8.3	8.3	33.4	33.4	76.7	76.9	5.3	5.3	5.3	3.8	3.8	1.7	1.8	1.7		1.8	
C2	Sunny	Moderate	7:51	Surface	1.1	26.1	26.1	8.3	8.2	31.5	31.5	95.2	94.0	6.5	6.4	5.9	1.5	1.5	2.1	2.2	2.0	2.1		
				Middle	16.1	25.1	25.1	8.2	8.2	33.2	33.2	78.0	79.2	5.3	5.4	5.4	2.2	2.3	1.7	2.0	1.6		2.0	
				Bottom	30.9	24.8	24.4	8.2	8.2	33.6	34.3	76.7	73.1	5.3	5.0	5.0	2.5	2.5	1.6	1.9	2.2		2.2	
G1	Sunny	Moderate	8:23	Surface	1.3	27.0	27.0	8.6	8.6	31.6	31.7	150.7	162.9	10.1	10.9	10.0	1.7	1.6	1.6	2.4	2.3	1.9		
				Middle	4.1	26.3	26.3	8.5	8.5	32.1	32.1	132.3	135.6	8.9	9.1	9.1	1.6	1.6	1.2	1.5	1.7		1.5	
				Bottom	7.0	26.2	26.2	8.4	8.4	32.2	32.2	123.2	123.6	8.3	8.3	8.3	1.7	1.7	2.1	1.6	1.9		1.6	
G2	Sunny	Moderate	8:14	Surface	1.1	26.7	26.7	8.6	8.6	32.1	32.1	160.8	158.8	9.8	9.6	8.5	0.5	0.5	0.9	3.0	2.7	2.4		
				Middle	4.9	25.9	25.8	8.4	8.4	32.7	32.7	114.2	110.0	7.7	7.4	7.4	1.0	1.0	2.6	2.6	2.5		2.6	
				Bottom	9.0	24.2	24.6	8.2	8.2	34.3	34.1	82.6	79.5	5.7	5.5	5.5	1.2	1.2	1.9	2.0	2.2		2.0	
G3	Sunny	Moderate	8:28	Surface	1.1	27.1	27.0	8.6	8.6	31.6	31.6	183.1	178.5	9.2	9.4	9.5	2.1	2.0	2.4	2.6	2.7	2.4		
				Middle	4.0	26.5	26.5	8.5	8.5	32.0	32.0	144.0	141.8	9.7	9.5	9.5	2.6	2.7	2.5	2.3	2.2		2.3	
				Bottom	6.9	24.7	24.7	8.3	8.3	33.6	33.6	97.7	95.8	6.7	6.6	6.6	2.3	2.4	2.2	2.2	2.2		2.2	
G4	Sunny	Moderate	8:38	Surface	1.1	27.0	27.0	8.6	8.6	31.9	31.8	168.7	169.2	9.3	9.3	9.0	1.4	1.5	1.5	2.7	2.8	2.5		
				Middle	4.1	26.2	26.2	8.4	8.4	32.3	32.3	126.8	129.3	8.6	8.7	8.7	1.3	1.2	2.7	2.5	2.2		2.5	
				Bottom	7.0	25.9	25.6	8.3	8.3	32.7	33.0	105.0	95.7	7.1	6.5	6.5	1.7	1.7	2.5	2.1	2.3		2.1	
M1	Sunny	Moderate	8:17	Surface	1.1	26.5	26.6	8.5	8.5	32.3	32.1	150.5	153.3	10.1	9.8	9.6	1.3	1.2	1.2	2.9	2.8	2.6		
				Middle	3.1	26.4	26.4	8.5	8.5	32.4	32.3	135.1	141.0	9.1	9.5	9.5	1.1	1.2	2.2	2.6	2.2		2.6	
				Bottom	5.2	26.4	26.4	8.5	8.5	32.4	32.4	139.2	140.2	9.4	9.4	9.4	1.2	1.3	2.4	2.5	2.6		2.5	
M2	Sunny	Moderate	8:07	Surface	1.1	26.7	26.7	8.6	8.6	32.1	32.1	154.8	150.7	9.4	9.6	8.7	1.6	1.6	1.8	3.5	3.2	2.6		
				Middle	6.4	26.3	26.1	8.4	8.4	32.4	32.6	119.4	115.0	8.0	7.8	7.8	1.3	1.4	2.2	2.4	2.2		2.4	
				Bottom	11.0	24.9	24.9	8.3	8.3	33.8	33.8	80.8	79.3	5.5	5.4	5.4	2.2	2.4	2.4	2.2	2.2		2.2	
M3	Sunny	Moderate	8:32	Surface	1.1	26.9	26.9	8.6	8.6	31.7	31.7	172.5	173.7	9.5	9.6	9.8	1.2	1.2	1.2	2.6	2.9	2.5		
				Middle	4.0	26.5	26.5	8.5	8.5	31.9	31.9	148.9	148.4	10.0	10.0	10.0	1.0	1.0	2.5	2.6	3.2		2.6	
				Bottom	6.8	24.9	24.9	8.2	8.2	33.3	33.3	102.8	102.6	7.0	7.0	7.0	1.0	1.1	2.7	2.1	1.9		2.1	
M4	Sunny	Moderate	7:58	Surface	1.0	26.6	26.5	8.5	8.5	32.0	32.1	137.1	134.6	9.2	9.0	7.7	1.4	1.4	1.0	3.4	2.9	2.8		
				Middle	5.3	25.2	25.5	8.3	8.3	33.5	33.1	90.0	95.0	6.1	6.4	6.4	0.6	0.5	2.7	3.0	2.7		3.0	
				Bottom	9.1	24.2	24.2	8.2	8.2	34.7	34.7	68.3	70.8	4.7	4.9	4.9	1.1	1.1	2.3	2.5	1.2		2.6	
M5	Sunny	Moderate	8:50	Surface	1.0	25.7	25.7	8.3	8.3	32.2	32.2	92.7	92.7	6.3	6.3	6.3	1.4	1.3	1.4	2.2	2.4	2.5		
				Middle	6.0	25.7	25.6	8.3	8.3	32.3	32.3	94.0	93.1	6.4	6.3	6.3	1.1	1.1	2.6	2.5	2.5		2.5	
				Bottom	11.4	25.6	25.6	8.3	8.3	32.4	32.4	93.7	93.3	6.4	6.3	6.3	2.0	1.8	2.5	2.8	2.5		3.0	
M6	Sunny	Moderate	8:43	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4		
				Middle	2.6	26.2	26.1	8.5	8.5	32.3	32.3	117.4	116.9	7.9	7.9	7.9	2.2	2.2	2.8	2.4	2.2		2.4	
				Bottom	-	26.0	-	8.5	-	32.4	-	116.4	-	7.9	-	-	2.2	-	1.9	-	-		-	-

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 4 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 3.0 NTU</u>	<u>C2: 3.3 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.8 mg/L</u>	<u>C2: 3.1 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.8 mg/L</u>	<u>C2: 3.1 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 2.3 mg/L</u>		<u>C2: 2.5 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 04 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	14:49	Surface	1.4	25.8	25.8	8.3	8.3	31.7	31.7	87.5	87.8	6.0	6.0	5.8	1.7	1.7	1.6	2.8	2.6	2.7
				Middle	9.1	25.2	25.3	8.3	8.3	32.9	32.7	80.2	81.3	5.5	5.6	5.8	1.7	1.4	1.4	2.3	2.9	
				Bottom	17.6	25.4	25.0	8.3	8.3	32.6	33.2	82.3	82.3	5.6	5.1	5.1	1.4	1.4	1.4	2.8	2.8	
C2	Sunny	Moderate	13:24	Surface	1.3	25.7	25.7	8.3	8.3	32.3	32.1	85.0	87.9	5.8	6.0	5.8	1.8	1.7	1.7	2.3	2.7	2.5
				Middle	16.3	25.0	25.0	8.2	8.3	33.5	33.4	79.7	81.0	5.5	5.5	5.8	1.7	1.2	1.2	3.0	2.6	
				Bottom	30.9	25.1	24.0	8.3	8.2	33.3	34.9	82.2	82.2	5.6	4.7	4.8	1.3	2.0	2.0	2.6	2.3	
G1	Sunny	Moderate	14:02	Surface	1.1	26.6	26.6	8.6	8.6	32.1	31.9	143.1	151.9	9.6	10.2	9.7	2.7	2.6	2.2	2.4	2.7	3.1
				Middle	4.0	26.3	26.3	8.5	8.5	32.1	32.1	133.7	135.9	9.0	9.2	9.2	2.2	2.1	2.0	3.2	3.3	
				Bottom	7.1	26.2	26.2	8.4	8.4	32.3	32.3	117.4	118.3	7.9	8.0	8.0	1.8	1.8	1.7	3.5	3.4	
G2	Sunny	Moderate	13:45	Surface	1.1	26.7	26.7	8.5	8.5	32.1	32.1	151.0	152.1	9.1	9.7	8.8	2.0	2.0	2.0	2.7	2.8	3.2
				Middle	4.9	26.2	26.2	8.4	8.4	32.5	32.5	118.9	118.2	8.0	8.0	8.0	2.0	2.0	2.0	3.5	3.4	
				Bottom	8.9	24.0	24.0	8.2	8.2	34.9	34.7	71.7	76.1	6.9	6.3	6.3	1.9	2.0	2.0	3.2	3.5	
G3	Sunny	Moderate	14:08	Surface	1.2	26.8	26.8	8.6	8.6	31.8	31.8	158.8	157.4	9.6	9.5	9.5	2.1	2.1	2.0	2.9	2.8	3.1
				Middle	4.1	26.5	26.5	8.5	8.5	32.0	32.0	141.3	140.5	9.5	9.4	9.4	2.1	2.0	2.0	2.7	3.0	
				Bottom	7.2	24.6	24.6	8.3	8.2	34.3	34.2	79.0	78.0	5.4	5.3	5.3	1.9	2.1	2.1	3.0	3.5	
G4	Sunny	Moderate	14:25	Surface	1.2	27.2	27.2	8.6	8.6	31.6	31.6	153.2	150.5	9.2	9.5	9.3	3.0	3.1	3.1	3.0	3.4	3.0
				Middle	4.0	26.5	26.4	8.4	8.4	32.1	32.1	139.2	134.3	9.3	9.0	9.0	3.1	5.7	5.7	3.1	3.0	
				Bottom	6.9	26.2	25.6	8.4	8.3	32.2	33.0	129.3	96.2	8.7	6.5	6.5	5.8	3.6	3.6	2.9	2.6	
M1	Sunny	Moderate	13:57	Surface	1.0	26.6	26.6	8.5	8.5	32.1	32.1	151.8	153.9	10.2	10.3	10.3	2.1	2.0	1.9	2.9	2.7	2.4
				Middle	3.1	26.6	26.6	8.5	8.5	32.1	32.2	154.8	153.1	10.4	10.3	10.3	1.9	1.5	1.5	2.4	2.4	
				Bottom	5.2	26.4	26.4	8.5	8.5	32.3	32.3	142.7	145.1	9.6	9.7	9.7	2.0	2.1	2.1	2.1	2.3	
M2	Sunny	Moderate	13:39	Surface	1.3	26.7	26.7	8.5	8.5	32.1	32.1	143.7	144.6	9.6	9.7	8.8	2.1	2.0	1.9	3.6	3.5	2.9
				Middle	5.9	26.2	26.1	8.4	8.4	32.5	32.5	119.8	117.3	8.1	7.9	7.9	1.1	1.1	1.1	2.8	2.9	
				Bottom	11.0	24.5	24.8	8.2	8.2	34.4	33.9	73.4	79.1	5.0	5.4	5.4	2.0	2.0	2.0	2.5	2.3	
M3	Sunny	Moderate	14:18	Surface	1.2	26.9	26.9	8.6	8.6	31.7	31.8	168.0	161.1	9.2	9.3	9.3	1.9	2.0	1.9	2.8	2.7	2.8
				Middle	4.0	26.6	26.6	8.6	8.6	31.9	31.9	149.4	147.7	9.0	9.4	9.4	2.0	2.4	2.4	2.5	2.8	
				Bottom	7.4	24.8	24.7	8.2	8.2	33.4	33.6	105.7	98.5	7.2	6.8	6.8	3.3	3.3	3.3	2.8	2.9	
M4	Sunny	Moderate	13:31	Surface	1.4	26.5	26.5	8.5	8.5	32.3	32.2	129.3	130.8	8.7	8.8	7.5	2.1	2.1	2.1	2.7	2.6	2.7
				Middle	5.4	25.7	25.7	8.3	8.3	32.9	33.0	95.6	93.1	6.5	6.3	6.3	0.9	0.8	0.8	2.2	2.4	
				Bottom	9.0	24.4	24.3	8.2	8.2	34.5	34.6	71.5	70.8	4.9	4.9	4.9	2.6	2.6	2.6	2.9	3.0	
M5	Sunny	Moderate	14:40	Surface	1.0	25.7	25.6	8.3	8.3	32.3	32.3	93.1	93.9	6.3	6.4	6.4	1.9	1.9	1.9	2.9	3.2	3.5
				Middle	6.3	25.6	25.6	8.3	8.3	32.4	32.4	94.6	94.0	6.4	6.4	6.4	1.6	1.5	1.5	3.2	3.3	
				Bottom	11.2	25.6	25.6	8.3	8.3	32.4	32.4	94.3	93.3	6.4	6.3	6.3	1.3	1.3	1.3	4.0	3.9	
M6	Sunny	Moderate	14:33	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8
				Middle	2.2	26.0	26.0	8.4	8.4	32.4	32.4	115.2	115.0	7.8	7.8	7.8	8.0	8.0	8.0	2.6	2.8	
				Bottom	-	26.0	-	8.4	-	32.4	-	114.8	-	7.8	-	-	8.0	-	-	-	2.9	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 4 June 2021 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>CI: 2.2 NTU</u>	<u>CI: 2.4 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 3.1 mg/L</u>	<u>CI: 3.3 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 3.1 mg/L</u>	<u>CI: 3.3 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>CI: 3.3 mg/L</u>		<u>CI: 3.6 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Levels for Marine Water Quality on 7 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 5.6 NTU</u>	<u>C2: 6.0 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 5.2 mg/L</u>	<u>C2: 5.6 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 5.2 mg/L</u>	<u>C2: 5.6 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
<u>C2: 4.7 mg/L</u>		<u>C2: 5.1 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Levels for Marine Water Quality on 7 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>CI: 7.8 NTU</u>	<u>CI: 8.5 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 4.1 mg/L</u>	<u>CI: 4.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 4.1 mg/L</u>	<u>CI: 4.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>CI: 5.2 mg/L</u>		<u>CI: 5.7 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 Water Quality Monitoring Results on 09 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	11:56	Surface	1.1	26.8	26.8	8.4	8.4	32.0	32.0	118.2	118.1	7.9	7.9	7.7	2.6	2.6	3.0	3.5	3.9	3.2
				Middle	8.5	26.7		8.4		32.1		113.2		7.6			3.1			3.0		
				Bottom	16.1	26.6	8.4	32.2	114.0	7.6	3.0	3.2	2.7									
C2	Sunny	Calm	10:30	Surface	1.0	27.0	27.0	8.4	8.4	32.1	32.1	119.6	119.6	8.0	8.0	7.6	2.2	2.2	3.5	3.2	3.6	3.5
				Middle	16.0	26.7		8.4		32.3		109.2		7.3			3.2			3.2		
				Bottom	31.0	26.2	8.4	32.6	99.3	6.7	4.9	5.0	3.6	3.5								
G1	Sunny	Calm	11:07	Surface	1.1	26.8	26.8	8.4	8.4	32.0	32.0	118.6	118.7	7.9	7.9	7.7	2.3	2.3	2.9	3.0	3.0	3.3
				Middle	3.7	26.8		8.4		32.1		113.3		7.6			2.8			2.9		
				Bottom	6.5	26.7	8.4	32.2	110.3	7.4	3.4	3.3	4.0	3.6								
G2	Sunny	Calm	10:49	Surface	1.1	27.3	27.3	8.4	8.4	32.1	32.1	119.4	119.4	7.9	7.9	8.0	2.0	2.0	2.2	3.4	3.9	3.7
				Middle	5.1	27.0		8.4		32.2		120.6		8.0			1.9			1.9		
				Bottom	9.1	26.8	8.4	32.2	120.9	8.1	1.9	2.8	3.5									
G3	Sunny	Calm	11:14	Surface	1.0	26.8	26.8	8.4	8.4	32.0	32.0	118.0	118.2	7.9	7.9	7.7	2.6	2.5	3.0	2.1	2.6	3.1
				Middle	3.8	26.7		8.4		32.2		112.3		7.5			3.3			3.4		
				Bottom	6.6	26.7	8.4	32.2	110.9	7.4	3.2	3.2	3.1	3.6								
G4	Sunny	Calm	11:29	Surface	1.0	26.8	26.8	8.4	8.4	32.0	32.0	118.7	118.7	7.9	7.9	7.7	2.4	2.4	2.7	2.3	2.6	3.4
				Middle	3.7	26.7		8.4		32.2		113.4		7.6			2.7			2.7		
				Bottom	6.5	26.7	8.4	32.2	111.1	7.4	2.9	2.9	4.1	3.9								
M1	Sunny	Calm	10:54	Surface	1.0	26.8	26.8	8.4	8.4	32.0	32.0	116.8	116.9	7.8	7.8	7.7	2.4	2.4	2.8	3.2	3.2	3.6
				Middle	3.0	26.8		8.4		32.1		114.5		7.7			2.8			2.7		
				Bottom	5.1	26.7	8.4	32.2	111.5	7.5	3.1	3.1	4.0	4.1								
M2	Sunny	Calm	10:41	Surface	1.0	27.3	27.3	8.4	8.4	32.1	32.1	122.5	122.5	8.1	8.1	8.1	1.9	1.9	2.2	3.4	3.8	3.5
				Middle	5.3	27.1		8.4		32.2		121.7		8.1			1.9			1.9		
				Bottom	9.5	26.8	8.4	32.2	121.9	8.1	1.9	2.5	3.1									
M3	Sunny	Calm	11:23	Surface	1.0	26.8	26.8	8.4	8.4	32.0	32.0	117.5	117.6	7.9	7.9	7.8	2.3	2.4	2.6	3.4	2.9	2.6
				Middle	3.7	26.8		8.4		32.1		114.8		7.7			2.4			2.6		
				Bottom	6.5	26.8	8.4	32.1	115.7	7.7	2.7	2.7	3.0	2.7								
M4	Sunny	Calm	10:36	Surface	1.0	27.3	27.3	8.4	8.4	32.1	32.1	111.3	111.3	7.4	7.4	7.4	2.0	2.9	2.3	3.5	3.1	2.7
				Middle	5.0	27.3		8.4		32.1		119.8		7.9			1.9			1.9		
				Bottom	9.0	26.8	8.4	32.2	120.5	8.0	2.0	2.0	3.2	2.9								
M5	Sunny	Calm	11:46	Surface	1.1	26.7	26.8	8.4	8.4	32.1	32.0	114.2	114.7	7.6	7.7	7.5	2.7	2.7	2.9	1.8	2.2	2.6
				Middle	5.6	26.6		8.4		32.2		110.1		7.4			3.1			3.1		
				Bottom	10.1	26.6	8.4	32.2	110.3	7.4	3.1	3.0	2.8	2.6								
M6	Sunny	Calm	11:35	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	-	-	3.7
				Middle	2.1	26.7	8.4	32.1	114.6	7.7	2.7	2.7	3.5	3.7								
				Bottom	-	26.7	8.4	32.1	114.4	7.7	2.8	2.8	3.8	3.7								

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 9 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 6.0 NTU</u>	<u>C2: 6.5 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.9 mg/L</u>	<u>C2: 4.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.9 mg/L</u>	<u>C2: 4.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 4.2 mg/L</u>		<u>C2: 4.6 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 09 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	18:50	Surface	1.0	21.1	21.1	8.4	8.4	31.9	31.9	118.1	118.2	7.9	7.9	7.7	2.4	2.5	3.0	2.5	2.6	
				Middle	9.1	20.9	21.0	8.4	8.4	32.1	32.1	112.1	112.3	7.5	7.5	7.7	2.5	2.5	3.0	2.3	2.4	
				Bottom	17.1	20.9	20.9	8.4	8.4	32.2	32.2	112.5	112.5	7.3	7.3	7.3	3.3	3.3	3.0	2.4	2.0	
C2	Sunny	Calm	17:09	Surface	1.0	21.8	21.4	8.4	8.4	32.1	32.1	119.7	119.8	8.0	8.0	7.6	2.4	2.4	3.6	4.1	4.5	
				Middle	16.6	20.9	20.9	8.4	8.4	32.3	32.3	109.0	109.1	7.3	7.3	7.6	3.3	3.3	3.6	2.1	2.4	
				Bottom	32.1	20.9	20.9	8.4	8.4	32.3	32.3	109.1	109.1	7.3	7.3	7.6	3.2	3.2	3.6	2.7	2.7	
G1	Sunny	Calm	17:46	Surface	1.0	21.8	21.3	8.4	8.4	32.0	32.0	118.1	118.2	7.9	7.9	7.7	2.4	2.4	3.0	2.8	2.7	
				Middle	4.1	20.9	20.9	8.4	8.4	32.2	32.2	111.8	112.0	7.5	7.5	7.7	3.2	3.2	3.0	2.2	2.6	
				Bottom	7.1	20.8	20.8	8.4	8.4	32.2	32.2	110.6	110.6	7.4	7.4	7.4	3.3	3.3	3.0	3.0	3.4	
G2	Sunny	Calm	17:27	Surface	1.1	21.4	21.2	8.4	8.4	32.1	32.1	119.8	119.7	7.9	7.9	8.0	2.0	2.0	2.3	3.0	3.3	
				Middle	5.0	20.9	20.9	8.4	8.4	32.2	32.2	120.1	120.2	8.0	8.0	8.0	2.1	2.0	2.3	2.8	2.5	
				Bottom	9.1	20.8	20.8	8.4	8.4	32.2	32.2	113.6	113.6	7.6	7.6	7.6	2.8	2.8	2.3	2.6	2.4	
G3	Sunny	Calm	17:52	Surface	1.0	21.0	21.0	8.4	8.4	32.0	32.0	118.7	119.0	7.9	7.9	7.7	2.4	2.4	2.7	2.2	2.4	
				Middle	4.1	20.9	20.9	8.4	8.4	32.2	32.1	112.5	112.8	7.5	7.5	7.7	2.9	2.8	2.7	3.9	3.5	
				Bottom	7.0	20.7	20.8	8.4	8.4	32.2	32.2	109.9	109.9	7.4	7.3	7.3	3.0	3.1	2.7	3.4	3.9	
G4	Sunny	Calm	18:05	Surface	1.0	21.4	21.2	8.4	8.4	32.0	32.0	118.6	118.5	7.9	7.9	7.8	2.5	2.4	2.7	2.8	3.2	
				Middle	4.1	21.0	21.0	8.4	8.4	32.1	32.1	114.0	114.3	7.6	7.6	7.6	2.7	2.7	2.7	2.9	3.0	
				Bottom	7.0	20.9	20.9	8.4	8.4	32.2	32.2	111.0	111.0	7.4	7.4	7.4	3.0	3.0	2.7	1.7	2.1	
M1	Sunny	Calm	17:32	Surface	1.0	22.0	21.5	8.4	8.4	32.0	32.0	117.1	117.1	7.8	7.8	7.8	2.4	2.4	2.8	2.5	2.3	
				Middle	3.0	21.0	20.9	8.4	8.4	32.1	32.1	114.8	115.1	7.7	7.7	7.8	2.6	2.7	2.8	2.2	2.3	
				Bottom	5.0	20.8	20.8	8.4	8.4	32.2	32.2	111.4	111.4	7.5	7.4	7.4	3.2	3.2	2.8	1.6	1.8	
M2	Sunny	Calm	17:21	Surface	1.0	21.7	21.3	8.4	8.4	32.1	32.1	122.5	122.5	8.1	8.1	8.1	1.9	1.9	2.2	2.6	2.8	
				Middle	5.5	20.8	20.8	8.4	8.4	32.2	32.1	122.1	122.2	8.1	8.1	8.1	1.9	1.9	2.2	3.0	2.6	
				Bottom	10.0	20.8	20.8	8.4	8.4	32.2	32.2	113.2	113.0	7.6	7.6	7.6	3.0	2.9	2.2	1.6	1.6	
M3	Sunny	Calm	17:59	Surface	1.1	21.1	21.0	8.4	8.4	32.0	32.0	117.2	117.3	7.8	7.8	7.7	2.4	2.4	2.7	2.7	3.1	
				Middle	4.0	20.9	20.9	8.4	8.4	32.1	32.1	113.7	113.9	7.6	7.6	7.6	2.8	2.7	2.7	1.8	2.2	
				Bottom	7.1	20.7	20.7	8.4	8.4	32.2	32.2	114.0	112.0	7.6	7.5	7.5	2.6	3.1	2.8	2.5	1.7	
M4	Sunny	Calm	17:16	Surface	1.0	21.3	21.1	8.4	8.4	32.1	32.1	119.6	119.7	7.9	7.9	7.9	1.9	2.0	2.3	2.2	2.5	
				Middle	5.1	20.9	20.9	8.4	8.4	32.1	32.1	120.0	120.2	8.0	8.0	8.0	2.0	2.0	2.3	2.9	2.7	
				Bottom	9.1	20.8	20.8	8.4	8.4	32.2	32.2	114.4	114.3	7.6	7.6	7.6	2.9	2.9	2.3	3.3	2.9	
M5	Sunny	Calm	18:39	Surface	1.1	21.0	21.0	8.4	8.4	32.0	32.0	116.6	117.2	7.8	7.8	7.6	2.6	2.6	2.9	3.0	2.8	
				Middle	6.0	21.7	21.3	8.4	8.4	32.2	32.2	110.5	110.6	7.4	7.4	7.6	3.2	3.2	2.9	2.6	2.8	
				Bottom	11.0	20.9	20.9	8.4	8.4	32.2	32.2	109.1	109.1	7.3	7.3	7.3	3.0	3.0	2.9	1.9	2.0	
M6	Sunny	Calm	18:20	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.8	-	-	
				Middle	2.2	21.1	21.0	8.4	8.4	32.1	32.1	114.9	114.9	7.7	7.7	7.7	8.0	8.0	2.8	3.2	3.5	
				Bottom	-	21.0	-	8.4	-	32.1	-	114.8	-	7.7	-	-	8.0	-	2.8	3.8	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 9 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>CI: 3.9 NTU</u>	<u>CI: 4.2 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 3.1 mg/L</u>	<u>CI: 3.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 3.1 mg/L</u>	<u>CI: 3.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>CI: 2.3 mg/L</u>		<u>CI: 2.5 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Levels for Marine Water Quality on 11 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 1.7 NTU</u>	<u>C2: 1.8 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.4 mg/L</u>	<u>C2: 3.7 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.4 mg/L</u>	<u>C2: 3.7 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 3.7 mg/L</u>		<u>C2: 4.0 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 15 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	16:18	Surface	1.1	21.1	21.1	8.2	8.2	31.4	31.5	75.4	75.3	5.2	5.2	5.0	2.0	2.1	2.2	4.2	4.6	4.2
				Middle	9.0	20.9	21.4	8.2	8.2	33.1	33.1	70.6	70.7	4.9	4.9		2.1	2.3		4.9		
				Bottom	17.1	20.9	20.9	8.3	8.3	33.3	33.3	69.6	69.6	4.8	4.8		2.2	2.4		3.1		
C2	Sunny	Calm	14:32	Surface	1.1	21.0	21.0	8.1	8.1	31.2	31.2	74.1	73.8	5.1	5.1	5.0	2.0	2.0	2.7	4.8	5.0	4.7
				Middle	16.5	20.9	20.9	8.1	8.1	31.8	31.8	70.5	70.7	4.9	4.9		2.6	2.5		4.8		
				Bottom	32.1	20.9	20.9	8.2	8.2	33.2	33.2	67.3	67.3	4.7	4.7		3.7	3.7		4.0		
G1	Sunny	Calm	15:13	Surface	1.0	21.2	21.2	8.2	8.2	30.4	30.4	82.7	82.6	5.6	5.6	5.4	1.4	1.4	1.9	4.3	4.6	4.4
				Middle	4.1	20.9	20.9	8.2	8.2	31.2	31.2	74.5	74.7	5.1	5.1		1.6	1.6		4.8		
				Bottom	7.1	20.8	20.8	8.2	8.2	33.7	33.6	67.1	67.3	4.7	4.7		2.9	2.8		3.4		
G2	Sunny	Calm	14:51	Surface	1.1	21.4	21.4	8.2	8.2	30.7	30.7	84.6	84.5	5.7	5.7	5.5	2.0	2.0	1.9	2.4	2.5	2.8
				Middle	5.1	20.9	20.9	8.2	8.2	31.6	31.6	76.2	76.3	5.2	5.2		1.7	1.7		2.6		
				Bottom	9.0	20.8	20.8	8.2	8.2	33.6	33.7	69.7	69.6	4.9	4.9		3.2	2.1		3.0		
G3	Sunny	Calm	15:18	Surface	1.0	21.1	21.1	8.2	8.2	30.5	30.5	85.0	84.8	5.8	5.8	5.4	1.1	1.1	1.8	2.8	3.1	2.9
				Middle	4.1	20.9	20.9	8.2	8.2	32.0	32.1	73.7	73.4	5.1	5.1		1.5	1.5		3.2		
				Bottom	7.1	20.7	20.8	8.2	8.2	33.9	34.0	64.4	64.4	4.5	4.5		2.5	2.6		2.9		
G4	Sunny	Calm	15:33	Surface	1.1	21.2	21.2	8.2	8.2	30.3	30.3	86.0	86.0	5.8	5.8	5.5	1.1	1.1	1.8	3.2	3.2	3.6
				Middle	4.1	20.9	21.0	8.2	8.2	32.1	32.1	75.5	75.2	5.2	5.2		1.6	1.6		4.0		
				Bottom	7.1	20.9	20.9	8.2	8.2	34.5	34.6	64.8	64.9	4.5	4.5		2.8	2.8		4.5		
M1	Sunny	Calm	14:59	Surface	1.0	21.4	21.4	8.2	8.2	30.5	30.5	84.3	84.2	5.7	5.7	5.7	1.2	1.2	1.4	3.8	3.9	3.2
				Middle	3.1	20.8	20.9	8.2	8.2	30.7	30.7	82.8	82.6	5.6	5.6		1.3	1.3		3.2		
				Bottom	5.0	20.8	20.8	8.2	8.2	31.5	31.5	75.3	75.2	5.1	5.1		1.6	1.6		2.1		
M2	Sunny	Calm	14:46	Surface	1.0	21.3	21.3	8.2	8.2	30.9	30.9	82.5	82.5	5.6	5.6	5.4	1.6	1.5	1.8	3.4	3.2	3.0
				Middle	5.5	20.8	20.8	8.2	8.2	31.7	31.6	75.2	75.5	5.1	5.2		1.6	1.6		3.4		
				Bottom	10.0	20.8	20.8	8.2	8.2	33.5	33.3	68.4	68.4	4.7	4.7		3.2	2.1		2.5		
M3	Sunny	Calm	15:26	Surface	1.0	21.5	21.5	8.2	8.2	29.8	29.8	84.4	84.4	5.7	5.7	5.2	1.1	1.1	1.5	3.1	3.6	3.1
				Middle	4.0	20.9	20.9	8.2	8.2	32.2	32.2	66.7	67.1	4.6	4.6		1.4	1.4		3.0		
				Bottom	7.0	20.7	20.7	8.2	8.2	33.7	33.8	64.4	64.3	4.5	4.4		1.4	2.1		3.5		
M4	Sunny	Calm	14:39	Surface	1.1	21.2	21.2	8.2	8.2	31.2	31.2	80.3	80.3	5.5	5.5	5.3	1.5	1.5	1.6	3.8	3.7	3.3
				Middle	5.1	20.9	20.9	8.2	8.2	31.7	31.8	74.7	74.9	5.1	5.1		1.6	1.6		3.5		
				Bottom	9.1	20.8	20.8	8.2	8.2	32.2	32.2	72.0	72.1	4.9	4.9		1.6	1.6		2.9		
M5	Sunny	Calm	16:06	Surface	1.0	21.0	21.0	8.2	8.2	31.0	31.0	85.0	84.8	5.8	5.7	5.5	1.2	1.2	1.6	3.1	3.4	3.2
				Middle	6.0	20.9	21.0	8.2	8.2	31.5	31.4	77.6	77.7	5.3	5.3		1.4	1.4		3.5		
				Bottom	11.1	20.9	20.9	8.3	8.3	33.3	33.2	70.9	71.0	4.9	4.9		2.1	2.1		3.2		
M6	Sunny	Calm	15:45	Surface	-	-	-	-	-	-	-	-	-	-	5.6	-	-	1.2	-	-	3.1	
				Middle	2.2	21.9	21.4	8.2	8.2	30.7	30.8	82.9	82.4	5.6		5.6	1.1		1.2	3.5		
				Bottom	-	20.9	-	-	-	-	-	-	-	-		-	-		-	2.6		-

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 15 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 4.4 NTU</u>	<u>C2: 4.8 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 5.9 mg/L</u>	<u>C2: 6.4 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 5.9 mg/L</u>	<u>C2: 6.4 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 5.2 mg/L</u>		<u>C2: 5.7 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 15 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*						
C1	Sunny	Calm	8:37	Surface	1.0	25.1	25.0	8.2	8.2	31.8	31.9	74.8	74.5	5.2	5.1	5.0	2.1	2.1	2.2	2.4	2.5	3.0								
					25.0	8.2		32.0		74.1		5.1		2.1																
					24.5	8.2		32.9		71.1		4.9		2.2																
				C2	Sunny	Calm	7:06	Surface	1.0	24.6	25.3	8.2	8.1	32.8	31.2	71.4	71.3	4.9	4.9	5.0	2.2	2.2	2.9	3.0	3.0	3.5				
									24.4	8.3		33.3		69.5		4.8		2.3												
									24.4	8.3		33.3		69.5		4.8		2.3												
								G1	Sunny	Calm	7:47	Surface	1.1	24.4	24.8	8.1	8.1	33.3	32.2	71.4	70.0	4.8	4.8	4.7	2.3	2.7	2.9	3.2	3.4	3.9
													24.4	8.1		32.3		69.8		4.8		2.8								
													24.3	8.2		33.3		70.1		4.8		2.7								
G2	Sunny	Calm	7:26									Surface	1.1	24.3	26.2	8.2	8.2	33.3	30.5	75.2	82.3	4.7	5.6	5.4	3.8	1.3	1.3	4.2	4.4	3.9
													26.2	8.2		30.5		82.2		5.6		4.5								
													25.9	8.2		31.0		75.2		5.1		4.1								
				G3	Sunny	Calm	7:53					Surface	1.0	23.8	25.9	8.2	8.2	33.9	30.9	66.8	75.5	4.7	5.2	5.0	3.0	1.5	1.5	3.8	4.0	3.6
													23.8	8.2		34.1		66.5		4.6		4.0								
													26.3	8.2		30.7		84.1		5.7		4.0								
								G4	Sunny	Calm	8:08	Surface	1.0	26.3	26.3	8.2	8.2	30.7	30.7	83.8	84.0	5.7	5.7	5.5	2.0	2.0	1.9	4.0	4.4	3.8
													26.3	8.2		30.7		83.8		5.7		4.7								
													25.8	8.2		31.4		76.7		5.2		3.7								
M1	Sunny	Calm	7:34									Surface	1.0	25.9	26.4	8.2	8.2	31.2	31.3	77.1	76.9	5.3	5.2	5.4	1.8	1.8	1.8	3.6	3.7	3.1
													23.7	8.2		34.0		69.3		4.8		3.0								
													23.7	8.2		34.2		69.2		4.8		3.6								
				M2	Sunny	Calm	7:20					Surface	1.0	26.4	26.4	8.2	8.2	30.3	30.4	86.8	86.5	5.9	5.9	5.4	1.1	1.1	1.1	4.3	3.9	3.6
													26.4	8.2		30.4		86.1		5.8		3.5								
													24.7	8.2		32.5		72.0		5.0		4.0								
								M3	Sunny	Calm	8:02	Surface	1.1	24.7	24.4	8.2	8.2	32.3	33.5	72.5	72.3	5.0	5.0	4.5	1.6	1.6	1.6	3.0	3.3	3.1
													24.4	8.2		33.4		64.6		4.5		3.2								
													24.3	8.2		33.6		64.5		4.5		3.4								
M4	Sunny	Calm	7:14									Surface	1.1	26.8	26.8	8.2	8.2	30.3	30.3	86.0	86.0	5.8	5.8	5.4	1.1	1.1	1.1	3.9	3.6	3.1
													26.8	8.2		30.3		86.0		5.8		3.2								
													25.0	8.2		32.2		73.7		5.1		3.4								
				M5	Sunny	Calm	8:27					Surface	1.1	25.0	25.0	8.2	8.2	32.2	32.2	74.1	73.9	5.1	5.1	4.5	1.7	1.7	1.7	3.1	3.3	2.6
													25.0	8.2		32.2		74.1		5.1		2.6								
													23.9	8.2		34.4		65.5		4.5		2.3								
								M6	Sunny	Calm	8:14	Surface	1.1	23.9	23.9	8.2	8.2	34.5	34.4	65.3	65.4	4.5	4.5	4.5	2.6	2.6	2.6	2.8	2.6	2.8
													23.9	8.2		34.5		65.3		4.5		2.3								
													26.5	8.2		30.5		85.1		5.8		3.2								

Remarks:

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

Action and Limit Levels for Marine Water Quality on 15 June 2021 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 2.8 NTU</u>	<u>C1: 3.0 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 3.0 mg/L</u>	<u>C1: 3.3 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 3.0 mg/L</u>	<u>C1: 3.3 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C1: 4.4 mg/L</u>	<u>C1: 4.7 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 17 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	10:51	Surface	1.0	27.8	27.8	8.6	8.6	27.4	27.4	120.2	120.7	8.1	8.1	7.0	0.7	0.7	1.0	2.5	2.3	2.1
				Middle	8.5	24.4	24.4	8.4	8.4	33.6	33.5	79.9	84.6	5.5	5.8		0.7	1.0		2.0	2.4	
				Bottom	16.1	24.5	23.8	8.4	8.3	33.3	34.5	89.2	69.8	6.2	5.3		0.9	1.3		2.3	1.8	
C2	Sunny	Calm	9:59	Surface	1.0	28.2	28.2	8.5	8.5	26.9	26.9	118.4	118.8	8.0	8.0	7.3	0.5	0.5	0.6	3.2	2.9	2.2
				Middle	16.1	28.2	25.7	8.3	8.3	31.4	31.3	94.1	95.7	6.4	6.5		0.5	0.6		2.2	1.8	
				Bottom	31.1	24.7	24.5	8.3	8.3	33.3	33.6	76.7	76.5	5.3	5.3		0.6	0.8		1.4	2.0	
G1	Sunny	Calm	10:29	Surface	1.1	28.3	28.3	8.7	8.7	26.4	26.3	118.9	119.4	8.0	8.0	7.7	1.7	1.8	1.5	3.4	3.1	2.8
				Middle	4.1	27.2	27.3	8.6	8.6	28.2	28.1	105.3	107.7	7.1	7.3		0.8	0.8		2.8	2.7	
				Bottom	7.1	24.5	24.5	8.3	8.3	33.7	33.6	76.2	75.1	5.2	5.2		1.8	1.9		2.4	2.7	
G2	Sunny	Calm	10:16	Surface	1.0	28.4	28.4	8.7	8.7	26.2	26.2	121.6	122.4	8.2	8.2	7.9	0.6	0.6	0.9	2.7	2.7	3.1
				Middle	5.1	27.7	27.8	8.7	8.7	27.1	27.0	111.7	112.1	7.6	7.6		1.1	1.0		2.6	3.0	
				Bottom	9.0	25.4	25.3	8.4	8.4	32.0	32.0	85.2	84.4	5.8	5.8		1.2	1.2		3.3	3.6	
G3	Sunny	Calm	10:33	Surface	1.0	28.6	28.6	8.7	8.7	25.4	25.4	117.5	118.3	7.9	8.0	8.1	1.0	0.9	0.9	1.5	1.8	2.4
				Middle	4.1	28.0	28.0	8.7	8.7	26.6	26.5	119.9	120.7	8.1	8.2		0.9	0.7		2.1	2.4	
				Bottom	7.1	25.3	25.3	8.4	8.4	32.0	32.1	86.1	84.6	5.9	5.8		0.7	1.1		2.7	3.0	
G4	Sunny	Calm	10:41	Surface	1.1	28.6	28.6	8.7	8.7	25.9	25.9	123.0	123.7	8.3	8.3	7.9	0.6	0.6	1.3	4.0	3.6	3.2
				Middle	4.0	27.4	27.6	8.6	8.6	27.9	27.5	109.9	111.0	7.4	7.5		0.6	0.8		3.1	3.0	
				Bottom	7.0	24.5	24.5	8.3	8.3	33.7	33.7	77.5	74.1	5.3	5.6		0.8	2.4		2.8	2.9	
M1	Sunny	Calm	10:23	Surface	1.2	28.3	28.3	8.7	8.7	26.2	26.2	120.5	120.6	8.1	8.1	8.1	1.1	1.2	1.9	2.3	2.5	2.5
				Middle	3.0	28.2	28.2	8.7	8.7	26.4	26.4	119.0	119.1	8.0	8.0		1.2	1.1		2.6	2.3	
				Bottom	5.0	27.2	27.3	8.5	8.5	27.7	28.1	97.5	96.8	6.6	6.6		1.1	3.5		3.0	2.8	
M2	Sunny	Calm	10:11	Surface	1.0	28.4	28.4	8.7	8.7	26.3	26.3	126.4	126.5	8.5	8.5	8.1	2.2	2.3	1.4	1.2	1.6	1.9
				Middle	6.0	27.4	27.6	8.7	8.7	27.9	27.6	114.4	115.0	7.7	7.8		2.3	0.8		2.0	2.0	
				Bottom	11.1	24.6	24.6	8.3	8.3	33.5	33.5	74.7	74.3	5.1	5.1		0.8	3.5		2.4	2.3	
M3	Sunny	Calm	10:36	Surface	1.2	28.6	28.6	8.7	8.7	25.6	25.6	124.3	124.4	8.4	8.4	8.1	1.5	1.5	1.9	3.0	2.8	3.2
				Middle	4.1	27.9	28.0	8.7	8.7	26.7	26.5	115.7	116.9	7.8	7.9		1.5	1.0		2.6	3.1	
				Bottom	7.0	28.2	24.9	8.7	8.3	26.3	32.9	118.1	72.4	8.0	5.4		1.0	3.3		3.3	3.9	
M4	Sunny	Calm	10:06	Surface	1.1	28.5	28.5	8.7	8.7	26.3	26.3	126.1	126.3	8.5	8.5	7.8	0.6	0.6	1.7	3.2	3.4	2.9
				Middle	5.1	26.7	27.0	8.5	8.5	29.4	28.7	101.9	105.1	6.9	7.1		0.6	1.1		3.5	2.7	
				Bottom	9.1	24.9	24.9	8.3	8.3	32.9	32.9	75.2	74.7	5.2	5.1		1.2	3.4		2.4	2.6	
M5	Sunny	Calm	10:48	Surface	1.0	27.5	27.5	8.6	8.6	27.7	27.8	116.7	116.5	7.9	7.9	7.5	0.8	0.8	0.8	2.0	2.5	3.0
				Middle	5.6	27.4	26.6	8.6	8.6	29.6	29.4	116.2	104.9	7.9	7.1		0.8	0.9		2.9	2.4	
				Bottom	10.0	26.5	24.6	8.6	8.4	29.2	33.7	104.3	81.0	7.2	5.6		0.9	0.9		2.2	4.0	
M6	Sunny	Calm	10:44	Surface	-	-	-	-	-	-	-	-	-	-	7.9	-	-	0.8	-	-	2.7	
				Middle	2.3	27.9	27.8	8.7	8.7	26.9	27.2	117.0	117.1	7.9		7.9	0.9		0.8	3.0		2.7
				Bottom	-	27.6	-	8.7	-	27.4	-	117.2	-	7.9		-	0.7		-	2.4		-

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 17 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 1.0 NTU</u>	<u>C2: 1.0 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.4 mg/L</u>	<u>C2: 3.7 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.4 mg/L</u>	<u>C2: 3.7 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 2.3 mg/L</u>		<u>C2: 2.5 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 17 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	16:22	Surface	1.1	27.8	27.8	8.6	8.6	27.3	27.3	119.1	119.7	8.0	8.1	7.0	0.7	0.7	1.1	2.3	2.5	2.7		
				Middle	9.1	25.6	25.5	8.4	8.4	31.0	31.3	87.3	85.3	6.0	5.9	7.0	0.7	0.7	1.1	2.5	2.7			
				Bottom	17.0	23.5	23.4	8.3	8.3	35.0	35.1	83.2	83.2	5.7	5.7	5.7	1.6	1.5	1.1	2.7	3.1			
C2	Sunny	Calm	15:41	Surface	1.1	28.3	28.3	8.6	8.6	26.7	26.7	121.3	121.6	8.1	8.2	7.4	0.6	0.6	1.1	4.0	3.6	3.2		
				Middle	16.0	26.6	26.6	8.4	8.4	29.2	29.4	98.4	97.4	6.7	6.6	7.4	0.6	0.6	1.1	3.5	3.3			
				Bottom	31.0	24.2	24.1	8.2	8.2	34.1	34.2	72.7	72.1	5.0	5.0	5.0	1.6	1.6	1.1	3.0	2.8			
G1	Sunny	Calm	16:00	Surface	1.0	28.4	28.4	8.7	8.7	26.2	26.2	121.9	122.2	8.2	8.2	7.8	0.6	0.6	1.5	2.9	3.2	2.4		
				Middle	4.1	27.7	27.7	8.6	8.6	27.2	27.3	110.8	110.7	7.5	7.5	7.8	0.9	0.9	1.5	2.2	2.3			
				Bottom	7.0	24.5	24.5	8.3	8.3	33.6	33.6	67.5	67.8	4.7	4.7	4.7	2.7	2.8	1.5	1.3	1.7			
G2	Sunny	Calm	15:51	Surface	1.1	28.4	28.4	8.7	8.7	26.2	26.2	123.6	123.8	8.3	8.3	7.5	0.6	0.6	0.9	3.0	3.4	3.0		
				Middle	5.0	27.2	27.2	8.6	8.6	28.0	28.0	100.6	98.2	6.8	6.5	7.5	1.1	1.1	0.9	3.2	3.3			
				Bottom	9.1	24.9	24.7	8.3	8.3	33.0	33.3	75.9	75.8	5.2	5.2	5.2	1.2	1.1	0.9	2.4	2.5			
G3	Sunny	Calm	16:04	Surface	1.4	28.4	28.5	8.7	8.7	25.8	25.7	118.6	119.4	8.0	8.0	7.5	0.8	0.8	1.1	3.2	3.0	2.6		
				Middle	4.0	27.3	27.4	8.6	8.6	27.8	27.7	101.2	103.6	6.9	7.0	7.5	1.0	1.0	1.1	2.8	2.8			
				Bottom	7.0	25.1	25.1	8.4	8.3	32.4	32.5	74.6	74.1	5.1	5.1	5.1	1.3	1.4	1.1	2.4	2.1			
G4	Sunny	Calm	16:12	Surface	1.0	28.7	28.7	8.7	8.7	26.0	26.0	125.5	125.8	8.4	8.4	8.0	0.6	0.6	1.0	2.3	2.2	2.0		
				Middle	4.1	27.6	27.6	8.6	8.6	27.5	27.5	112.7	112.0	7.6	7.6	8.0	1.0	1.0	1.0	1.9	1.9			
				Bottom	7.1	25.7	25.8	8.4	8.4	31.2	30.9	85.1	86.0	5.8	5.9	5.9	1.4	1.4	1.0	1.8	1.9			
M1	Sunny	Calm	15:56	Surface	1.1	28.3	28.3	8.7	8.7	26.4	26.3	118.2	118.5	8.0	8.0	7.7	1.5	1.4	1.8	2.0	2.5	2.8		
				Middle	3.1	27.9	27.9	8.6	8.6	26.8	26.8	111.5	111.3	7.5	7.5	7.7	2.0	1.9	1.8	3.1	2.7			
				Bottom	5.1	27.8	27.8	8.6	8.6	27.1	27.0	109.5	109.5	7.4	7.4	7.4	2.2	2.2	1.8	2.8	3.2			
M2	Sunny	Calm	15:48	Surface	1.0	28.1	28.2	8.7	8.7	26.7	26.6	121.4	122.0	8.2	8.2	7.5	0.7	0.7	0.8	3.0	3.3	2.9		
				Middle	6.1	27.3	27.3	8.6	8.5	28.0	28.0	102.4	101.1	6.9	6.9	7.5	0.8	0.8	0.8	3.4	2.9			
				Bottom	11.1	24.2	24.2	8.3	8.3	34.2	34.2	72.4	72.5	5.0	5.0	5.0	0.8	0.8	0.8	2.8	2.5			
M3	Sunny	Calm	16:07	Surface	1.1	28.6	28.6	8.7	8.7	25.5	25.6	122.1	122.6	8.2	8.2	8.1	0.7	0.6	1.5	3.0	3.0	2.5		
				Middle	4.1	28.0	28.0	8.7	8.7	26.3	26.5	118.7	118.0	8.0	8.0	8.1	1.2	1.2	1.5	2.6	2.8			
				Bottom	7.0	25.1	25.1	8.3	8.3	32.5	32.5	69.1	68.8	4.7	4.7	4.7	1.3	2.6	1.5	3.0	1.9			
M4	Sunny	Calm	15:44	Surface	1.1	28.4	28.4	8.7	8.7	27.0	26.8	118.1	121.1	7.9	8.1	7.5	0.7	0.7	1.7	2.2	2.3	2.7		
				Middle	5.1	27.0	27.0	8.5	8.5	28.7	28.7	101.1	100.5	6.9	6.8	7.5	0.8	0.9	1.7	2.5	2.9			
				Bottom	9.1	24.8	24.8	8.3	8.3	32.9	33.0	69.7	69.3	4.8	4.8	4.8	3.4	3.5	1.7	3.3	2.9			
M5	Sunny	Calm	16:19	Surface	1.0	27.7	27.7	8.6	8.6	27.7	27.6	117.7	118.0	8.0	8.0	7.3	0.8	0.8	1.0	2.1	2.2	2.9		
				Middle	6.1	26.4	26.4	8.5	8.5	29.8	29.7	98.5	98.0	6.7	6.6	7.3	1.0	1.0	1.0	2.7	3.2			
				Bottom	11.0	24.4	24.4	8.3	8.3	33.9	34.0	75.2	74.7	5.2	5.1	5.1	0.9	1.1	1.0	2.9	3.3			
M6	Sunny	Calm	16:14	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.7		
				Middle	2.3	27.7	27.7	8.7	8.7	27.3	27.4	116.8	116.9	7.9	7.9	7.9	8.0	8.0	0.7	1.7	1.7			
				Bottom	-	27.6	-	8.7	-	27.4	-	116.9	-	7.9	-	-	8.0	-	0.7	1.6	-			

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 17 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 1.8 NTU</u>	<u>C1: 1.9 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.9 mg/L</u>	<u>C1: 3.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.9 mg/L</u>	<u>C1: 3.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C1: 3.7 mg/L</u>	<u>C1: 4.0 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 Water Quality Monitoring Results on 19 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	8:38	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	91.4	91.4	7.5	7.5	7.5	0.9	0.9	1.6	1.8	2.0	2.5
					24.9	24.9	8.2	8.2	34.8	34.8	91.4	91.4	7.5	7.5	7.5	0.9	0.9	1.6	1.8	2.0		
					8.5	24.9	24.9	8.2	8.2	34.9	34.9	91.1	91.1	7.5	7.5	7.5	1.7	1.7	1.6	2.8	2.6	
C2	Sunny	Moderate	7:09	Surface	1.1	24.9	24.9	8.2	8.2	34.9	34.9	90.8	90.8	7.5	7.5	7.5	1.1	1.1	1.8	2.6	2.5	3.2
					24.9	24.9	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	2.1	2.1	1.8	2.6	2.5		
					16.1	24.9	24.9	8.2	8.2	34.8	34.8	91.0	91.1	7.5	7.5	7.5	1.1	1.1	1.8	2.6	2.5	
G1	Sunny	Moderate	7:45	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	93.2	93.3	7.7	7.7	7.7	1.0	1.0	1.4	3.6	3.4	4.0
					24.9	24.9	8.2	8.2	34.8	34.8	93.3	93.3	7.7	7.7	7.7	1.0	1.0	1.4	3.6	3.4		
					4.1	24.9	24.9	8.2	8.2	34.8	34.8	92.9	93.0	7.6	7.6	7.6	1.6	1.6	1.4	3.9	3.7	
G2	Sunny	Moderate	7:28	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	91.9	91.9	7.6	7.6	7.6	1.1	1.1	1.8	4.9	4.7	4.0
					24.9	24.9	8.2	8.2	34.8	34.8	91.8	91.8	7.6	7.6	7.6	1.1	1.1	1.8	4.9	4.7		
					5.1	24.9	24.9	8.2	8.2	34.9	34.8	91.1	91.1	7.5	7.5	7.5	2.0	2.0	1.8	4.1	4.0	
G3	Sunny	Moderate	7:51	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	90.7	90.8	7.5	7.5	7.5	1.0	1.0	1.1	4.5	4.2	3.7
					24.9	24.9	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	1.0	1.0	1.1	4.5	4.2		
					4.0	24.9	24.9	8.2	8.2	34.8	34.8	91.8	91.9	7.6	7.6	7.6	1.1	1.1	1.1	3.8	3.5	
G4	Sunny	Moderate	8:07	Surface	1.1	24.9	24.9	8.2	8.2	34.8	34.8	92.3	92.5	7.6	7.6	7.6	0.9	1.0	1.5	3.2	3.7	3.3
					24.9	24.9	8.2	8.2	34.8	34.8	92.6	92.5	7.6	7.6	7.6	1.0	1.0	1.5	3.2	3.7		
					4.1	24.9	24.9	8.2	8.2	34.8	34.8	91.9	92.0	7.6	7.6	7.6	1.7	1.7	1.5	4.0	3.8	
M1	Sunny	Moderate	7:35	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	1.0	1.0	1.5	2.2	1.9	2.1
					24.9	24.9	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	1.0	1.0	1.5	2.2	1.9		
					3.0	24.9	24.9	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	1.6	1.6	1.5	1.7	2.0	
M2	Sunny	Moderate	7:21	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	91.8	91.9	7.6	7.6	7.6	1.1	1.1	1.5	2.0	2.1	2.5
					24.9	24.9	8.2	8.2	34.9	34.9	91.9	91.9	7.6	7.6	7.6	1.1	1.1	1.5	2.0	2.1		
					5.2	24.9	24.9	8.2	8.2	34.9	34.9	91.3	91.4	7.5	7.5	7.5	1.7	1.7	1.5	2.3	2.5	
M3	Sunny	Moderate	7:59	Surface	1.0	24.9	24.9	8.2	8.2	34.8	34.8	92.0	92.0	7.6	7.6	7.6	1.0	1.0	1.5	1.7	2.0	2.4
					24.9	24.9	8.2	8.2	34.8	34.8	92.0	92.0	7.6	7.6	7.6	1.0	1.0	1.5	1.7	2.0		
					4.1	24.9	24.9	8.2	8.2	34.8	34.8	91.3	91.3	7.5	7.5	7.5	1.6	1.6	1.5	2.8	2.5	
M4	Sunny	Moderate	7:15	Surface	1.1	24.9	24.9	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	1.1	1.1	1.7	2.4	2.4	2.9
					24.9	24.9	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	1.1	1.1	1.7	2.4	2.4		
					5.1	24.9	24.9	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	1.9	1.8	1.7	2.6	2.9	
M5	Sunny	Moderate	8:26	Surface	1.0	24.9	24.9	8.2	8.2	34.9	34.8	91.1	91.3	7.5	7.5	7.5	1.2	1.2	1.8	1.8	1.9	2.3
					24.9	24.9	8.2	8.2	34.8	34.9	91.4	91.3	7.5	7.5	7.5	1.1	1.2	1.8	1.9	1.9		
					5.5	24.9	24.9	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	2.0	2.0	1.8	2.3	2.2	
M6	Sunny	Moderate	8:13	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.4	
					2.0	24.9	24.9	8.2	8.2	34.8	34.8	91.7	91.8	7.5	7.5	7.5	1.0	1.0	1.0	2.4		2.4
					-	24.9	24.9	8.2	8.2	34.8	34.8	91.8	91.8	7.6	7.6	7.6	1.0	1.0	1.0	2.3		2.4

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 19 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 2.7 NTU</u>	<u>C2: 2.9 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.9 mg/L</u>	<u>C2: 3.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.9 mg/L</u>	<u>C2: 3.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 4.8 mg/L</u>		<u>C2: 5.2 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Levels for Marine Water Quality on 19 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 2.0 NTU</u>	<u>C1: 2.2 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.6 mg/L</u>	<u>C1: 2.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.6 mg/L</u>	<u>C1: 2.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C1: 4.4 mg/L</u>		<u>C1: 4.8 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 Water Quality Monitoring Results on 21 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Sunny	Calm	10:14	Surface	1.1	26.7	26.2	8.5	8.4	26.3	27.3	97.2	88.3	6.7	6.1	5.3	3.2	3.1	3.3	2.9	2.9	3.7	
				Middle	9.0	23.5		8.3		34.4		64.8		63.4			4.5			4.4			3.0
				Bottom	17.1	23.2	8.3	34.6	61.9	34.9	58.9	4.1	4.1	3.5	3.4	4.0	4.2						
C2	Sunny	Calm	9:24	Surface	1.1	27.2	27.0	8.4	8.4	24.4	25.6	101.4	95.0	7.0	6.6	5.6	2.4	2.4	3.0	3.3	3.3	3.6	
				Middle	16.0	24.2		8.3		32.8		62.3		66.1			4.3			4.6			2.7
				Bottom	31.0	23.5	8.2	34.5	57.2	34.5	59.0	4.0	4.1	3.8	3.8	3.9	3.8						
G1	Sunny	Calm	9:53	Surface	1.6	28.4	28.2	8.6	8.6	26.7	26.8	131.6	115.5	8.8	7.8	7.8	1.7	1.8	1.7	3.3	3.4	3.1	
				Middle	4.0	27.6		8.6		27.8		113.4		116.2			7.7			7.9			1.3
				Bottom	7.0	24.0	8.3	34.2	78.2	34.1	70.3	4.3	4.9	2.1	2.2	2.9	2.9						
G2	Sunny	Calm	9:42	Surface	1.1	28.2	28.1	8.6	8.6	27.1	27.1	127.4	124.2	8.6	8.3	6.6	0.8	0.9	1.4	3.5	3.6	4.1	
				Middle	5.0	23.7		8.3		34.6		63.7		71.1			4.4			4.9			1.6
				Bottom	9.0	23.8	8.3	34.3	78.4	34.6	54.4	3.6	4.8	2.1	2.0	4.3	4.6						
G3	Sunny	Calm	9:56	Surface	1.1	28.6	28.4	8.6	8.6	26.4	26.6	140.6	132.5	9.4	8.9	8.6	1.4	1.4	1.4	4.2	4.2	3.9	
				Middle	4.1	26.4		8.5		28.5		120.4		119.7			8.3			8.2			1.6
				Bottom	7.1	24.1	8.2	34.3	82.4	34.4	71.7	5.7	5.0	1.4	1.4	3.6	3.6						
G4	Sunny	Calm	10:02	Surface	1.1	28.1	28.1	8.6	8.6	26.7	26.7	138.5	131.8	9.3	8.9	9.0	2.3	2.2	1.9	3.5	3.5	3.2	
				Middle	4.0	27.9		8.6		27.0		129.0		134.2			8.7			9.0			2.0
				Bottom	7.1	24.0	8.3	34.2	85.7	34.1	81.7	5.9	5.7	1.7	1.6	2.7	2.8						
M1	Sunny	Calm	9:49	Surface	1.1	27.9	27.9	8.6	8.6	27.4	27.4	126.4	125.2	8.5	8.4	8.2	1.1	1.1	1.4	3.2	3.2	3.7	
				Middle	3.1	26.6		8.6		28.3		118.2		119.4			8.0			8.0			1.2
				Bottom	5.0	24.8	8.4	32.9	90.4	32.9	93.6	6.2	6.4	2.1	1.9	4.3	4.3						
M2	Sunny	Calm	9:37	Surface	1.1	28.0	27.7	8.6	8.6	27.3	27.4	126.9	117.7	8.5	8.0	6.8	1.5	1.5	1.9	4.4	4.5	3.7	
				Middle	6.1	23.7		8.3		34.6		80.6		82.0			5.6			5.7			1.4
				Bottom	11.0	23.6	8.3	34.9	83.4	35.1	35.1	5.8	4.3	1.3	2.7	3.2	3.0						
M3	Sunny	Calm	9:59	Surface	1.1	28.4	28.4	8.7	8.7	26.4	26.3	147.9	135.0	9.9	9.1	8.6	1.4	1.5	1.4	3.2	3.2	4.3	
				Middle	4.0	25.5		8.3		31.3		109.1		119.1			7.5			8.1			1.6
				Bottom	7.0	23.9	8.3	34.0	62.0	34.3	67.1	4.3	4.6	1.6	1.6	5.6	6.0						
M4	Sunny	Calm	9:32	Surface	1.2	27.1	27.0	8.5	8.5	27.8	27.9	119.8	110.4	8.2	7.5	6.5	1.4	1.3	1.7	4.4	4.6	3.8	
				Middle	5.1	24.6		8.3		32.7		82.8		79.1			5.7			5.5			1.2
				Bottom	9.0	24.6	8.3	32.7	67.5	33.8	65.2	4.4	4.5	2.7	2.6	3.1	3.0						
M5	Sunny	Calm	10:10	Surface	1.1	26.4	26.4	8.5	8.5	27.7	27.8	100.0	95.2	6.9	6.6	6.1	2.2	2.3	2.3	3.2	3.3	3.6	
				Middle	6.0	23.6		8.3		34.2		82.7		80.3			5.8			5.6			2.1
				Bottom	11.2	23.2	8.3	35.0	62.1	35.0	63.0	4.3	4.4	2.7	2.6	4.2	4.1						
M6	Sunny	Calm	10:06	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				Middle	2.2	27.5	27.5	8.6	8.6	27.3	27.3	125.4	125.4	8.5	8.5	8.5	8.5	1.2	1.2	1.2	4.0	3.9	3.9
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Remarks: *DA: Depth-Averaged
 **Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 21 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 4.5 NTU</u>	<u>C2: 4.9 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 4.0 mg/L</u>	<u>C2: 4.3 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 4.0 mg/L</u>	<u>C2: 4.3 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C2: 4.5 mg/L</u>	<u>C2: 4.9 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 21 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Calm	16:07	Surface	1.0	26.6	26.1	8.4	8.4	26.2	27.2	97.1	88.1	6.7	6.1	5.2	3.1	3.1	3.2	4.9	5.1	4.2
				Middle	9.0	25.6		8.3		28.3		79.1		5.4			3.1			5.2		
				Bottom	17.1	23.5	23.3	8.2	8.3	34.4	34.5	65.1	63.7	4.5	4.4	4.2	3.3	3.3	3.2	3.3	3.3	3.3
C2	Sunny	Calm	15:19	Surface	1.1	23.1	23.3	8.3	8.3	35.0	34.9	52.9	56.1	4.2	4.2	4.2	3.4	3.3	2.0	3.6	3.5	3.2
				Middle	16.2	23.2		8.3		8.3		34.9		32.5			59.3			62.2		
				Bottom	31.0	27.1	26.9	8.4	8.4	26.1	26.5	90.8	92.6	6.2	6.4	5.6	1.7	1.7	2.0	1.8	1.7	2.8
G1	Sunny	Calm	15:46	Surface	1.2	24.7	24.4	8.3	8.3	31.5	32.5	69.8	70.0	4.8	4.9	4.2	2.4	2.2	1.5	3.2	3.3	3.5
				Middle	4.0	24.0		8.3		8.3		33.5		32.5			70.2			68.7		
				Bottom	7.1	23.6	23.7	8.3	8.3	34.4	34.4	58.8	59.8	4.1	4.2	4.2	2.1	2.0	1.9	2.0	3.4	3.5
G2	Sunny	Calm	15:37	Surface	1.1	28.2	28.2	8.6	8.6	26.8	26.9	113.2	113.2	7.6	7.6	7.9	1.6	1.6	1.5	4.6	4.3	3.8
				Middle	4.0	28.1		8.6		8.6		26.9		27.4			113.1			120.4		
				Bottom	7.1	28.0	27.9	8.6	8.6	27.2	27.4	122.0	120.4	8.2	8.1	8.1	1.1	1.1	1.1	3.7	3.9	3.1
G3	Sunny	Calm	15:49	Surface	1.1	24.0	24.0	8.3	8.3	34.2	34.2	73.9	68.7	5.1	4.8	4.8	1.6	1.8	1.2	3.1	3.2	3.6
				Middle	5.0	24.0		8.3		8.3		34.2		34.2			63.4			68.7		
				Bottom	9.1	28.0	28.1	8.6	8.6	27.1	27.1	116.6	121.0	7.8	8.1	7.1	1.0	1.0	1.0	3.3	3.3	3.3
G4	Sunny	Calm	15:55	Surface	1.1	28.1	28.5	8.6	8.6	26.7	26.6	119.8	121.6	8.0	8.1	8.1	1.4	1.4	1.4	3.0	3.0	3.2
				Middle	4.0	28.6		8.6		8.5		26.5		29.6			123.3			118.0		
				Bottom	7.1	26.6	26.3	8.6	8.6	28.1	29.6	124.9	118.0	8.6	8.1	8.1	1.3	1.3	1.3	3.2	3.1	3.5
G4	Sunny	Calm	15:55	Surface	1.1	26.1	24.2	8.2	8.3	34.1	34.1	70.6	74.8	4.9	5.2	5.2	1.4	1.4	1.4	3.5	3.5	3.3
				Middle	4.0	24.0		8.3		8.3		34.1		34.1			79.0			74.8		
				Bottom	7.1	28.1	28.1	8.6	8.6	26.8	26.8	109.1	119.9	7.4	8.1	8.3	1.7	1.5	1.5	3.1	3.1	3.3
M1	Sunny	Calm	15:42	Surface	1.1	27.7	27.7	8.6	8.6	27.3	27.3	123.8	124.7	8.4	8.4	8.4	1.4	1.3	1.6	3.3	3.3	3.3
				Middle	4.0	27.6		8.6		8.6		27.4		27.3			125.6			124.7		
				Bottom	7.1	24.0	23.9	8.3	8.3	34.2	34.3	73.2	71.3	5.1	5.4	5.4	1.6	1.8	1.8	3.4	3.4	3.4
M2	Sunny	Calm	15:30	Surface	1.0	23.8	23.9	8.3	8.3	34.5	34.3	69.3	71.3	5.8	5.4	5.4	2.1	1.8	1.4	4.3	4.2	3.5
				Middle	3.1	27.9		27.9		8.6		8.6		27.5			27.4			122.1		
				Bottom	5.0	27.8	27.8	8.6	8.6	27.6	27.6	118.7	121.1	8.0	8.2	8.2	1.2	1.2	1.2	3.3	3.4	3.4
M3	Sunny	Calm	15:52	Surface	1.1	24.9	24.9	8.4	8.4	32.8	32.7	97.2	99.3	6.7	6.8	6.8	1.9	1.8	1.9	3.0	2.9	4.0
				Middle	4.0	25.0		8.4		8.4		32.7		32.7			101.4			99.3		
				Bottom	7.0	27.9	27.9	8.6	8.6	27.2	27.2	122.1	121.9	8.2	8.2	8.2	1.0	1.1	1.1	3.6	3.6	3.6
M4	Sunny	Calm	15:26	Surface	1.0	27.9	23.4	8.3	8.3	35.0	35.0	69.5	63.6	4.8	4.9	6.6	1.5	1.8	1.9	3.5	3.9	4.0
				Middle	5.0	27.9		23.2		8.3		8.3		35.2			35.1			61.2		
				Bottom	9.1	23.3	23.2	8.3	8.3	35.1	35.1	57.0	59.1	5.0	4.6	4.6	3.3	3.0	3.0	4.4	4.7	4.4
M5	Sunny	Calm	16:03	Surface	1.0	28.5	28.5	8.6	8.6	26.4	26.4	131.1	135.8	8.8	9.1	9.1	1.6	1.6	1.5	3.9	4.1	3.5
				Middle	4.0	28.5		8.7		8.6		26.4		28.2			140.4			133.9		
				Bottom	7.0	26.3	27.4	8.5	8.6	29.9	28.2	126.0	133.9	8.6	9.0	9.0	1.3	1.2	1.2	3.6	3.5	3.5
M6	Sunny	Calm	15:57	Surface	-	28.5	27.4	8.4	8.4	27.5	27.6	141.8	91.2	6.1	6.3	5.6	1.4	1.6	1.9	2.9	2.9	3.8
				Middle	2.2	24.4		24.2		8.2		8.3		34.0			34.3			88.5		
				Bottom	-	24.0	24.2	8.2	8.3	34.5	34.3	64.0	76.3	4.4	5.3	5.3	1.9	1.6	1.6	3.3	3.4	3.4
M5	Sunny	Calm	16:03	Surface	1.0	27.0	27.0	8.5	8.5	27.9	28.0	104.8	109.9	7.1	7.5	6.4	1.3	1.3	1.3	3.5	3.6	4.0
				Middle	5.0	27.0		24.7		8.3		8.3		32.7			32.6			75.5		
				Bottom	9.1	24.7	24.6	8.3	8.3	32.4	32.6	79.5	77.5	5.5	5.0	5.0	1.3	1.4	1.4	3.8	3.9	3.9
M5	Sunny	Calm	16:03	Surface	1.0	25.0	24.6	8.3	8.3	31.9	32.6	77.0	71.8	5.3	5.0	5.0	1.4	1.4	1.5	4.3	4.4	4.5
				Middle	6.0	24.3		24.6		8.3		8.3		33.3			32.6			66.5		
				Bottom	11.0	26.5	26.4	8.4	8.4	27.5	27.6	94.0	91.2	6.5	6.3	6.3	2.0	2.1	2.1	4.6	4.5	4.5
M6	Sunny	Calm	15:57	Surface	-	26.4	27.4	8.4	8.4	27.7	27.6	88.4	91.2	6.1	6.3	5.6	2.3	2.1	2.1	4.4	4.5	3.8
				Middle	6.0	23.6		23.6		8.3		8.3		34.4			34.2			70.1		
				Bottom	11.0	23.7	23.2	8.3	8.3	34.1	35.1	72.4	58.8	5.0	4.1	4.1	2.1	2.2	2.2	3.9	3.9	3.9
M6	Sunny	Calm	15:57	Surface	-	23.2	23.2	8.3	8.3	35.2	35.1	59.7	58.8	4.2	4.1	4.1	2.6	2.7	2.7	3.2	3.1	3.8
				Middle	2.2	23.2		23.2		8.3		8.3		35.2			35.1			57.8		
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 21 June 2021 (Mid-Flood Tide)

<u>Parameter</u> <u>(unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 4.0 NTU</u>	<u>C1: 4.3 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 6.1 mg/L</u>	<u>C1: 6.6 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 6.1 mg/L</u>	<u>C1: 6.6 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C1: 4.2 mg/L</u>		<u>C1: 4.6 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 23 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Sunny	Moderate	11:49	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	91.3	91.3	7.7	7.7	7.7	1.0	0.9	1.6	<0.1	<0.1	1.0	
					25.8	25.8	8.2	8.2	35.0	35.0	91.3	91.3	7.7	7.7	7.7	0.9	0.9	1.6	<0.1	<0.1			
				Middle	8.5	25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.7	7.6	7.6	1.7	1.8	1.6	1.1	1.2		1.0
					25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.6	7.6	7.6	1.8	1.8	1.6	1.1	1.2			
				Bottom	16.0	25.8	25.8	8.2	8.2	35.1	35.1	90.9	90.9	7.7	7.6	7.6	2.1	2.1	7.6	1.4	1.7		1.0
					25.8	25.8	8.2	8.2	35.1	35.1	90.8	90.8	7.6	7.6	7.6	1.9	1.9	7.6	1.4	1.7			
C2	Sunny	Moderate	10:21	Surface	1.1	25.8	25.8	8.1	8.1	35.0	35.0	91.3	91.3	7.7	7.7	7.7	1.1	1.1	1.8	<0.1	<0.1	1.2	
					25.8	25.8	8.1	8.1	35.0	35.0	91.2	91.2	7.7	7.7	7.7	1.1	1.1	1.8	<0.1	<0.1			
				Middle	16.1	25.8	25.8	8.2	8.2	35.0	35.0	91.5	91.5	7.7	7.7	7.7	2.1	2.1	1.8	2.0	1.8		1.2
					25.8	25.8	8.2	8.2	35.0	35.0	91.5	91.5	7.7	7.7	7.7	2.1	2.1	1.8	2.0	1.8			
				Bottom	31.1	25.7	25.7	8.2	8.2	35.2	35.2	90.3	90.2	7.6	7.6	7.6	2.3	2.3	7.6	1.8	1.9		1.2
					25.7	25.7	8.2	8.2	35.2	35.2	90.1	90.2	7.6	7.6	7.6	2.3	2.3	7.6	2.0	1.9			
G1	Sunny	Moderate	10:57	Surface	1.1	25.8	25.8	8.2	8.2	35.0	35.0	92.8	92.9	7.7	7.8	7.8	1.0	1.0	1.4	2.5	2.4	1.9	
					25.8	25.8	8.2	8.2	35.0	35.0	92.9	92.9	7.8	7.8	7.8	1.0	1.0	1.4	2.3	2.4			
				Middle	3.8	25.8	25.8	8.2	8.2	35.0	35.0	92.1	92.2	7.8	7.8	7.8	1.6	1.6	1.4	2.1	1.8		1.9
					25.8	25.8	8.2	8.2	35.0	35.0	92.3	92.2	7.8	7.8	7.8	1.6	1.6	1.4	2.1	1.8			
				Bottom	6.6	25.7	25.7	8.2	8.2	35.1	35.1	91.3	91.1	7.7	7.7	7.7	1.8	1.8	7.7	1.7	1.5		1.9
					25.7	25.7	8.2	8.2	35.1	35.1	90.9	91.1	7.7	7.7	7.7	1.8	1.8	7.7	1.3	1.5			
G2	Sunny	Moderate	10:40	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	92.0	92.0	7.7	7.7	7.7	1.1	1.1	1.8	2.3	2.1	1.6	
					25.8	25.8	8.2	8.2	35.0	35.0	91.9	92.0	7.7	7.7	7.7	1.1	1.1	1.8	2.3	2.1			
				Middle	5.1	25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.7	7.7	7.7	2.0	2.0	1.8	1.2	1.4		1.6
					25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.7	7.7	7.7	2.0	2.0	1.8	1.2	1.4			
				Bottom	9.1	25.7	25.7	8.2	8.2	35.2	35.2	89.5	89.3	7.5	7.5	7.5	2.4	2.4	7.5	1.2	1.3		1.6
					25.7	25.7	8.2	8.2	35.2	35.2	89.0	89.3	7.5	7.5	7.5	2.5	2.5	7.5	1.4	1.3			
G3	Sunny	Moderate	11:03	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	90.7	90.8	7.6	7.6	7.6	1.0	1.0	1.1	1.2	1.4	1.8	
					25.8	25.8	8.2	8.2	35.0	35.0	90.8	90.8	7.6	7.6	7.6	1.0	1.0	1.1	1.2	1.4			
				Middle	3.7	25.8	25.8	8.2	8.2	35.0	35.0	91.8	91.9	7.7	7.7	7.7	1.1	1.1	1.1	1.3	1.5		1.8
					25.8	25.8	8.2	8.2	35.0	35.0	91.9	91.9	7.7	7.7	7.7	1.1	1.1	1.1	1.3	1.5			
				Bottom	6.6	25.7	25.7	8.2	8.2	35.1	35.1	90.1	90.0	7.6	7.6	7.6	1.2	1.3	7.6	2.3	2.5		1.8
					25.7	25.7	8.2	8.2	35.2	35.1	89.9	90.0	7.6	7.6	7.6	1.3	1.3	7.6	2.6	2.5			
G4	Sunny	Moderate	11:19	Surface	1.1	25.8	25.8	8.2	8.2	35.0	35.0	92.5	92.6	7.6	7.7	7.7	1.0	1.0	1.5	1.4	1.4	2.0	
					25.8	25.8	8.2	8.2	35.0	35.0	92.7	92.6	7.8	7.7	7.7	1.0	1.0	1.5	1.4	1.4			
				Middle	3.7	25.8	25.8	8.2	8.2	35.0	35.0	92.1	92.2	7.7	7.8	7.8	1.7	1.7	7.7	2.3	2.3		2.0
					25.8	25.8	8.2	8.2	35.0	35.0	92.3	92.2	7.8	7.8	7.8	1.7	1.7	7.7	2.2	2.3			
				Bottom	6.5	25.8	25.8	8.2	8.2	35.0	35.0	90.5	90.3	7.6	7.6	7.6	1.8	1.8	7.6	2.5	2.3		2.0
					25.8	25.8	8.2	8.2	35.0	35.0	90.1	90.3	7.6	7.6	7.6	1.8	1.8	7.6	2.0	2.3			
M1	Sunny	Moderate	10:47	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	91.1	91.1	7.6	7.6	7.6	1.0	1.0	1.5	3.0	3.1	2.3	
					25.8	25.8	8.2	8.2	35.0	35.0	91.1	91.1	7.6	7.6	7.6	1.0	1.0	1.5	3.2	3.1			
				Middle	3.0	25.8	25.8	8.2	8.2	35.0	35.0	91.1	91.1	7.7	7.7	7.7	1.6	1.6	7.6	1.8	2.4		2.3
					25.8	25.8	8.2	8.2	35.0	35.0	91.1	91.1	7.7	7.7	7.7	1.7	1.6	7.6	2.9	2.4			
				Bottom	5.1	25.7	25.7	8.2	8.2	35.2	35.2	90.8	90.8	7.7	7.7	7.7	1.8	1.7	7.7	1.2	1.5		2.3
					25.7	25.7	8.2	8.2	35.2	35.2	90.8	90.8	7.7	7.7	7.7	1.7	1.7	7.7	1.7	1.5			
M2	Sunny	Moderate	10:32	Surface	1.1	25.8	25.8	8.2	8.2	35.0	35.0	91.9	92.0	7.7	7.7	7.7	1.1	1.1	1.6	3.1	3.3	2.4	
					25.8	25.8	8.2	8.2	35.0	35.0	92.0	92.0	7.8	7.7	7.7	1.1	1.1	1.6	3.4	3.3			
				Middle	5.3	25.8	25.8	8.2	8.2	35.0	35.0	91.6	91.7	7.7	7.7	7.7	1.7	1.7	7.7	2.6	2.1		2.4
					25.8	25.8	8.2	8.2	35.0	35.0	91.7	91.7	7.7	7.7	7.7	1.7	1.7	7.7	1.5	2.1			
				Bottom	9.5	25.7	25.7	8.2	8.2	35.2	35.2	90.3	90.1	7.6	7.6	7.6	1.9	1.9	7.6	2.3	2.0		2.4
					25.7	25.7	8.2	8.2	35.2	35.2	89.9	90.1	7.6	7.6	7.6	1.9	1.9	7.6	1.6	2.0			
M3	Sunny	Moderate	11:11	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	91.5	91.5	7.6	7.6	7.6	1.1	1.0	1.5	2.0	1.9	2.7	
					25.8	25.8	8.2	8.2	35.0	35.0	91.5	91.5	7.7	7.6	7.6	1.0	1.0	1.5	1.7	1.9			
				Middle	3.7	25.8	25.8	8.2	8.2	35.0	35.0	91.1	91.1	7.7	7.7	7.7	1.6	1.6	7.7	2.2	2.6		2.7
					25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.1	7.7	7.7	7.7	1.6	1.6	7.7	3.0	2.6			
				Bottom	6.6	25.8	25.8	8.2	8.2	35.0	35.0	89.5	89.4	7.6	7.5	7.5	1.9	1.9	7.5	3.7	3.6		2.7
					25.8	25.8	8.2	8.2	35.0	35.0	89.3	89.4	7.5	7.5	7.5	1.8	1.9	7.5	3.4	3.6			
M4	Sunny	Moderate	10:27	Surface	1.1	25.8	25.8	8.2	8.2	35.0	35.0	91.2	91.2	7.5	7.6	7.6	1.1	1.1	1.7	3.2	2.9	2.1	
					25.8	25.8	8.2	8.2	35.0	35.0	91.2	91.2	7.7	7.6	7.6	1.1	1.1	1.7	3.2	2.9			
				Middle	5.1	25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.7	7.7	7.7	1.9	1.8	7.7	1.9	2.2		2.1
					25.8	25.8	8.2	8.2	35.0	35.0	91.0	91.0	7.7	7.7	7.7	1.8	1.8	7.7	2.4	2.2			
				Bottom	9.0	25.7	25.7	8.2	8.2	35.2	35.2	91.0	91.1	7.7	7.7	7.7	2.1	2.2	7.7	1.2	1.4		2.1
					25.7	25.7	8.2	8.2	35.2	35.2	91.1	91.1	7.7	7.7	7.7	2.2	2.2	7.7	1.5	1.4			
M5	Sunny	Moderate	11:37	Surface	1.0	25.8	25.8	8.2	8.2	35.0	35.0	91.5	91.6	7.7	7.7	7.7	1.2	1.2	1.8	1.4	1.6	2.0	
					25.8	25.8	8.2	8.2	35.0	35.0	91.6	91.6	7.7	7.7	7.7	1.2	1.2	1.8	1.7	1.6			
				Middle	5.5	25.8	25.8	8.2	8.2	35.1	35.1	90.8	90.9	7.6	7.6	7.6	2.0	2.0	7.6	1.6	1.6		2.0
					25.8	25.8	8.2	8.2	35.0	35.1	91.0	90.9	7.5	7.6	7.6	2.0	2.0	7.6	1.5	1.6			
				Bottom	10.0	25.8	25.8	8.2	8.2	35.1	35.1	91.3	91.3	7.7	7.7	7.7	2.2	2.2	7.7	3.1	3.0		2.0
					25.8	25.8	8.2	8.2	35.1	35.1	91.												

Action and Limit Levels for Marine Water Quality on 23 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 2.7 NTU</u>	<u>C2: 3.0 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: n.a. mg/L</u>	<u>C2: n.a. mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: n.a. mg/L</u>	<u>C2: n.a. mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>C2: 2.3 mg/L</u>		<u>C2: 2.5 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 23 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	18:29	Surface	1.1	24.9	24.9	8.2	8.2	34.8	34.8	91.4	91.4	7.5	7.5	7.5	0.9	0.9	1.4	2.4	2.5	1.9
				Middle	9.1	24.7	24.8	8.2	8.2	34.9	34.9	91.1	91.1	7.5	7.5	7.5	0.9	0.9	1.4	2.6	1.6	
				Bottom	17.0	24.7	24.7	8.2	8.2	34.9	34.9	91.1	91.1	7.5	7.5	7.5	1.6	1.7	1.4	1.4	1.5	
C2	Sunny	Moderate	16:47	Surface	1.1	24.9	24.8	8.2	8.2	34.9	34.9	90.8	90.9	7.5	7.5	7.5	0.9	0.9	1.4	1.2	1.5	1.7
				Middle	16.5	24.6	24.6	8.2	8.2	34.8	34.8	91.0	91.1	7.5	7.5	7.5	0.9	0.9	1.4	1.7	1.8	
				Bottom	32.0	24.6	24.6	8.2	8.2	35.1	35.1	90.1	90.1	7.4	7.4	7.4	1.8	1.8	2.1	1.6	2.0	
G1	Sunny	Moderate	17:25	Surface	1.0	25.2	24.9	8.2	8.2	34.8	34.8	93.2	93.3	7.7	7.7	7.7	0.8	0.8	1.2	2.0	1.8	2.1
				Middle	4.0	24.7	24.6	8.2	8.2	34.8	34.8	93.3	93.0	7.7	7.6	7.6	0.9	1.2	1.2	2.2	2.3	
				Bottom	7.1	24.6	24.6	8.2	8.2	35.0	35.0	89.0	88.9	7.3	7.3	7.3	1.6	1.5	2.7	2.0	2.4	
G2	Sunny	Moderate	17:06	Surface	1.0	24.8	24.7	8.2	8.2	34.9	34.8	91.9	91.9	7.6	7.6	7.5	1.0	1.0	1.3	1.0	1.4	2.1
				Middle	5.0	24.7	24.7	8.2	8.2	34.8	34.8	91.8	91.1	7.6	7.5	7.5	1.0	1.3	1.3	1.8	2.4	
				Bottom	9.1	24.6	24.6	8.2	8.2	35.1	35.1	88.7	88.9	7.3	7.3	7.3	1.6	1.6	2.0	2.6	2.4	
G3	Sunny	Moderate	17:32	Surface	1.0	25.3	25.0	8.2	8.2	34.8	34.8	90.7	90.8	7.5	7.5	7.5	0.8	0.9	1.5	1.5	1.7	2.0
				Middle	4.1	24.6	24.6	8.2	8.2	34.8	34.8	90.9	91.9	7.5	7.6	7.6	0.9	1.5	1.4	1.9	2.1	
				Bottom	7.1	24.7	24.5	8.2	8.2	34.8	35.0	92.0	90.8	7.6	7.5	7.5	1.4	1.7	2.2	2.4	2.3	
G4	Sunny	Moderate	17:46	Surface	1.0	25.8	25.3	8.2	8.2	34.8	34.8	92.3	92.5	7.6	7.6	7.6	1.3	1.2	1.0	1.0	1.3	1.7
				Middle	4.1	24.7	24.7	8.2	8.2	34.8	34.8	92.6	92.0	7.6	7.6	7.6	1.2	1.7	1.7	1.6	1.8	
				Bottom	7.1	24.6	24.6	8.2	8.2	34.9	34.9	92.1	91.3	7.6	7.5	7.5	1.7	1.9	2.0	2.3	2.2	
M1	Sunny	Moderate	17:12	Surface	1.1	24.9	24.9	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	0.8	0.8	1.2	1.2	1.2	1.4
				Middle	3.0	24.8	24.7	8.2	8.2	34.8	34.8	90.9	90.9	7.5	7.5	7.5	1.6	1.6	1.1	1.3	1.2	
				Bottom	5.0	24.6	24.6	8.2	8.2	35.1	35.1	90.7	90.8	7.5	7.5	7.5	2.1	2.1	1.4	2.0	1.7	
M2	Sunny	Moderate	17:00	Surface	1.0	25.2	24.9	8.2	8.2	34.8	34.8	91.8	91.9	7.6	7.6	7.5	0.9	1.0	1.3	1.8	2.2	2.1
				Middle	5.6	24.6	24.6	8.2	8.2	34.9	34.9	91.9	91.4	7.6	7.5	7.5	1.0	1.4	1.4	2.6	2.1	
				Bottom	10.0	24.6	24.6	8.2	8.2	35.0	35.0	91.3	90.9	7.5	7.5	7.5	1.4	1.6	1.7	2.4	2.0	
M3	Sunny	Moderate	17:40	Surface	1.1	25.3	25.0	8.2	8.2	34.8	34.8	90.8	92.0	7.6	7.6	7.5	0.9	0.9	1.5	1.9	2.1	1.8
				Middle	4.1	24.7	24.6	8.2	8.2	34.8	34.8	91.3	91.3	7.6	7.5	7.5	0.9	1.2	1.3	2.2	1.9	
				Bottom	7.0	24.4	24.5	8.2	8.2	35.0	34.9	92.0	89.3	7.3	7.3	7.3	1.3	1.5	1.8	1.2	1.3	
M4	Sunny	Moderate	16:53	Surface	1.0	25.5	25.1	8.2	8.2	34.9	34.9	89.1	90.7	7.3	7.5	7.5	0.9	0.9	1.5	1.5	1.4	1.7
				Middle	5.0	24.7	24.6	8.2	8.2	34.9	34.9	90.7	90.7	7.5	7.5	7.5	0.9	1.5	1.5	1.2	1.6	
				Bottom	9.1	24.6	24.6	8.2	8.2	35.0	35.0	90.7	90.8	7.5	7.5	7.5	1.6	1.8	1.9	2.5	2.2	
M5	Sunny	Moderate	18:19	Surface	1.1	24.7	24.7	8.2	8.2	34.9	34.8	91.1	91.3	7.5	7.5	7.5	1.0	1.0	1.8	1.8	2.0	2.4
				Middle	6.1	24.7	25.1	8.2	8.2	34.8	34.9	91.4	90.7	7.5	7.5	7.5	0.9	1.5	1.5	2.2	2.2	
				Bottom	11.0	24.7	24.7	8.2	8.2	35.0	35.0	90.7	91.5	7.5	7.5	7.5	1.5	1.7	2.0	2.4	2.9	
M6	Sunny	Moderate	18:01	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.5
				Middle	2.2	24.9	24.8	8.2	8.2	34.8	34.8	91.7	91.8	7.5	7.5	7.5	8.0	8.0	2.6	2.3	2.5	
				Bottom	-	24.7	-	8.2	-	34.8	-	91.8	-	7.6	-	-	8.0	-	-	-	-	

Remarks: *DA: Depth-Averaged
**Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher.

Action and Limit Levels for Marine Water Quality on 23 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 2.0 NTU</u>	<u>C1: 2.2 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 3.0 mg/L</u>	<u>C1: 3.3 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 3.0 mg/L</u>	<u>C1: 3.3 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C1: 1.7 mg/L</u>	<u>C1: 1.9 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 25 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*
C1	Sunny	Moderate	13:05	Surface	1.2	23.4	23.4	8.1	8.1	33.0	33.0	104.9	104.9	7.9	7.9	7.8	0.8	0.8	1.1	3.0	2.6	2.3
				Middle	9.0	23.3		8.1		33.0		103.1		7.7			1.4			1.8		
				Bottom	17.0	23.3	8.1	33.0	103.1	7.7	1.4	2.7										
C2	Sunny	Moderate	12:05	Surface	1.0	23.5	23.5	7.6	7.6	32.8	32.8	100.4	100.5	7.5	7.5	7.6	0.9	0.9	0.8	2.4	2.1	2.4
				Middle	16.0	23.5		7.8		32.9		103.1		7.7			0.8			2.5		
				Bottom	31.1	23.5	7.8	32.8	102.0	7.7	0.7	3.0										
G1	Sunny	Moderate	12:34	Surface	1.1	23.7	23.7	8.1	8.1	32.7	32.7	104.2	104.2	7.8	7.8	7.7	1.2	1.2	1.2	2.4	2.5	2.1
				Middle	4.0	23.6		8.1		32.8		102.9		7.7			1.4			2.1		
				Bottom	7.0	23.5	8.1	32.8	101.6	7.6	1.1	1.4										
G2	Sunny	Moderate	12:23	Surface	1.0	23.6	23.6	8.0	8.0	32.8	32.8	103.8	103.8	7.8	7.8	7.7	0.9	0.9	1.6	1.5	1.6	1.8
				Middle	5.0	23.5		8.0		32.9		102.1		7.7			1.7			1.7		
				Bottom	9.0	23.3	8.1	33.0	100.1	7.5	2.3	2.2										
G3	Sunny	Moderate	12:38	Surface	1.1	23.6	23.6	8.1	8.1	32.7	32.7	103.6	103.6	7.8	7.8	7.7	1.2	1.2	1.2	1.4	1.6	1.4
				Middle	4.3	23.6		8.1		32.8		102.9		7.7			0.9			1.6		
				Bottom	7.1	23.5	8.1	32.8	100.2	7.5	1.6	1.1										
G4	Sunny	Moderate	12:49	Surface	1.0	23.5	23.5	8.1	8.1	32.8	32.8	101.1	101.1	7.6	7.6	7.6	1.6	1.6	1.8	2.1	2.3	2.1
				Middle	4.0	23.5		8.1		32.8		100.8		7.6			1.7			2.4		
				Bottom	7.1	23.4	8.1	32.9	99.9	7.5	2.0	1.7										
M1	Sunny	Moderate	12:29	Surface	1.0	23.8	23.8	8.1	8.1	32.7	32.7	105.9	105.9	7.9	7.9	7.9	2.0	2.0	1.7	2.1	2.4	2.0
				Middle	3.0	23.8		8.1		32.7		105.6		7.9			1.2			2.2		
				Bottom	5.0	23.6	8.1	32.8	103.4	7.7	1.7	1.3										
M2	Sunny	Moderate	12:17	Surface	1.1	23.6	23.6	8.0	8.0	32.7	32.7	103.6	103.7	7.8	7.8	7.7	0.9	0.8	0.9	1.6	1.8	1.7
				Middle	5.5	23.5		8.0		32.8		102.8		7.7			0.9			1.8		
				Bottom	11.1	23.5	8.0	32.9	101.6	7.6	0.9	1.4										
M3	Sunny	Moderate	12:43	Surface	1.0	23.7	23.7	8.1	8.1	32.7	32.7	104.4	104.4	7.8	7.8	7.7	3.7	3.8	2.7	2.0	2.3	1.9
				Middle	4.1	23.5		8.1		32.8		101.6		7.6			2.4			1.6		
				Bottom	7.1	23.5	8.1	32.8	101.6	7.6	2.2	1.3										
M4	Sunny	Moderate	12:11	Surface	1.1	23.6	23.6	7.9	7.9	32.7	32.7	103.1	103.2	7.7	7.7	7.7	0.9	0.9	0.9	1.6	1.4	1.9
				Middle	5.1	23.4		7.9		32.9		102.6		7.7			0.7			2.1		
				Bottom	9.0	23.3	8.0	33.0	102.3	7.7	1.0	2.2										
M5	Sunny	Moderate	12:59	Surface	1.0	23.4	23.4	8.1	8.1	32.9	32.9	100.6	100.7	7.6	7.6	7.6	1.3	1.2	1.2	1.5	1.6	2.0
				Middle	6.0	23.2		8.1		33.1		101.3		7.6			1.2			1.6		
				Bottom	11.2	23.2	8.1	33.1	100.9	7.6	1.3	2.1										
M6	Sunny	Moderate	12:55	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.6
				Middle	2.2	23.5	8.1	32.8	102.2	102.3	7.7	1.4	2.6									
				Bottom	-	-	-	-	-	-	-	-	-									

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 25 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 0.8 NTU</u>	<u>C2: 0.9 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.5 mg/L</u>	<u>C2: 2.7 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 2.5 mg/L</u>	<u>C2: 2.7 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
<u>C2: 3.4 mg/L</u>		<u>C2: 3.6 mg/L</u>	
<u>Station M6</u>			
Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>	

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 Water Quality Monitoring Results on 28 June 2021

(Mid-Flood Tide)

Location	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	DA*	Value	Average	DA*	Value
C1	Rainy	Moderate	15:50	Surface	1.1	25.3	25.3	8.5	8.5	31.5	31.5	92.8	92.8	6.4	6.4	6.1	2.5	2.5	2.7	2.1	2.2	3.4
				Middle	9.0	24.5	24.5	8.4	8.4	32.8	32.8	84.7	84.6	5.9	5.9		2.5	2.5		2.3	3.5	
				Bottom	17.1	24.2	24.2	8.4	8.4	33.3	33.3	84.5	84.5	5.8	5.8		2.6	2.6		2.6	4.6	
C2	Rainy	Moderate	14:50	Surface	1.0	26.2	26.2	8.4	8.4	29.9	29.9	106.7	106.6	7.3	7.3	6.3	2.3	2.3	3.0	2.2	2.6	2.8
				Middle	16.0	24.5	24.5	8.3	8.3	32.5	32.5	76.8	76.7	5.3	5.3		2.3	2.3		3.0	4.2	
				Bottom	31.1	23.9	23.9	8.3	8.3	33.6	33.6	76.6	76.6	5.3	5.3		3.2	3.1		3.0	3.0	
G1	Rainy	Moderate	15:13	Surface	1.1	26.3	26.3	8.6	8.6	31.4	31.4	139.8	140.2	9.5	9.5	8.9	2.0	2.0	2.4	17.5	18.0	17.2
				Middle	4.1	25.6	25.6	8.6	8.6	32.0	32.0	122.1	122.2	8.3	8.3		2.2	2.3		17.4	17.6	
				Bottom	7.1	23.3	23.3	8.3	8.3	34.6	34.6	70.5	69.5	4.9	4.9		2.9	3.0		15.3	16.0	
G2	Rainy	Moderate	15:03	Surface	1.1	26.3	26.3	8.6	8.6	31.5	31.5	128.4	128.7	8.7	8.7	7.2	2.7	2.7	2.6	4.1	4.3	8.7
				Middle	5.0	24.4	24.4	8.4	8.4	33.3	33.3	83.6	82.4	5.8	5.7		2.3	2.3		10.8	10.5	
				Bottom	9.0	22.8	22.8	8.3	8.3	35.2	35.2	59.2	59.1	4.2	4.2		2.9	2.9		11.0	11.4	
G3	Rainy	Moderate	15:21	Surface	1.1	26.5	26.5	8.6	8.6	31.1	31.1	141.4	142.1	9.6	9.6	9.0	2.0	2.0	2.5	14.2	14.5	12.3
				Middle	4.0	25.5	25.5	8.6	8.6	32.1	32.1	122.1	122.0	8.3	8.3		2.2	2.2		8.3	10.3	
				Bottom	7.1	23.1	23.1	8.3	8.3	35.0	35.0	62.6	63.0	4.4	4.4		3.3	3.3		12.3	12.3	
G4	Rainy	Moderate	15:33	Surface	1.0	26.5	26.5	8.6	8.6	31.3	31.3	137.3	137.6	9.3	9.3	9.0	2.1	2.1	2.5	13.4	13.5	10.7
				Middle	4.1	25.9	25.9	8.6	8.6	31.8	31.8	128.4	128.4	8.7	8.7		2.2	2.2		9.9	10.1	
				Bottom	7.0	23.9	23.9	8.3	8.3	34.1	34.1	72.9	72.0	5.1	5.0		3.2	3.2		8.4	8.7	
M1	Rainy	Moderate	15:08	Surface	1.0	26.3	26.3	8.6	8.6	31.4	31.4	129.5	129.8	8.8	8.8	8.6	2.1	2.1	2.1	14.0	13.6	12.6
				Middle	3.1	25.8	25.8	8.6	8.6	31.8	31.8	123.2	123.3	8.4	8.4		2.1	2.1		13.2	12.7	
				Bottom	5.1	25.3	25.3	8.5	8.5	32.2	32.2	108.6	108.2	7.4	7.4		2.2	2.2		11.6	11.4	
M2	Rainy	Moderate	14:58	Surface	1.1	26.5	26.5	8.6	8.6	31.6	31.6	135.7	135.7	9.1	9.1	7.5	2.0	2.0	2.8	8.4	8.2	11.3
				Middle	6.0	24.4	24.4	8.4	8.4	33.4	33.4	86.3	85.4	6.0	5.9		2.3	2.3		9.0	9.6	
				Bottom	11.0	22.7	22.7	8.3	8.3	35.4	35.4	58.4	58.2	4.1	4.1		4.2	4.1		19.7	16.2	
M3	Rainy	Moderate	15:27	Surface	1.0	26.6	26.6	8.6	8.6	30.7	30.7	133.8	133.8	9.0	9.0	8.9	2.4	2.4	2.5	14.6	15.0	12.7
				Middle	4.0	25.9	25.9	8.6	8.6	31.7	31.7	130.3	130.1	8.9	8.8		2.1	2.1		12.3	11.7	
				Bottom	7.0	23.1	23.1	8.3	8.3	34.8	34.9	68.3	66.9	4.8	4.7		3.0	3.1		11.1	11.5	
M4	Rainy	Moderate	14:54	Surface	1.0	25.8	25.8	8.6	8.6	32.0	32.0	126.6	126.0	8.5	8.6	7.9	2.1	2.1	2.3	7.7	7.9	7.8
				Middle	5.0	25.3	25.3	8.5	8.5	32.4	32.4	107.0	106.6	7.3	7.3		2.1	2.1		8.4	8.8	
				Bottom	9.1	23.5	23.5	8.3	8.3	34.5	34.5	69.5	69.3	4.9	4.8		2.7	2.7		6.3	6.8	
M5	Rainy	Moderate	15:45	Surface	1.1	25.3	25.3	8.5	8.5	31.5	31.5	97.0	97.0	6.7	6.7	6.6	2.7	2.7	2.8	5.5	5.9	6.4
				Middle	6.0	25.1	25.1	8.5	8.5	32.0	32.0	94.6	94.6	6.5	6.5		2.4	2.4		6.2	6.7	
				Bottom	11.0	23.0	23.0	8.3	8.3	35.1	35.1	63.3	63.0	4.4	4.4		3.2	3.2		6.3	6.7	
M6	Rainy	Moderate	15:38	Surface	-	-	-	-	-	-	-	-	-	-	-	9.0	-	-	2.2	-	0.0	16.1
				Middle	2.1	26.2	26.2	8.6	8.6	31.6	31.6	132.2	132.6	8.9	9.0		8.0	8.0		16.3	16.1	
				Bottom	-	26.2	-	8.6	-	31.6	-	133.0	-	9.0	-		8.0	-		15.8	0.0	

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 28 June 2021 (Mid-Flood Tide)

<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C1: 3.5 NTU</u>	<u>C1: 3.8 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.6 mg/L</u>	<u>C1: 2.9 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C1: 2.6 mg/L</u>	<u>C1: 2.9 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C1: 5.5 mg/L</u>	<u>C1: 5.9 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
Water Quality Monitoring Results on 30 June 2021

(Mid-Ebb Tide)

Location	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	DA*	Value	Average	DA*	Value	Average	DA*	
C1	Sunny	Calm	10:00	Surface	1.1	26.4	26.4	8.8	8.8	32.5	32.6	156.4	156.7	10.5	10.5	7.8	5.2	5.1	3.9	2.3	2.4	3.3	
				Middle	8.6	22.7		8.4		35.3		70.5		73.2			5.0			5.1			1.1
				Bottom	16.1	22.1	8.4	35.6	60.8	60.8	4.3	4.3	5.5	4.0									
C2	Sunny	Calm	8:28	Surface	1.0	27.4	27.3	8.7	8.7	31.9	32.0	140.7	143.4	9.3	9.5	7.4	2.0	1.9	1.8	3.1	3.2	3.6	
				Middle	16.1	23.0		8.4		35.0		76.0		76.6			5.3			5.4			1.2
				Bottom	31.1	22.5	8.3	35.3	61.8	61.7	4.4	4.4	2.2	3.8									
G1	Sunny	Calm	9:05	Surface	1.1	27.7	27.7	8.8	8.8	32.3	32.3	171.4	172.5	11.3	11.3	10.7	1.4	1.4	1.9	2.2	2.4	3.2	
				Middle	3.7	25.5		8.6		33.4		148.7		148.8			10.1			10.1			1.4
				Bottom	6.6	23.0	8.3	35.1	63.7	63.8	4.5	4.5	2.7	3.8									
G2	Sunny	Calm	8:46	Surface	1.0	26.8	26.8	8.7	8.7	32.3	32.3	163.0	163.5	10.9	10.9	8.9	1.3	1.3	1.5	3.0	2.9	3.4	
				Middle	5.0	23.8		8.4		34.4		97.4		98.3			6.8			6.8			1.5
				Bottom	9.0	22.7	8.4	35.2	67.8	67.6	4.8	4.8	1.6	4.1									
G3	Sunny	Calm	9:13	Surface	1.0	27.8	27.8	8.8	8.8	32.2	32.2	181.1	182.5	11.9	12.0	11.0	1.5	1.5	1.9	3.3	3.1	2.7	
				Middle	3.7	25.7		8.7		33.2		149.2		149.0			10.1			10.1			1.5
				Bottom	6.6	22.9	8.4	35.2	75.0	73.9	5.3	5.2	2.6	2.2									
G4	Sunny	Calm	9:29	Surface	1.1	27.3	27.3	8.8	8.8	32.4	32.4	177.1	177.5	11.7	11.2	10.3	3.5	3.3	3.2	2.6	2.7	3.2	
				Middle	3.7	25.4		8.6		33.5		135.4		138.9			9.2			9.4			2.0
				Bottom	6.6	22.9	8.3	35.2	57.5	57.1	4.0	4.5	4.1	3.6									
M1	Sunny	Calm	8:54	Surface	1.0	27.1	27.1	8.7	8.7	32.5	32.5	147.6	149.2	9.8	9.9	10.0	1.6	1.6	2.3	2.9	2.7	3.6	
				Middle	3.1	26.6		8.7		32.7		150.1		150.3			10.0			10.0			1.9
				Bottom	5.0	24.0	8.5	34.6	104.9	101.8	7.2	7.0	3.2	4.7									
M2	Sunny	Calm	8:41	Surface	1.0	27.0	27.1	8.7	8.7	32.0	32.0	153.6	154.3	10.2	10.3	8.9	1.3	1.3	1.4	2.9	2.8	2.3	
				Middle	5.3	23.8		8.5		34.4		108.8		109.9			7.6			7.6			1.3
				Bottom	9.5	22.6	8.3	35.3	63.6	63.5	4.5	4.5	1.8	1.6									
M3	Sunny	Calm	9:22	Surface	1.1	27.8	27.8	8.8	8.8	32.2	32.2	187.8	188.0	10.3	10.4	9.5	1.6	1.6	2.0	4.3	4.2	3.5	
				Middle	3.7	25.8		8.7		33.2		150.0		149.8			9.1			8.6			1.6
				Bottom	6.5	22.9	8.4	35.2	64.2	64.1	4.5	4.5	3.0	3.8									
M4	Sunny	Calm	8:35	Surface	1.1	26.8	26.8	8.7	8.7	32.4	32.4	164.2	164.6	11.0	11.0	8.1	1.3	1.3	1.6	2.9	2.9	2.6	
				Middle	5.1	22.9		8.3		35.1		72.4		72.9			5.1			5.1			1.3
				Bottom	9.1	22.5	8.3	35.3	60.9	60.8	4.3	4.3	2.2	2.5									
M5	Sunny	Calm	9:49	Surface	1.1	27.1	27.1	8.8	8.8	31.5	31.5	145.5	147.4	9.7	9.8	7.7	2.0	1.5	3.2	2.3	2.3	2.3	
				Middle	5.5	23.2		8.5		34.7		78.4		78.4			5.5			5.5			1.4
				Bottom	10.1	22.5	8.4	35.4	57.5	57.4	4.1	4.1	6.6	2.4									
M6	Sunny	Calm	9:36	Surface	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
				Middle	2.1	27.2	27.2	8.8	8.8	32.2	32.2	177.6	177.7	11.8	11.8	1.6	1.6	1.6	1.6	1.6	2.0	2.2	2.2
				Bottom	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Remarks:

*DA: Depth-Averaged

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

Action and Limit Levels for Marine Water Quality on 30 June 2021 (Mid-Ebb Tide)

Parameter (unit)	Depth	Action Level	Limit Level
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>C2: 2.6 NTU</u>	<u>C2: 2.8 NTU</u>
	<u>Station M6</u>		
	Intake Level	<u>19.0 NTU</u>	<u>19.4 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.8 mg/L</u>	<u>C2: 4.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>C2: 3.8 mg/L</u>	<u>C2: 4.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
	<u>C2: 4.7 mg/L</u>	<u>C2: 5.1 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

Action and Limit Levels for Marine Water Quality on 30 June 2021 (Mid-Flood Tide)

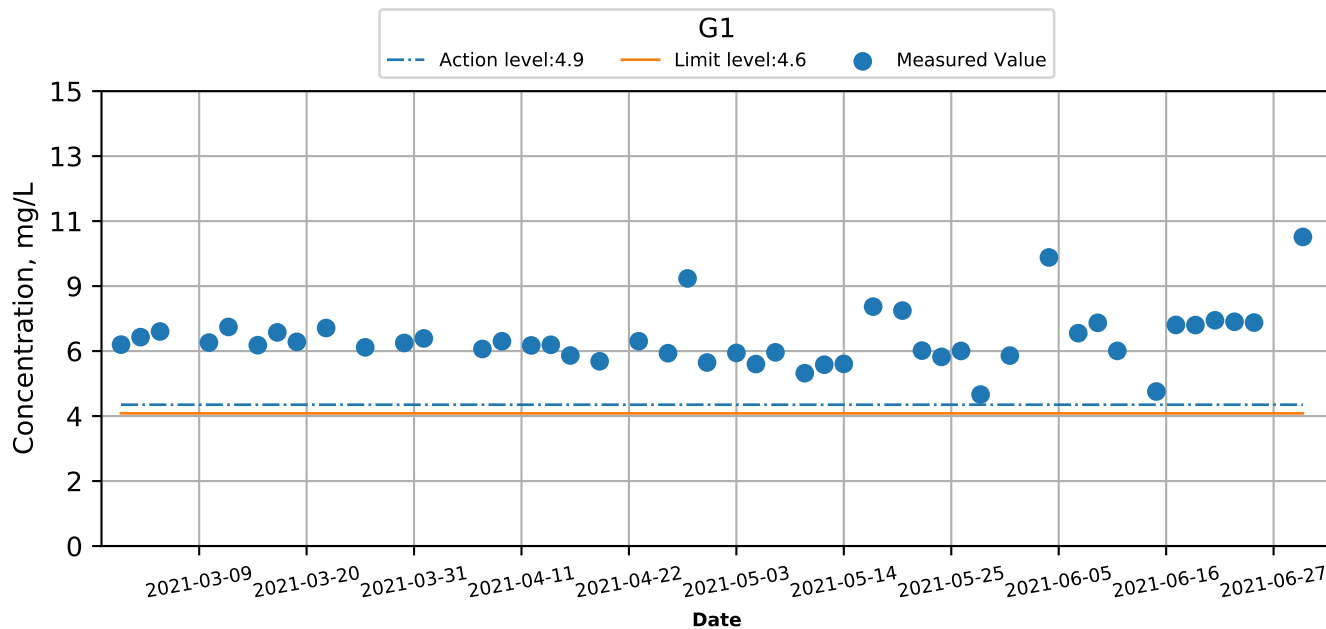
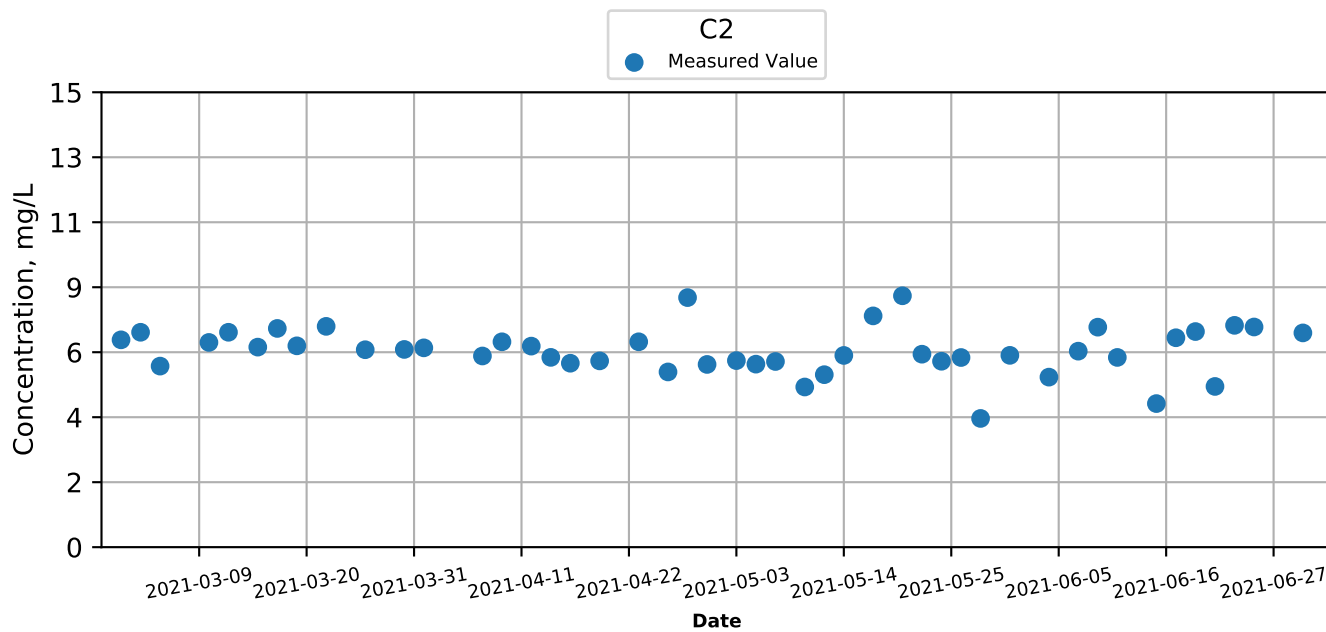
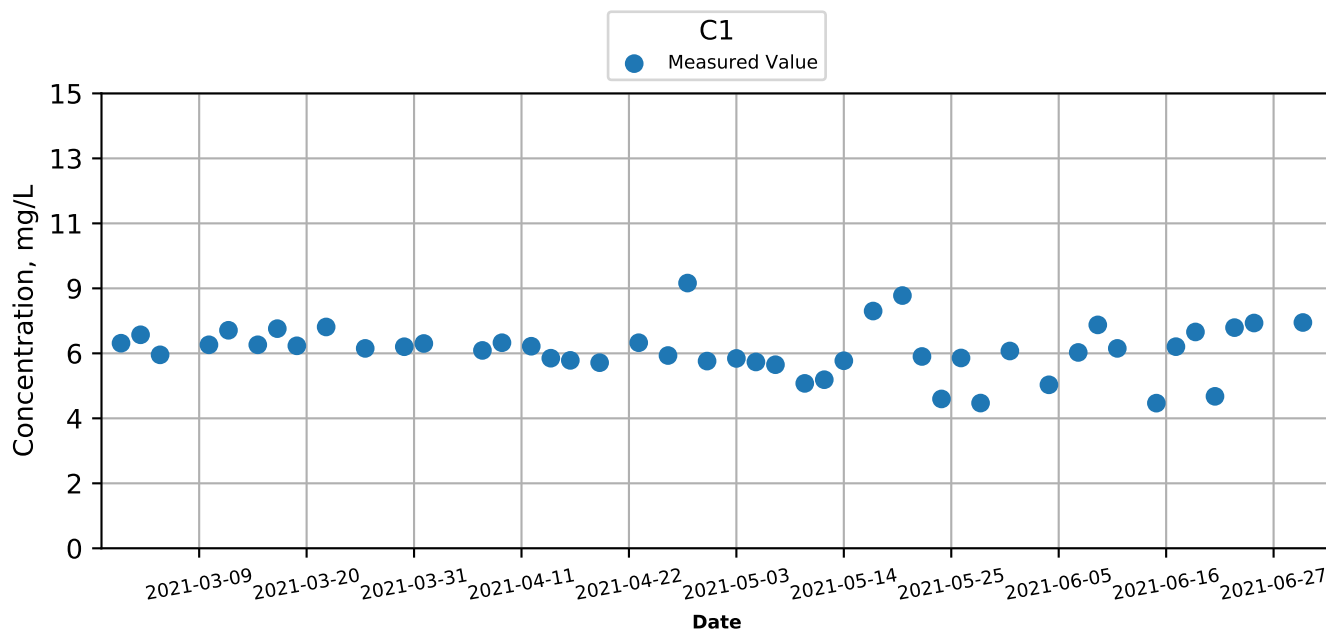
<u>Parameter (unit)</u>	<u>Depth</u>	<u>Action Level</u>	<u>Limit Level</u>
DO in mg/L (See Note 1 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Depth Average	<u>4.9 mg/L</u>	<u>4.6 mg/L</u>
	Bottom	<u>4.2 mg/L</u>	<u>3.6 mg/L</u>
	<u>Station M6</u>		
	Intake Level	<u>5.0 mg/L</u>	<u>4.7 mg/L</u>
Turbidity in NTU (See Note 2 and 4)	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>19.3 NTU</u>	<u>22.2 NTU</u>
		or 120% of upstream control station's Turbidity at the same tide of the same day	or 130% of upstream control station's Turbidity at the same tide of the same day
		<u>CI: 5.6 NTU</u>	<u>CI: 6.1 NTU</u>
	<u>Station M6</u>		
		Intake Level	<u>19.0 NTU</u>
SS in mg/L (See Note 2 and 4)	<u>Stations G1-G4</u>		
	Surface	<u>6.0 mg/L</u>	<u>6.9 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 5.8 mg/L</u>	<u>CI: 6.2 mg/L</u>
	<u>Stations M1-M5</u>		
	Surface	<u>6.2 mg/L</u>	<u>7.4 mg/L</u>
		or 120% of upstream control station's SS at the same tide of the same day	or 130% of upstream control station's SS at the same tide of the same day
		<u>CI: 5.8 mg/L</u>	<u>CI: 6.2 mg/L</u>
	<u>Stations G1-G4, M1-M5</u>		
	Bottom	<u>6.9 mg/L</u>	<u>7.9 mg/L</u>
or 120% of upstream control station's SS at the same tide of the same day		or 130% of upstream control station's SS at the same tide of the same day	
<u>CI: 3.2 mg/L</u>		<u>CI: 3.5 mg/L</u>	
<u>Station M6</u>			
	Intake Level	<u>8.3 mg/L</u>	<u>8.6 mg/L</u>

Notes:

1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity, SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.
3. All the figures given in the table are used for reference only and EPD may amend the figures whenever it is considered as necessary.
4. Action and limit values are derived based on baseline water quality monitoring results to show the actual baseline water quality condition.

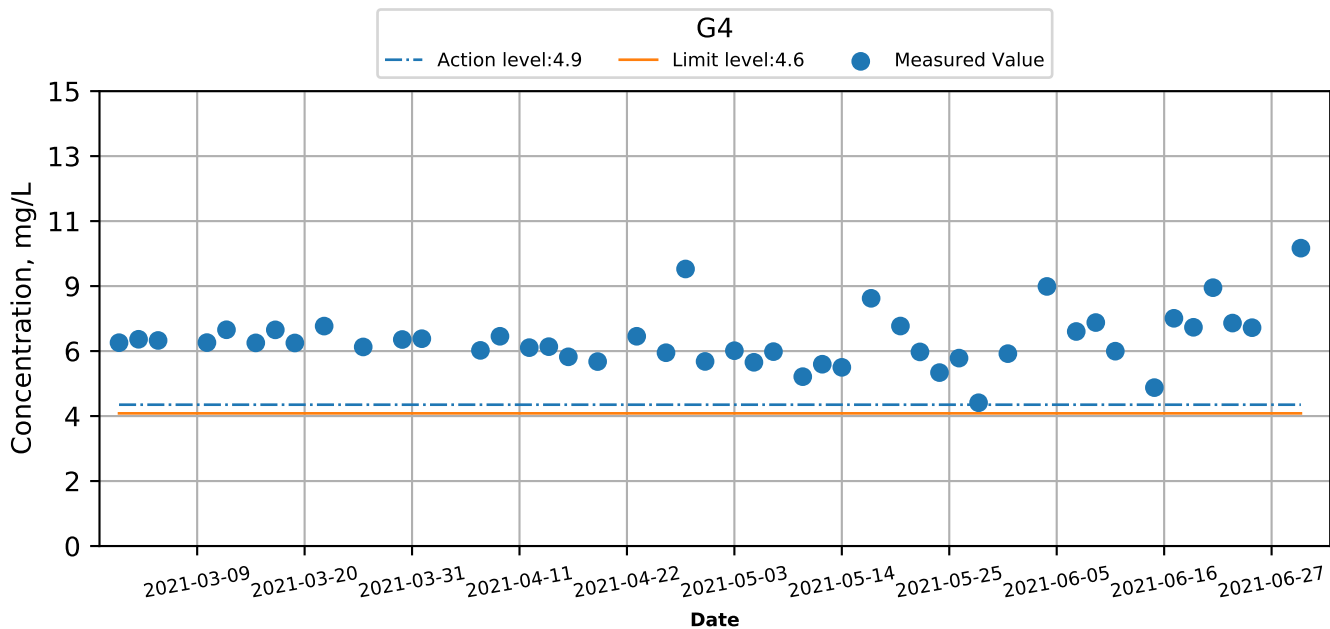
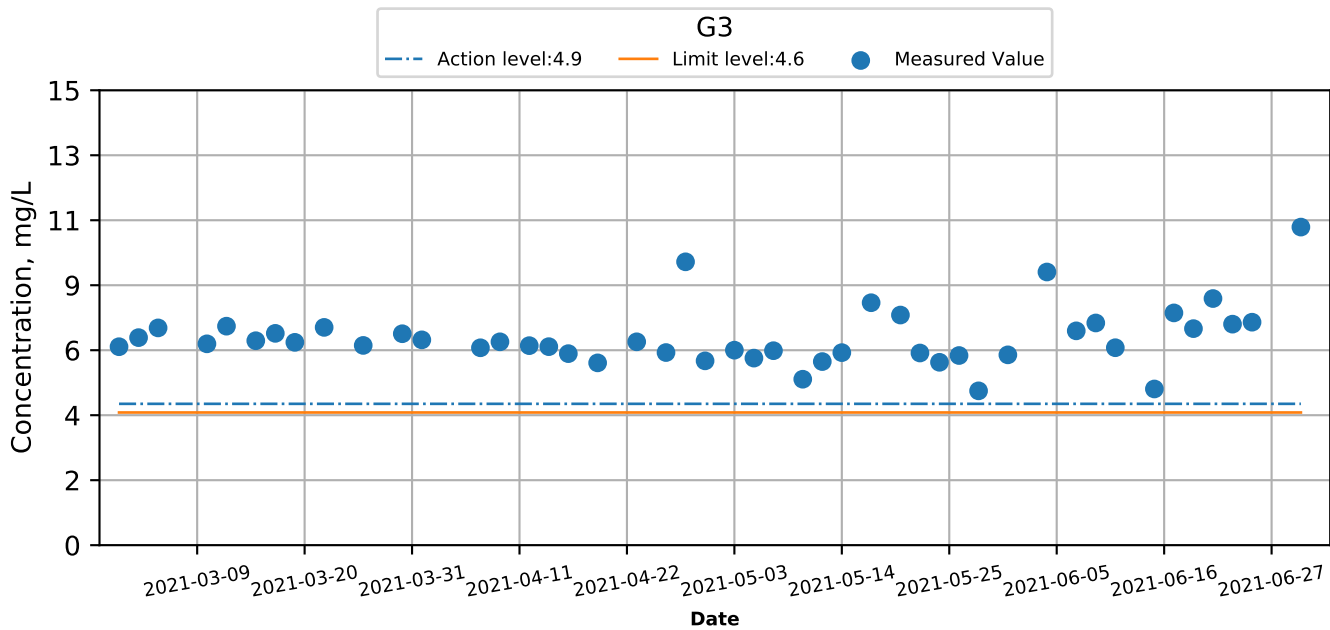
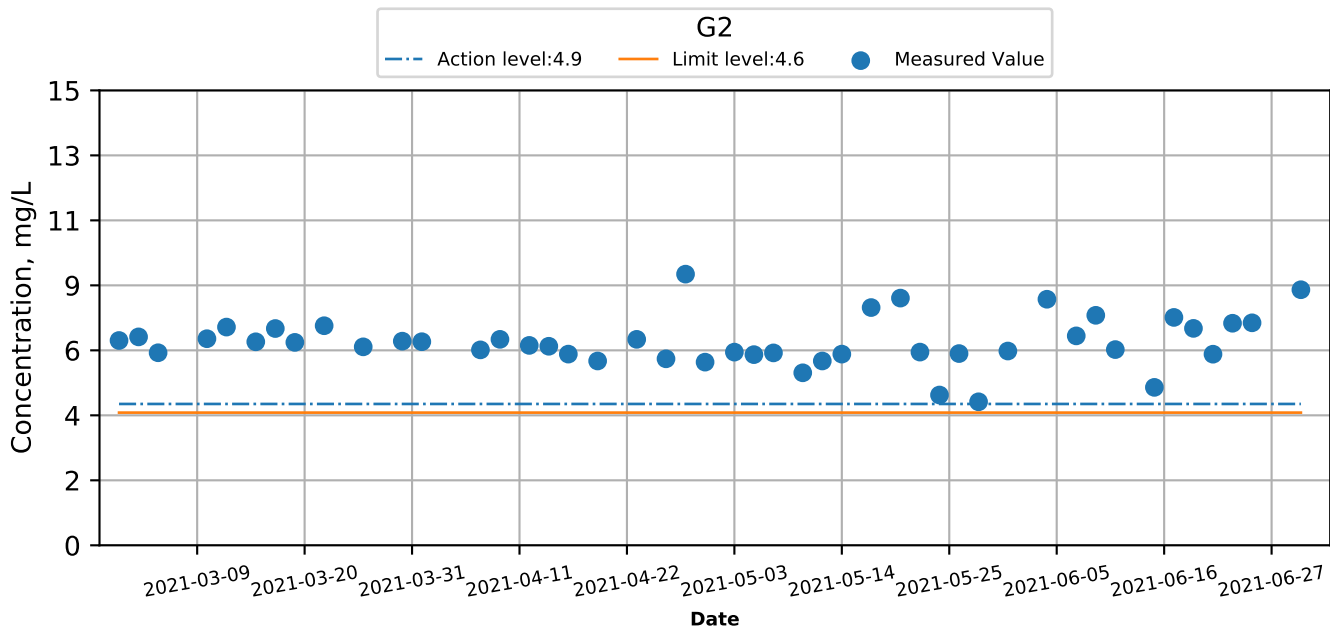
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Ebb



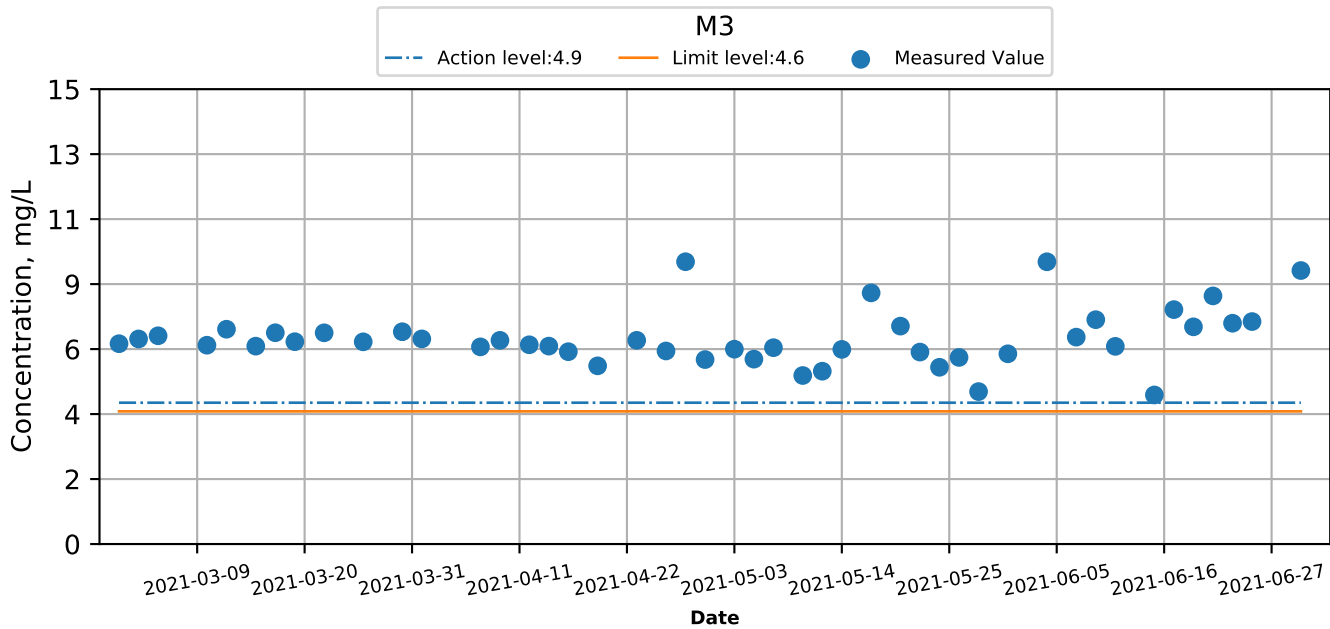
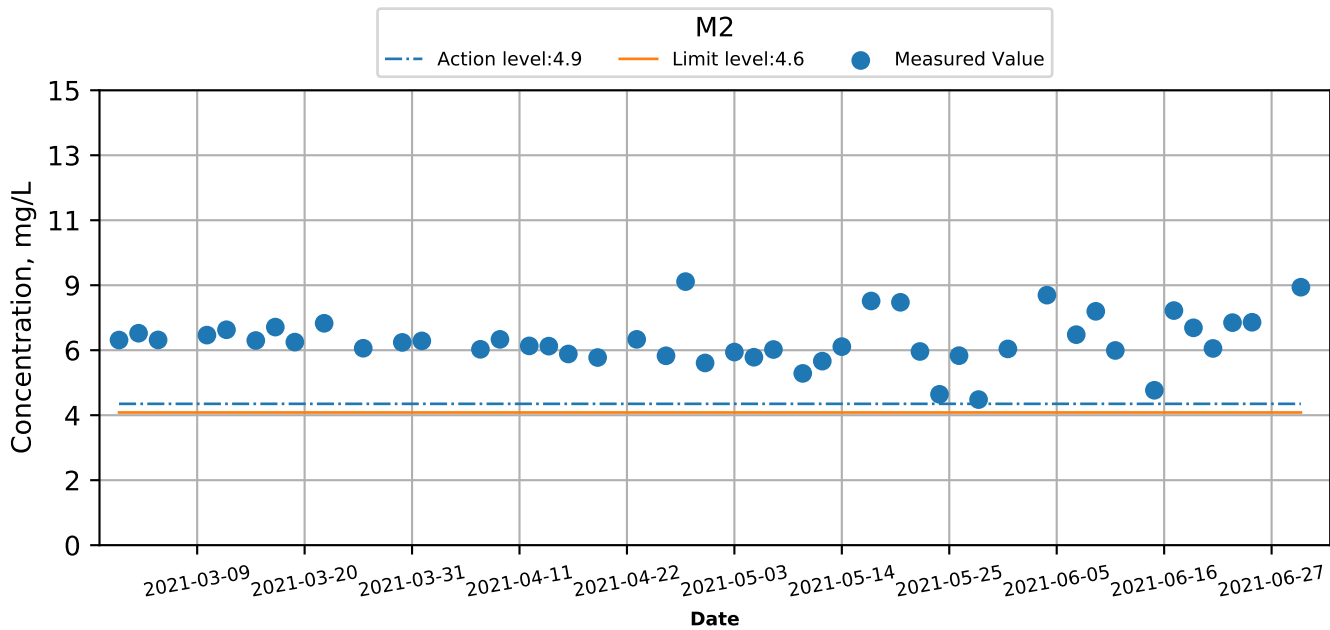
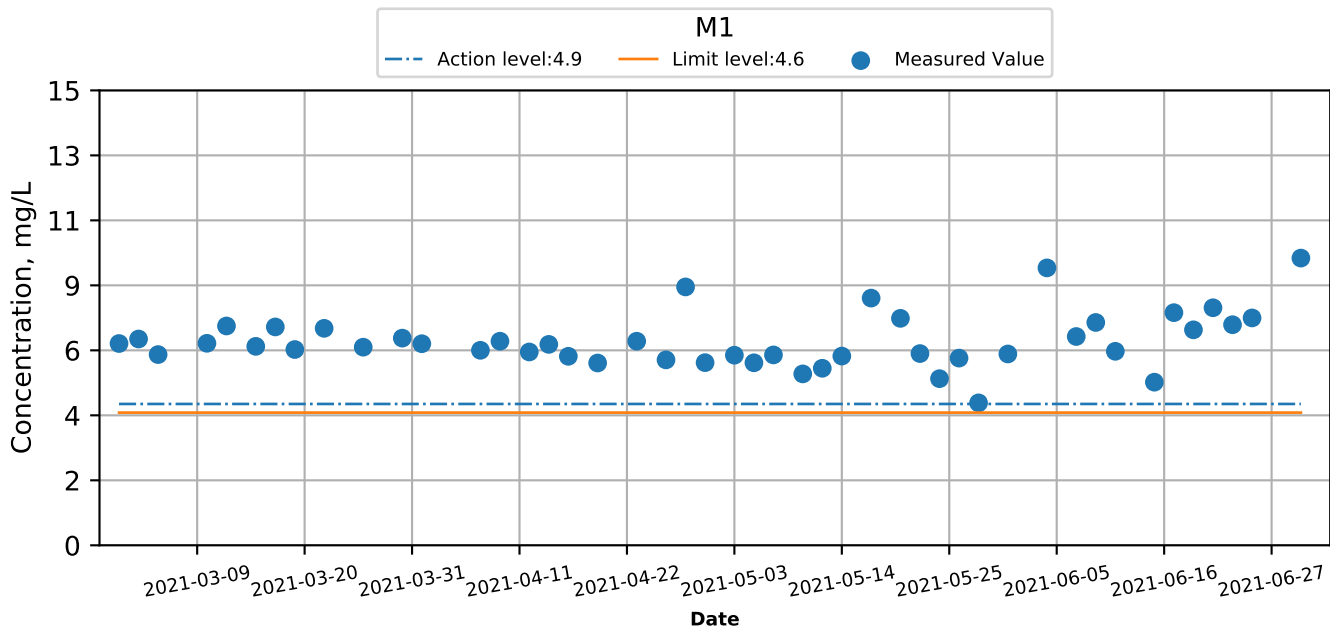
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Ebb



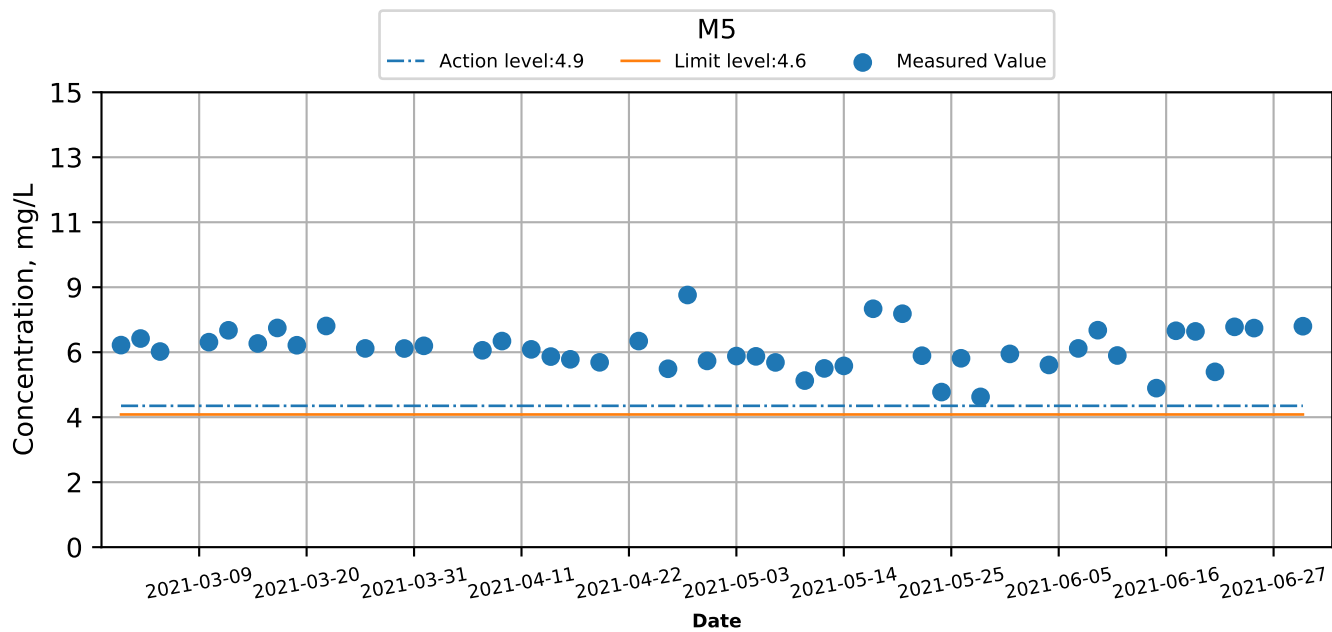
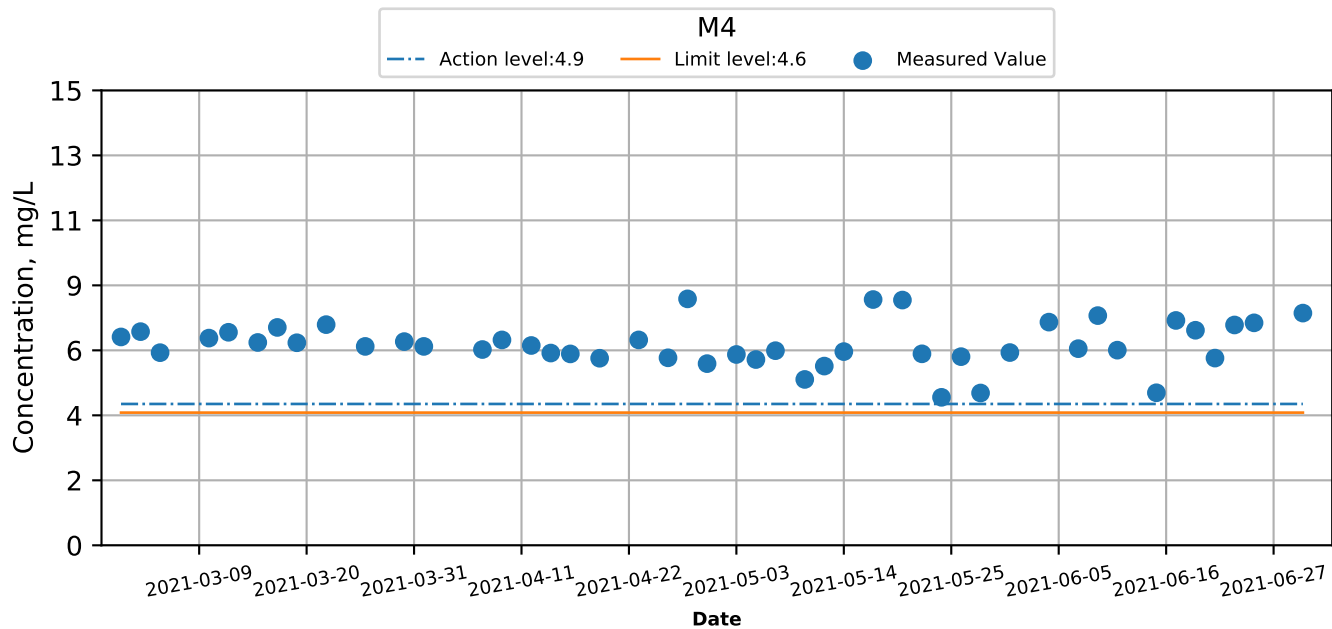
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Ebb



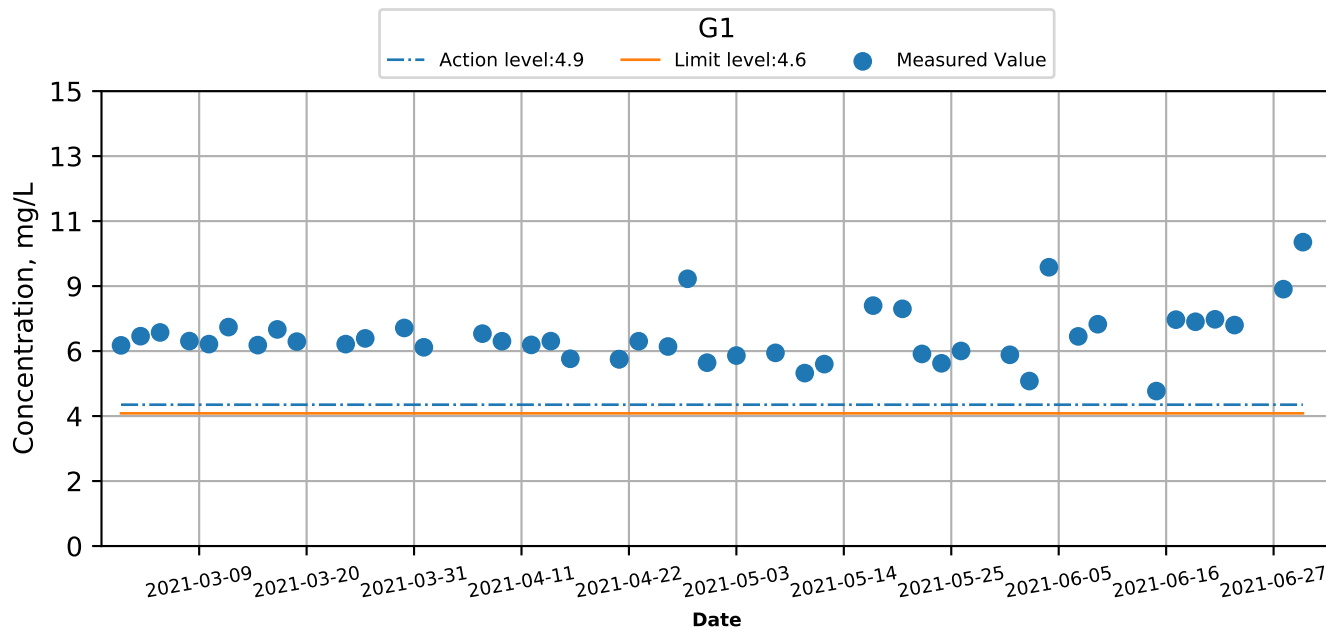
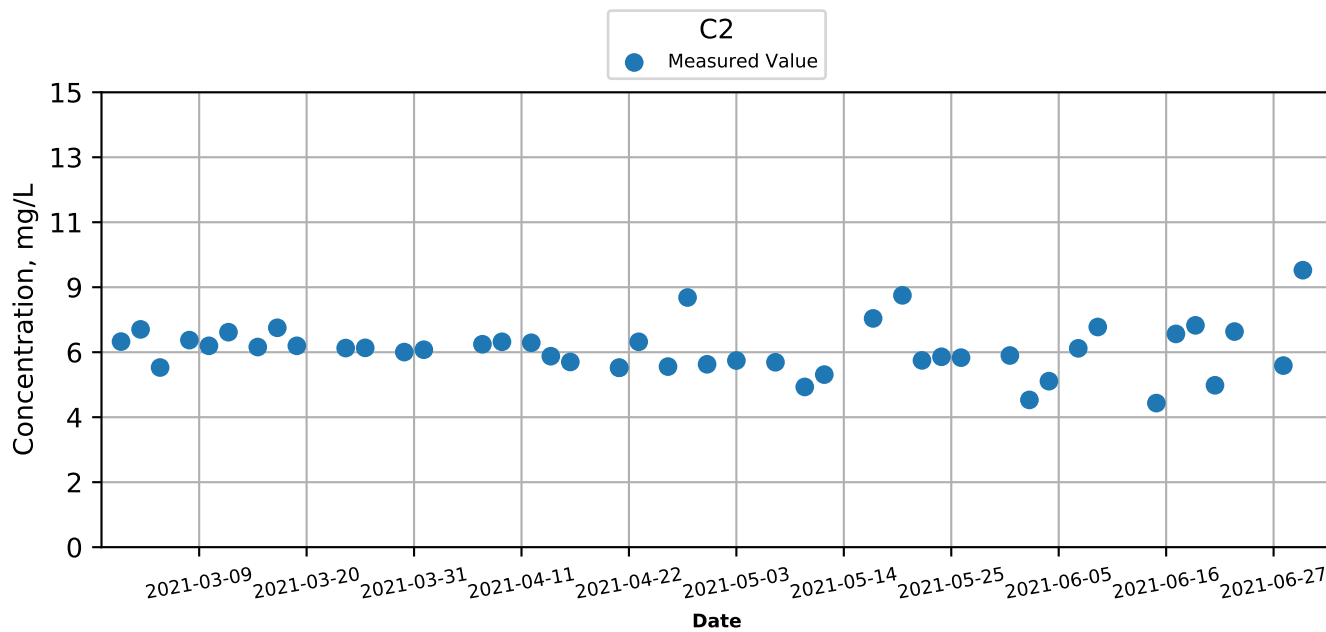
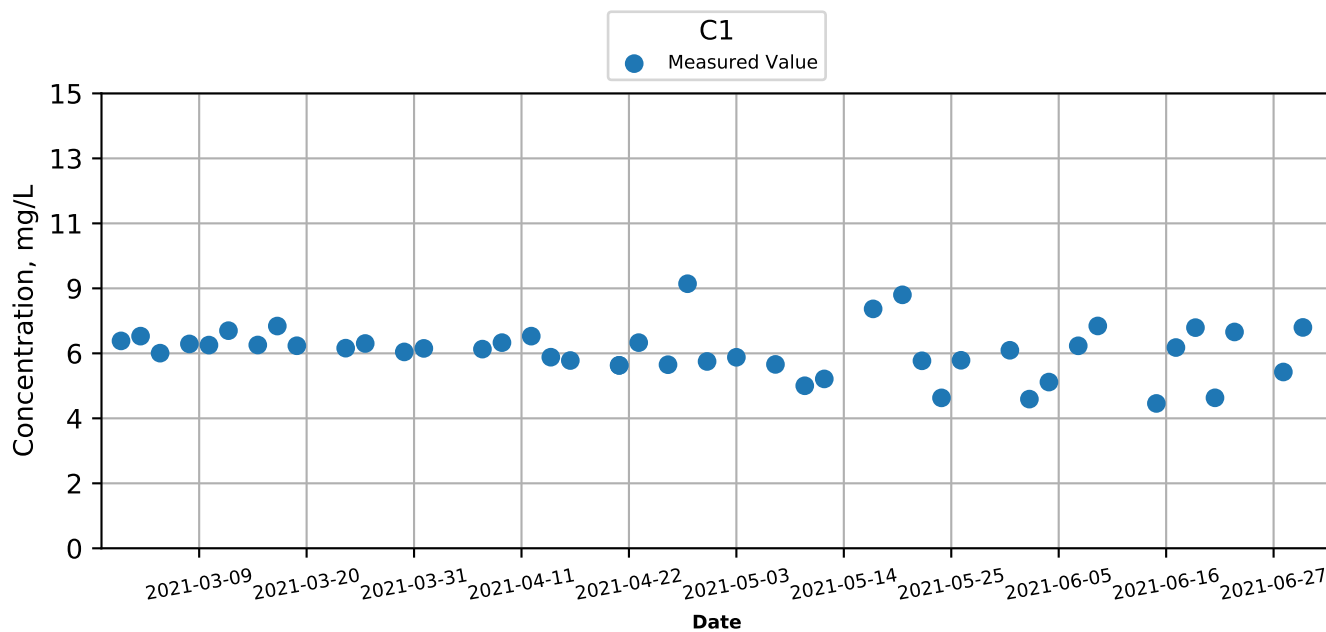
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Ebb



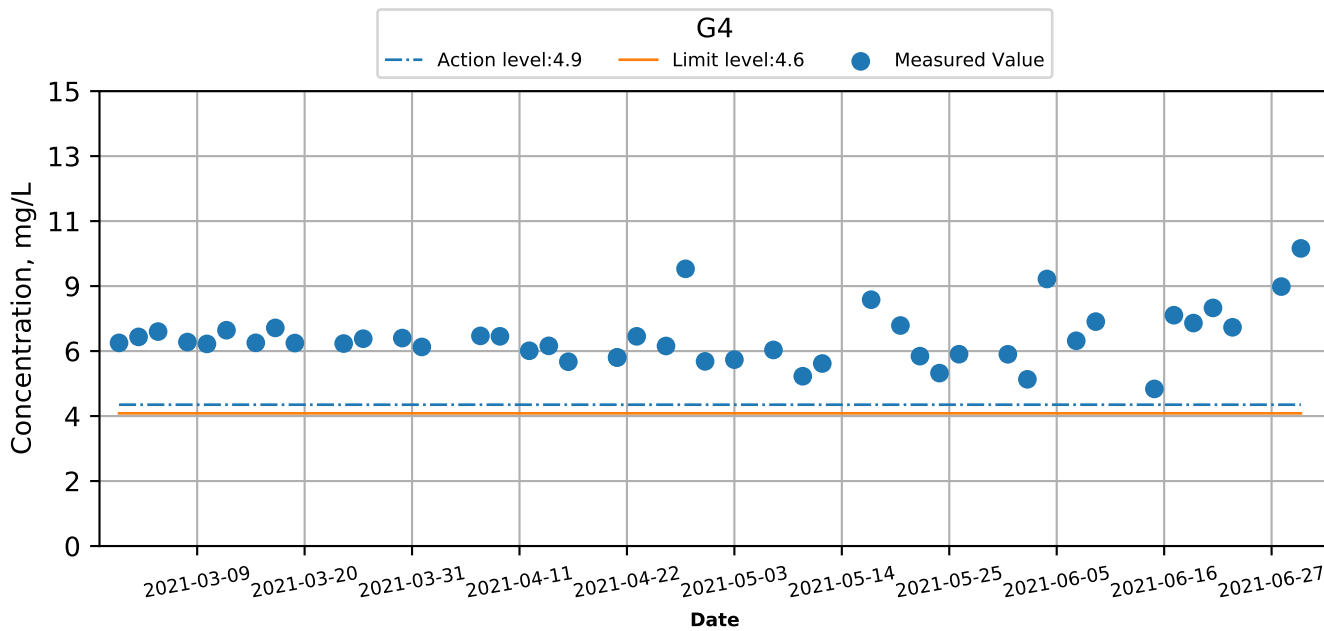
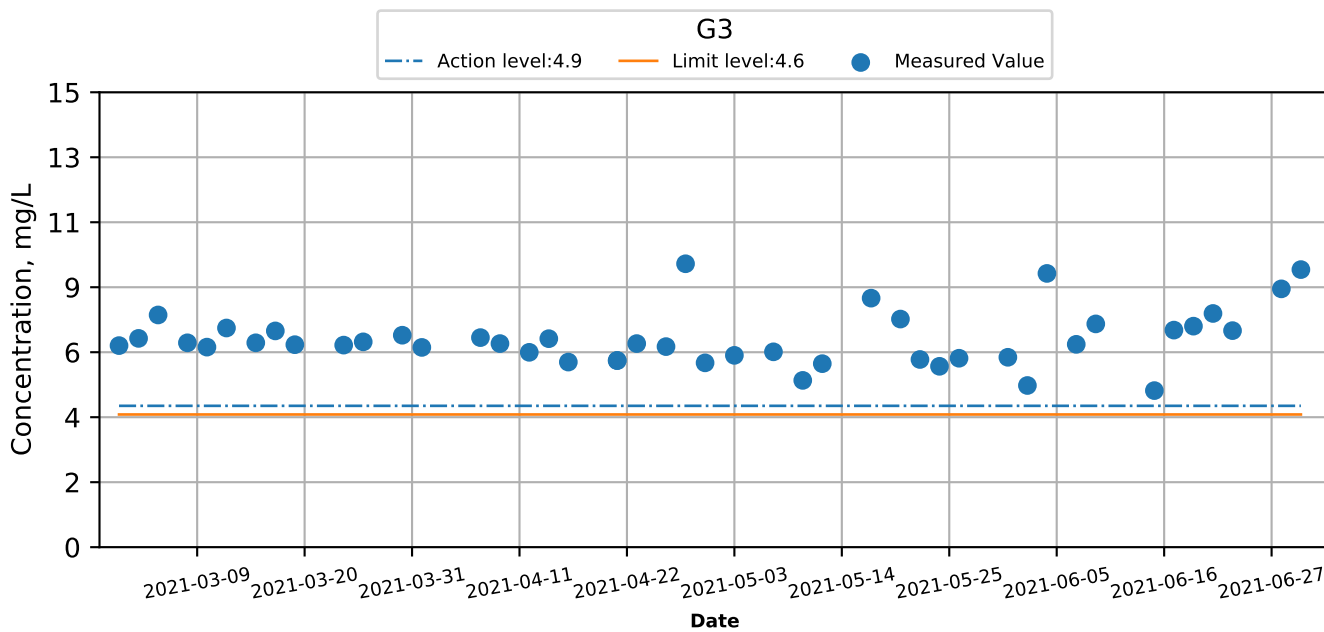
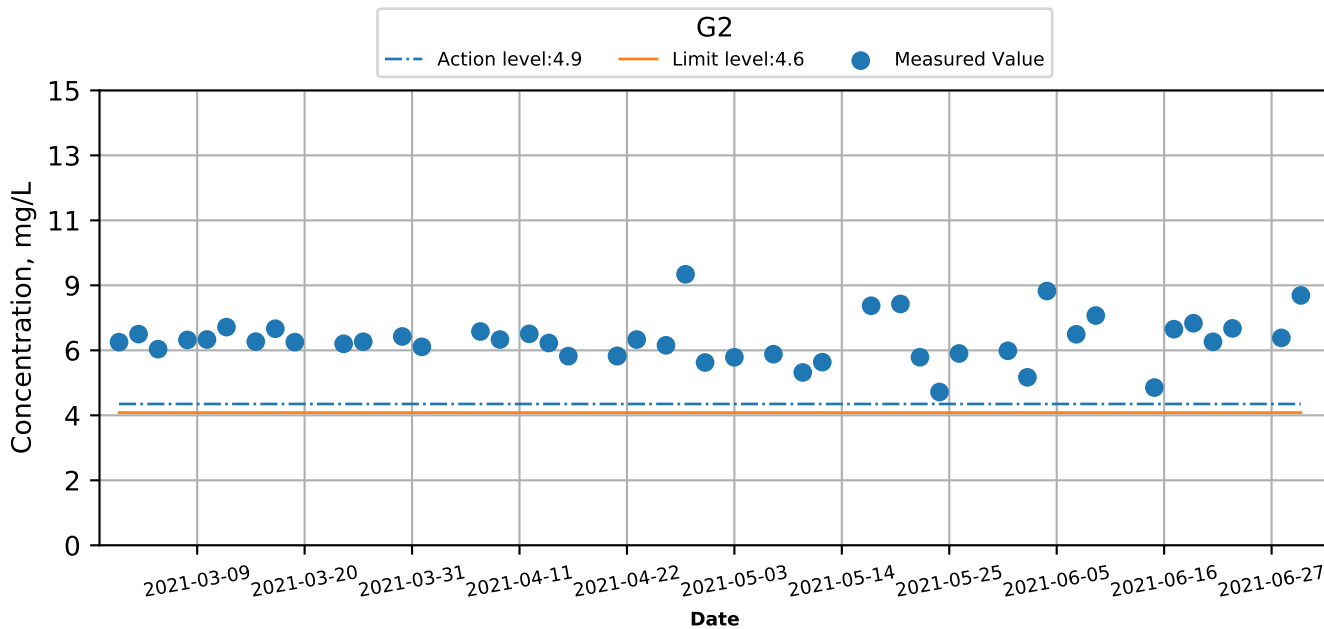
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Flood



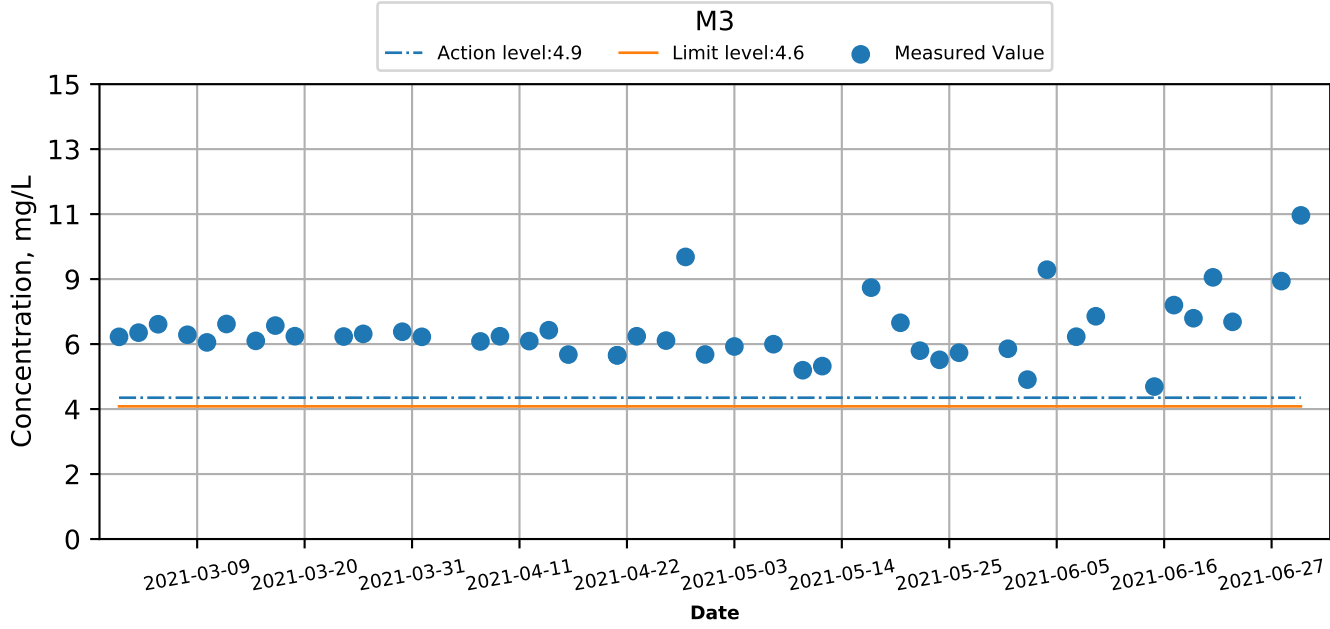
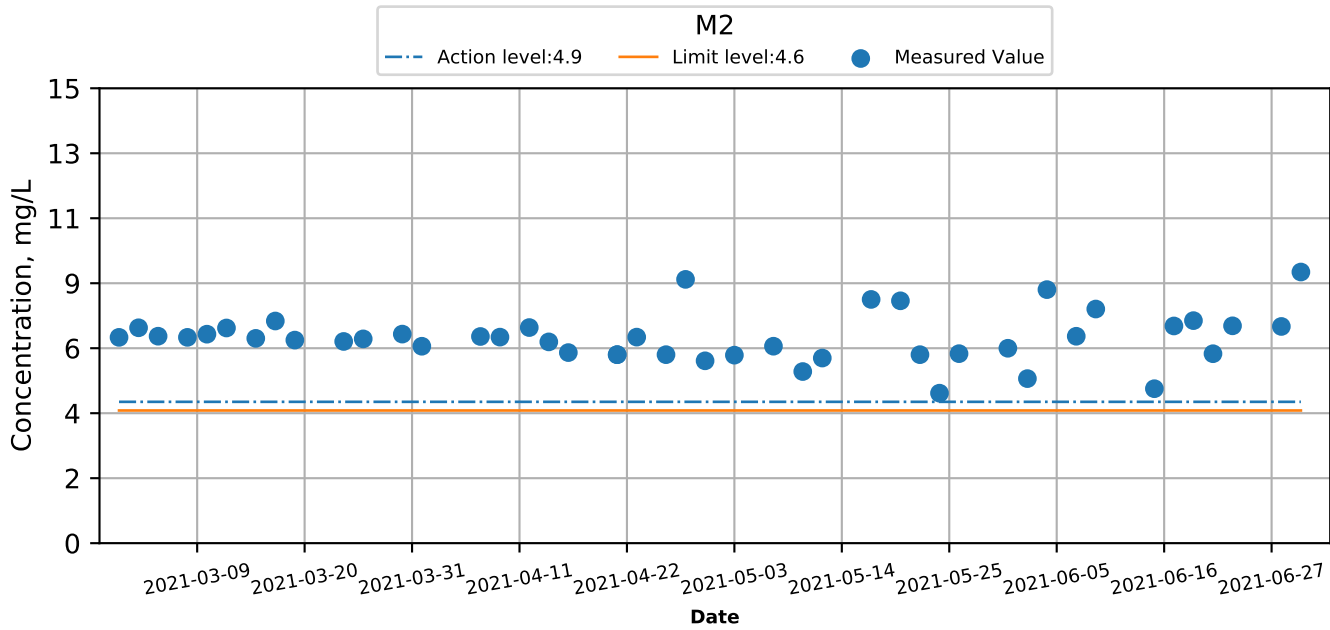
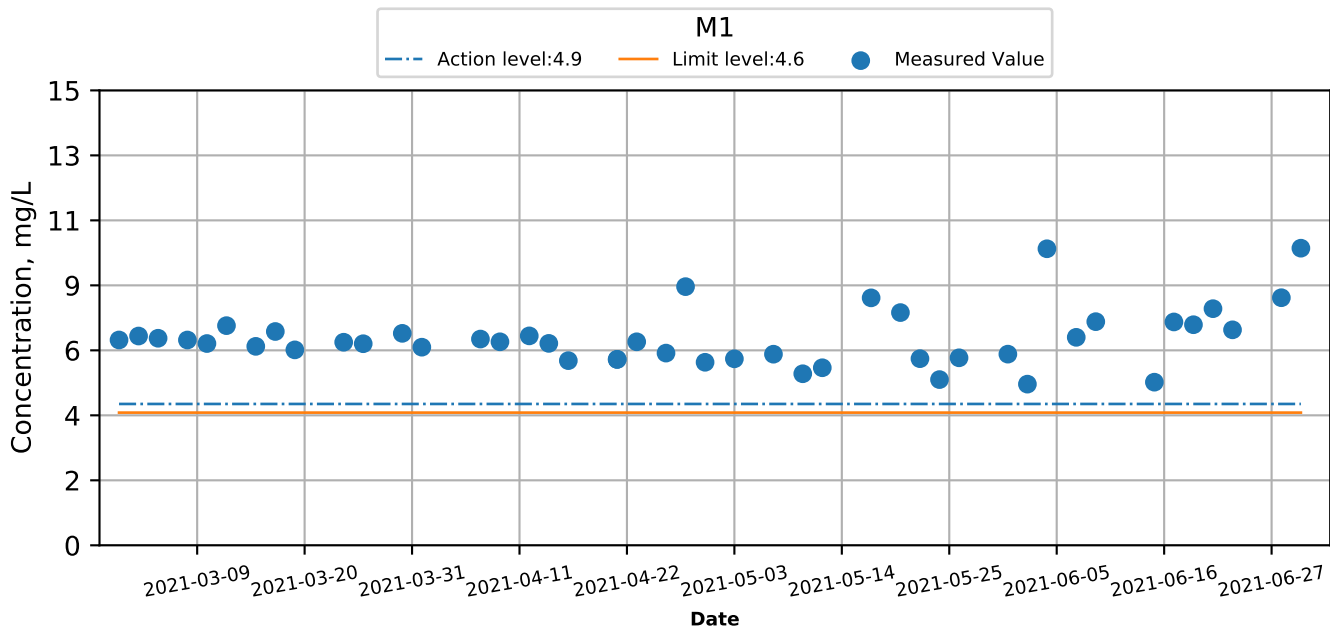
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Flood



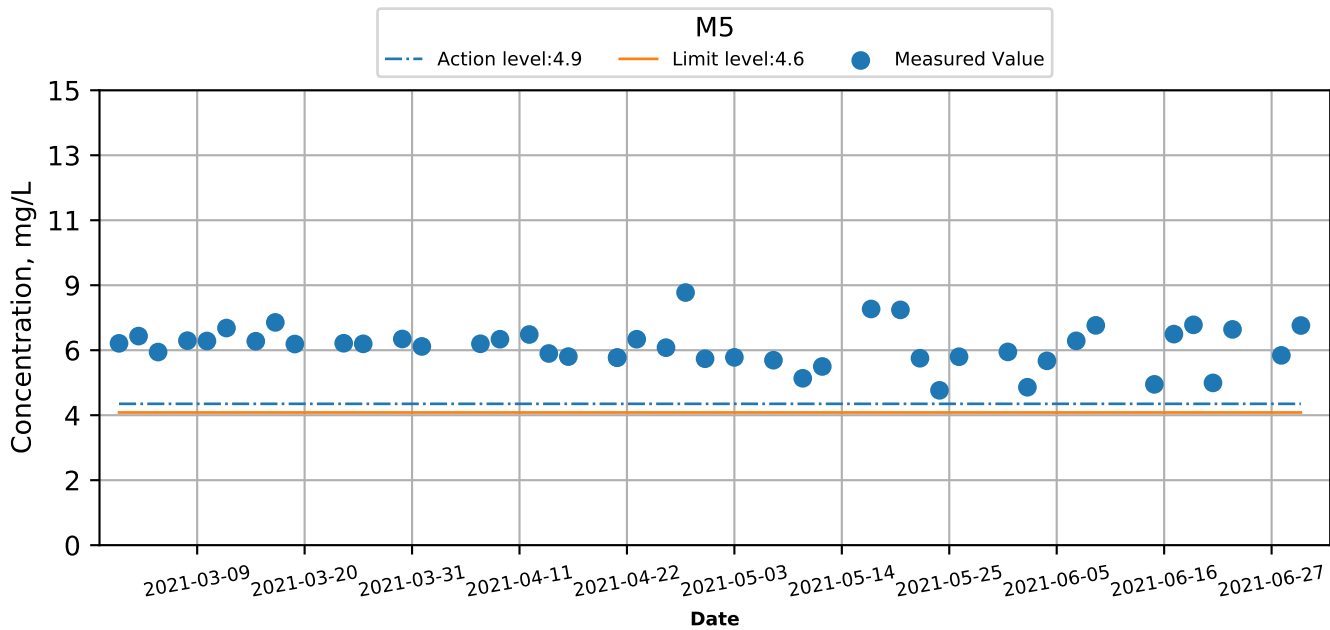
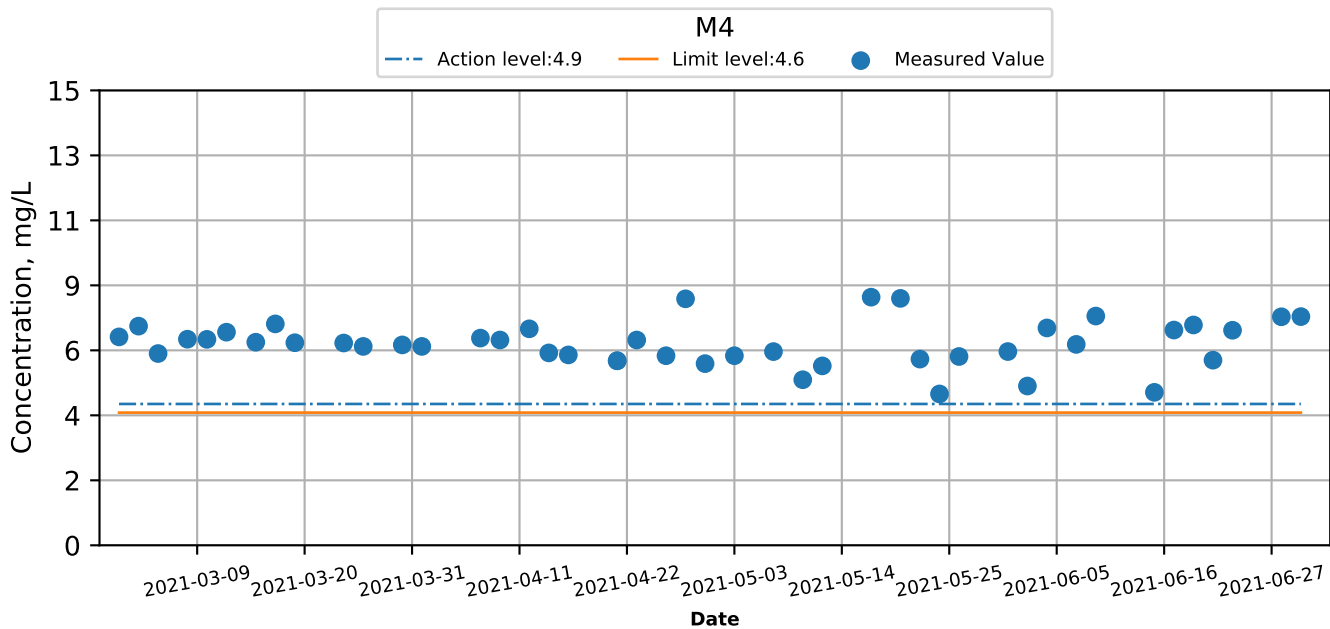
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Flood



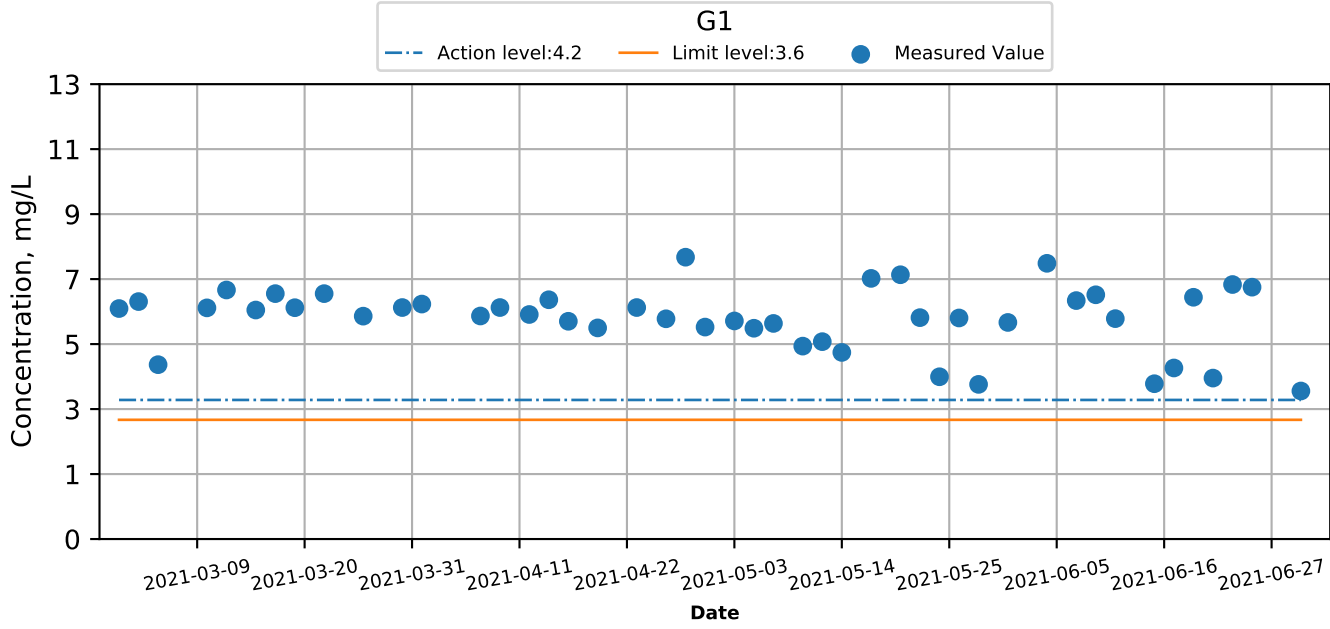
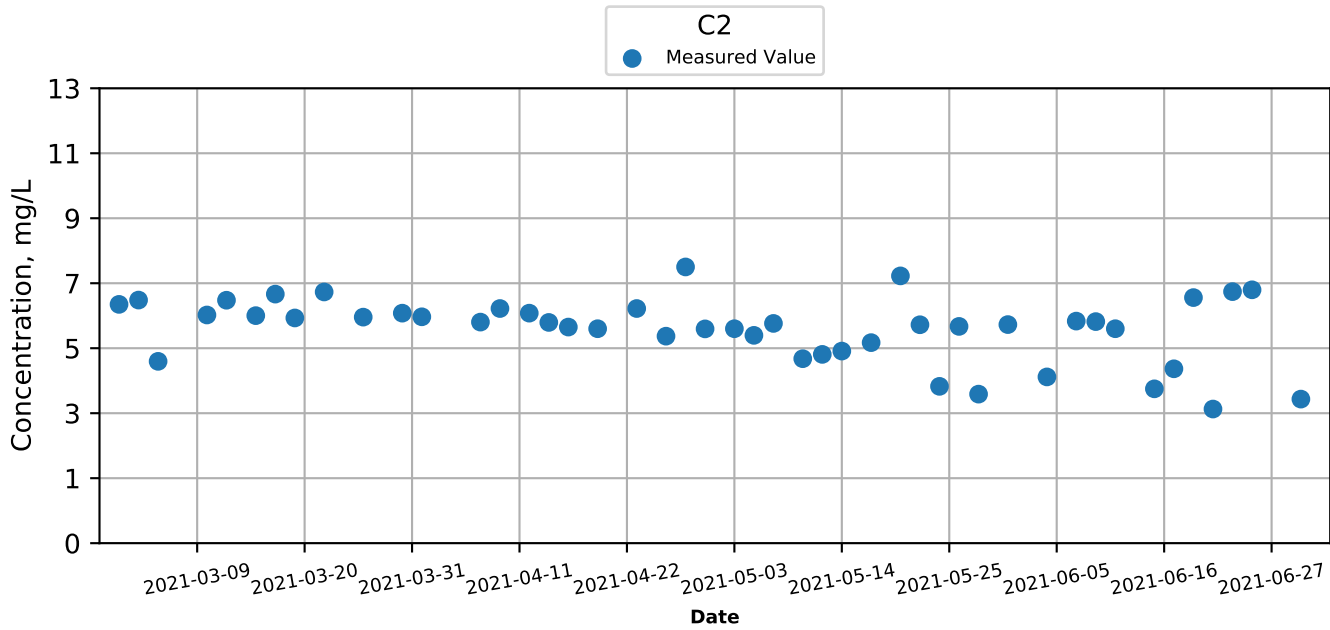
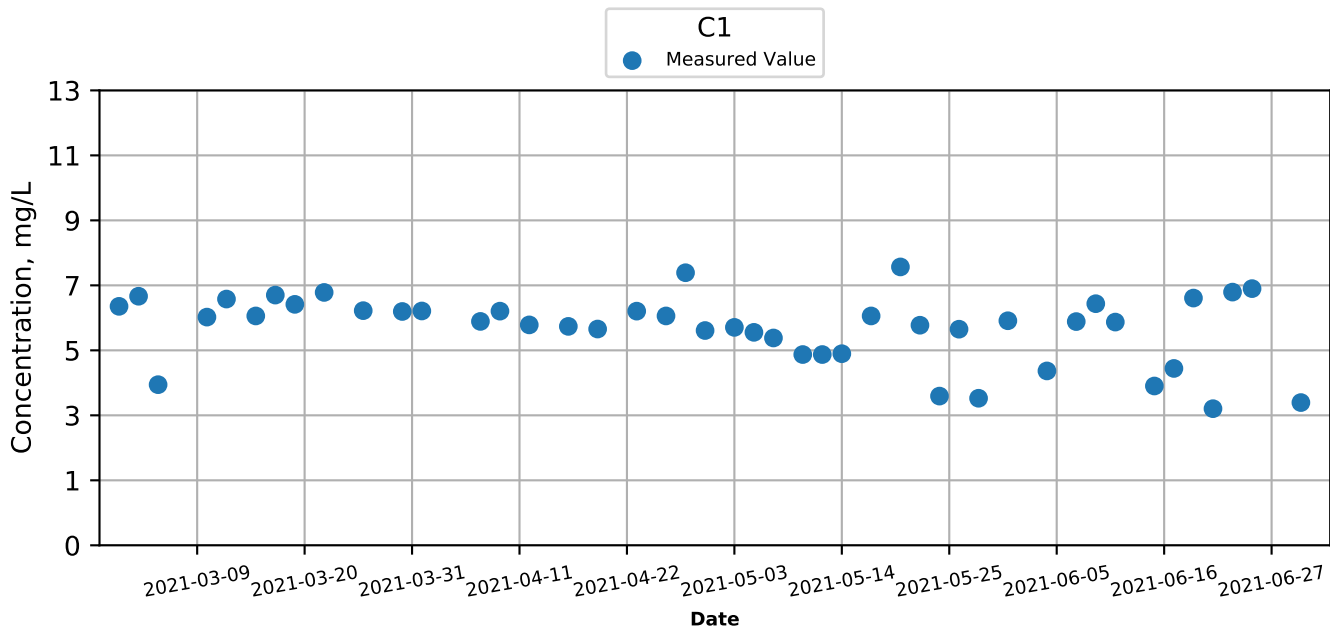
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Depth-Averaged) at Monitoring Stations during Mid-Flood



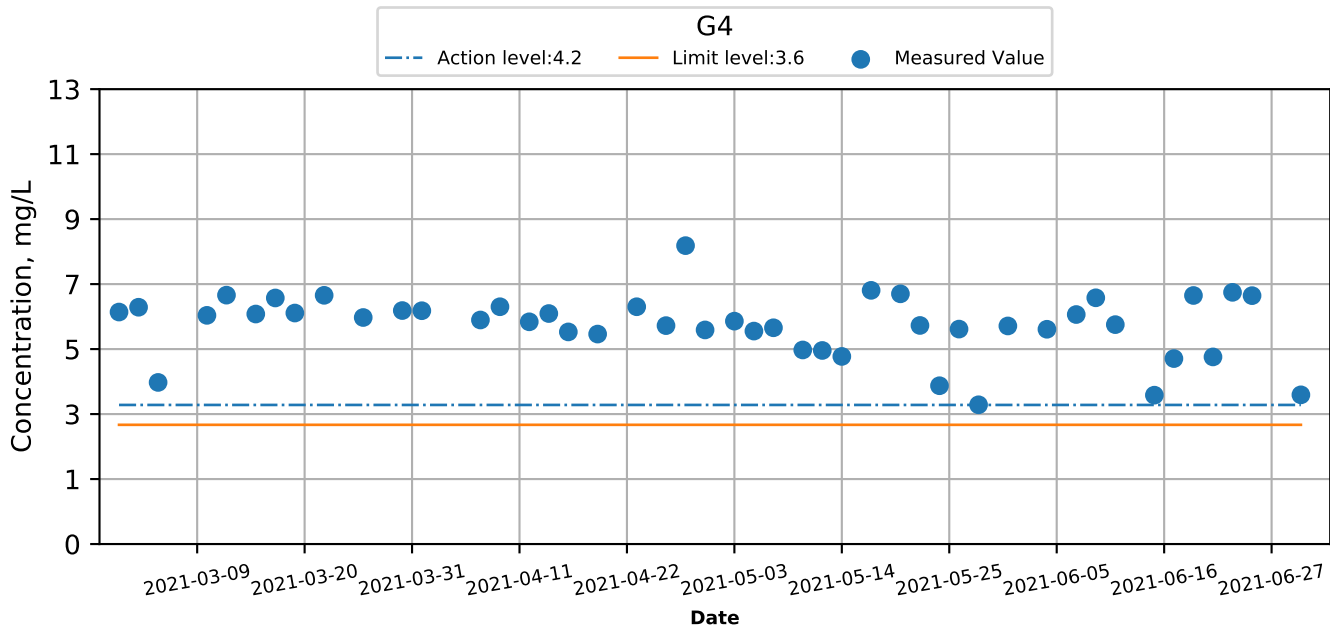
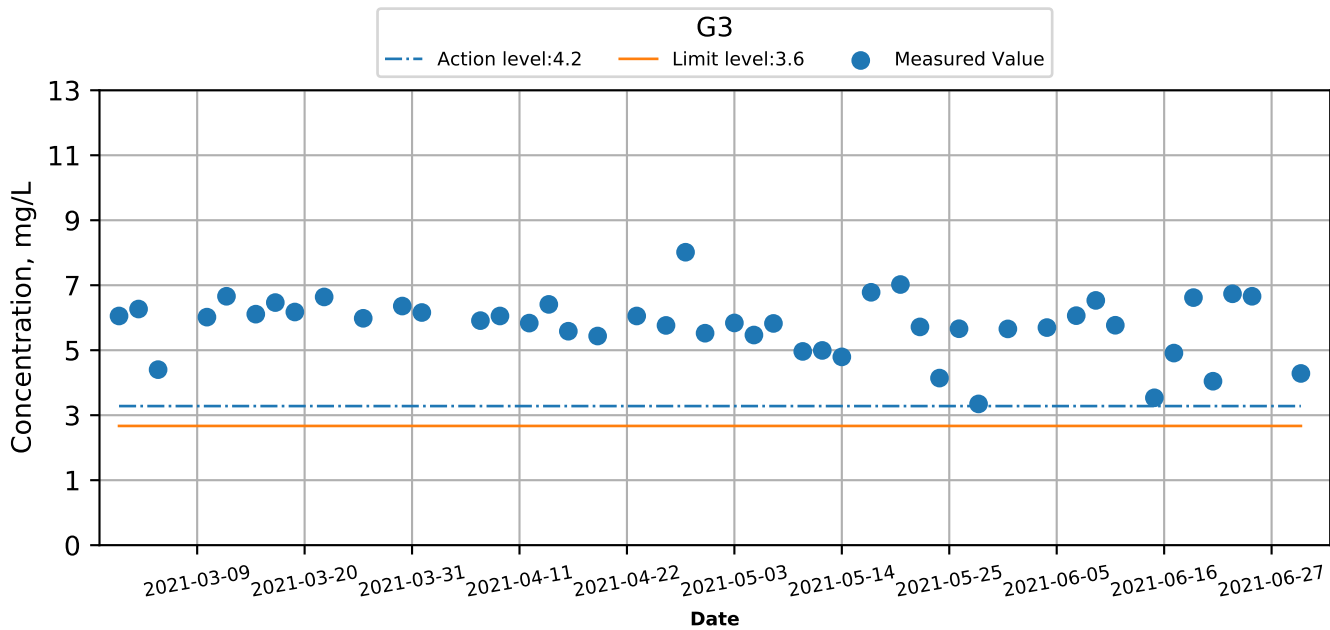
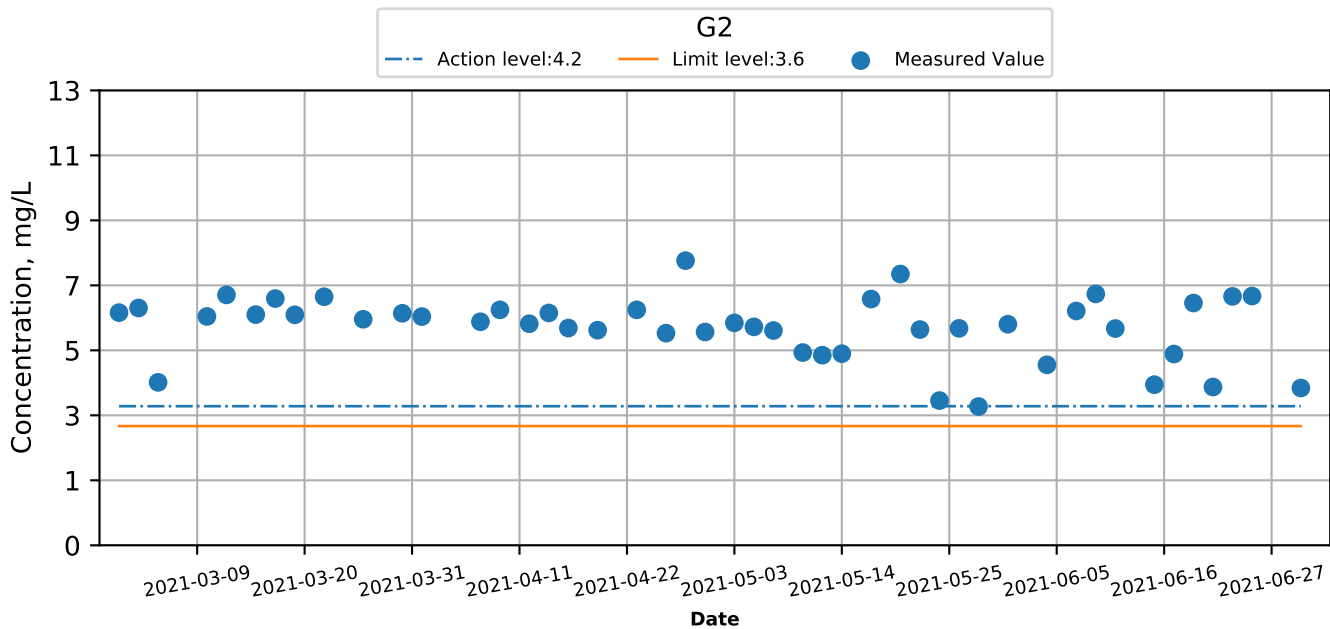
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Ebb



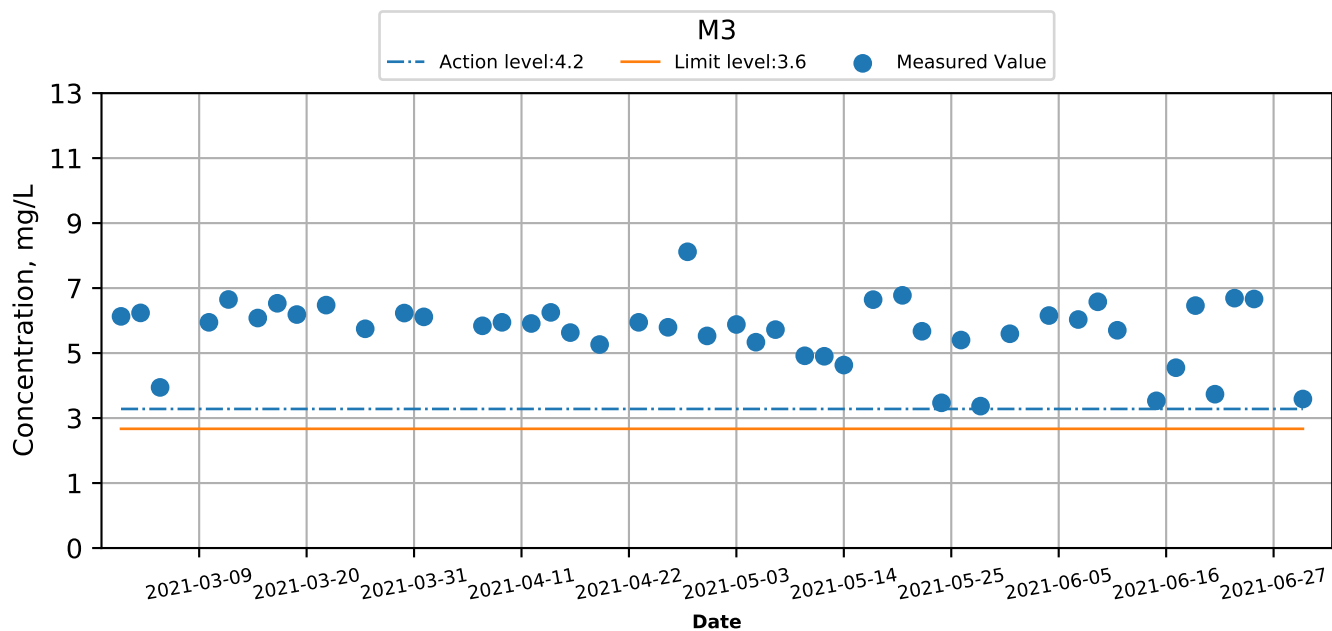
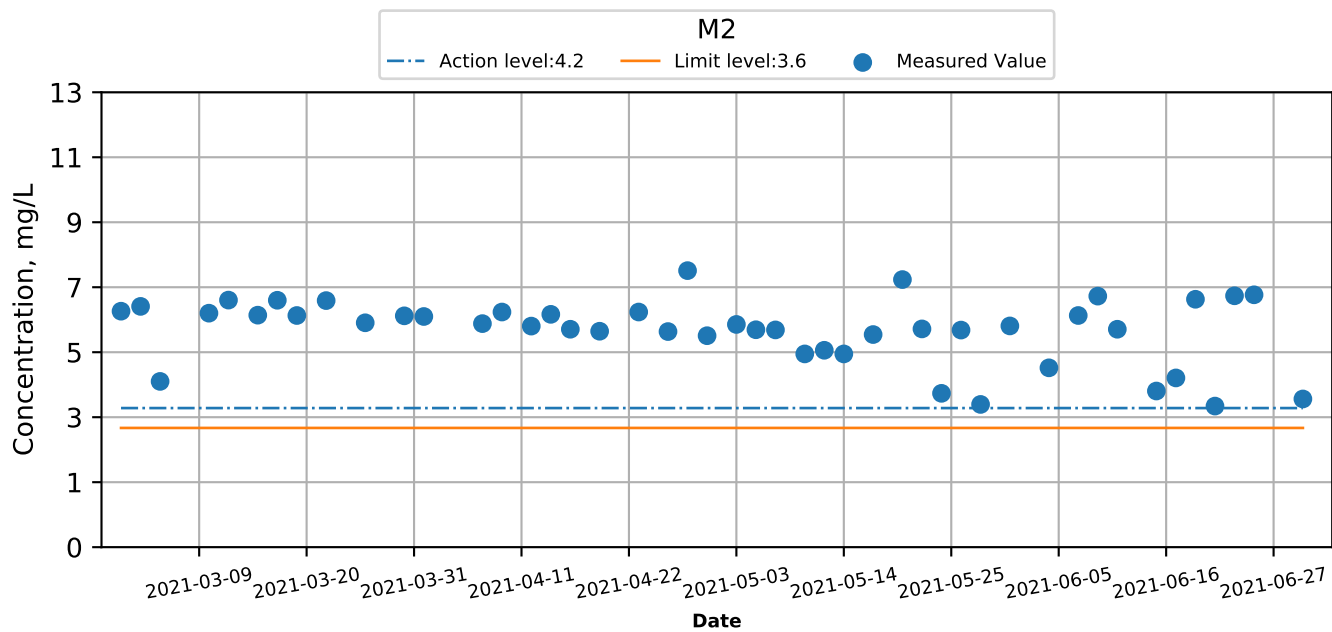
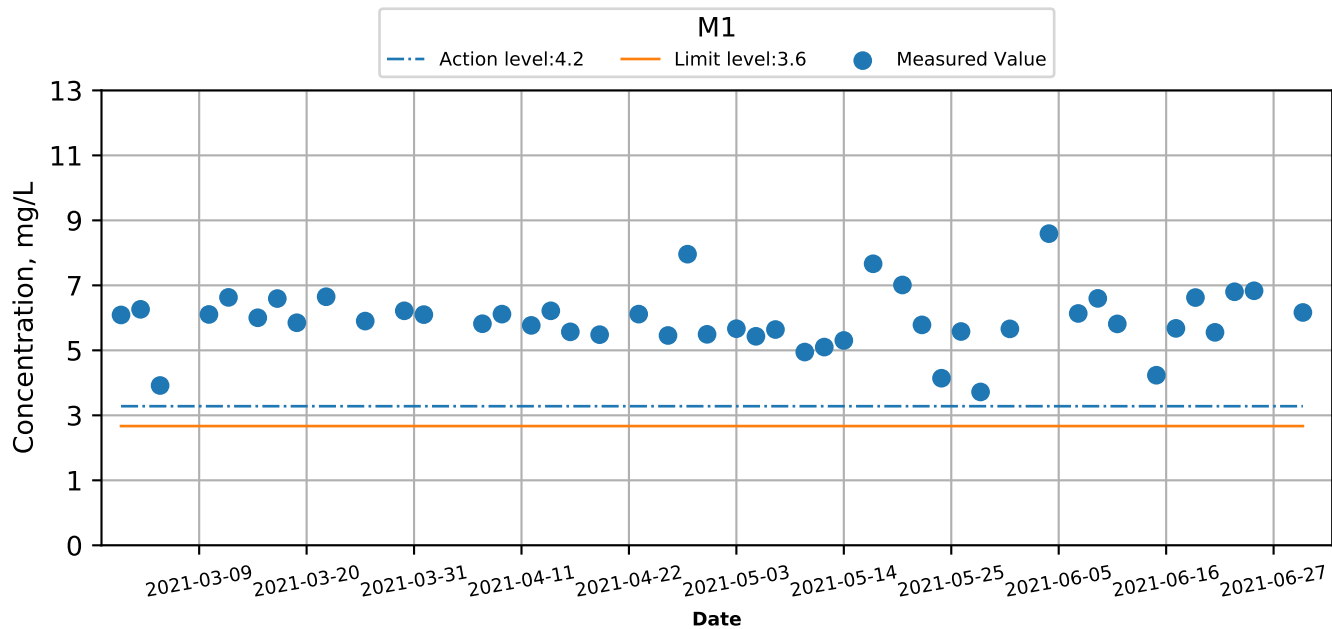
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Ebb



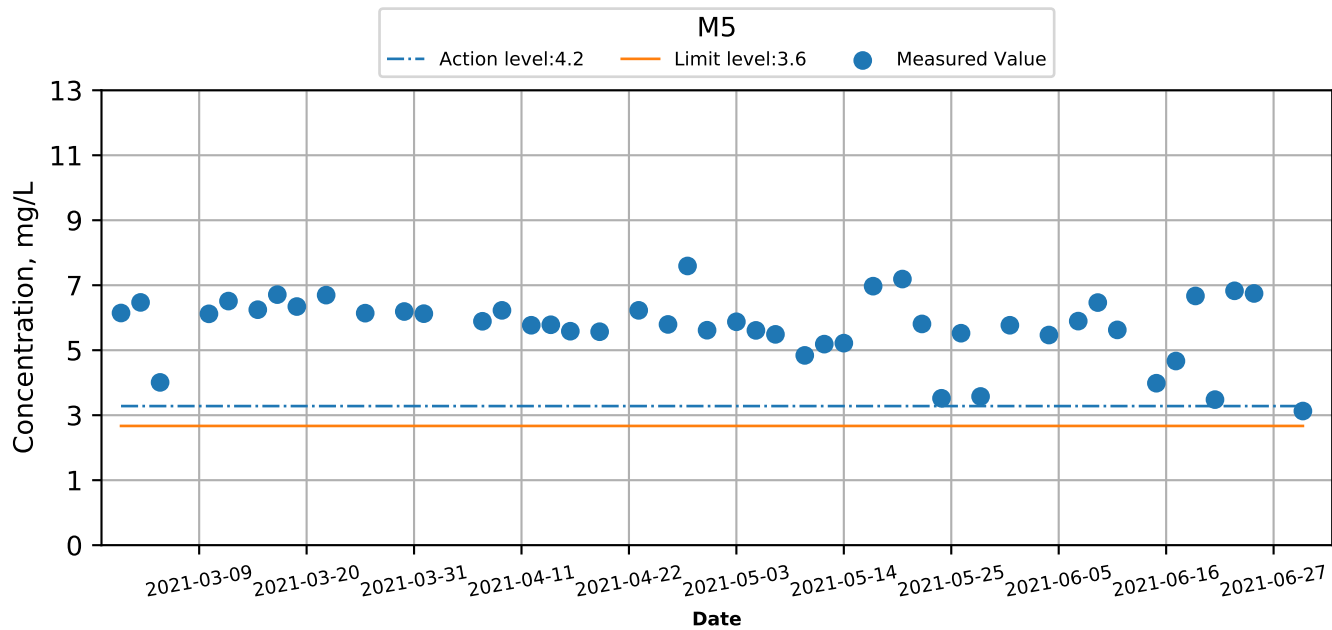
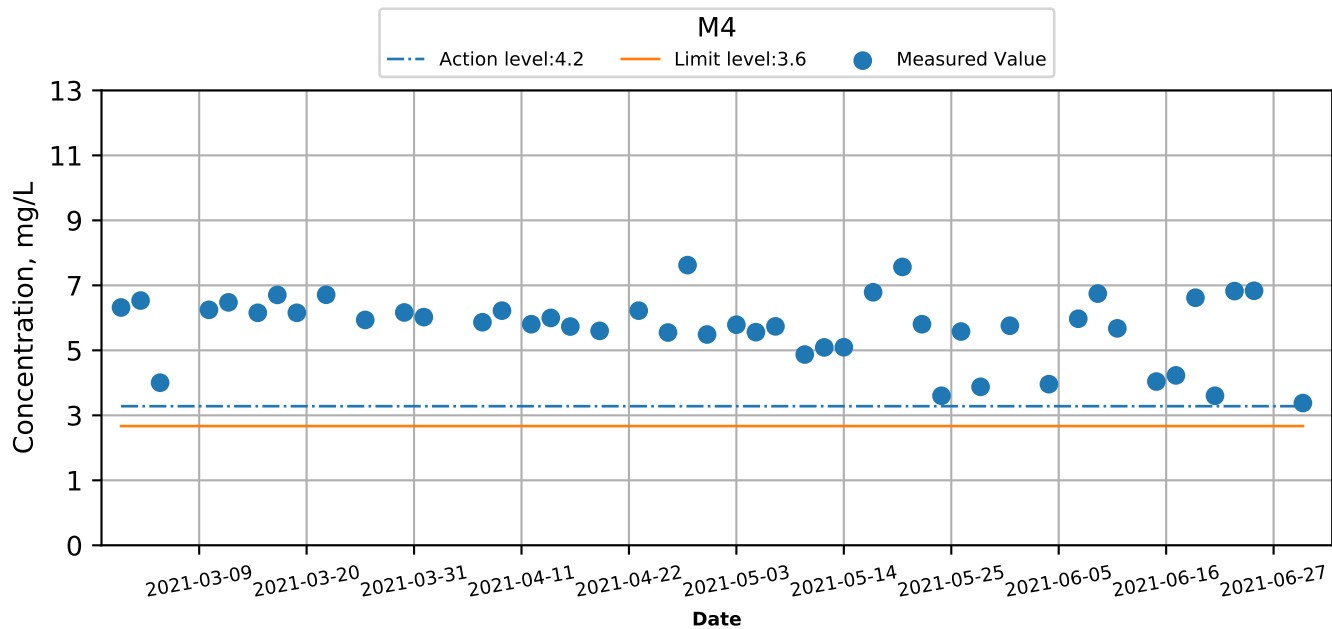
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Ebb



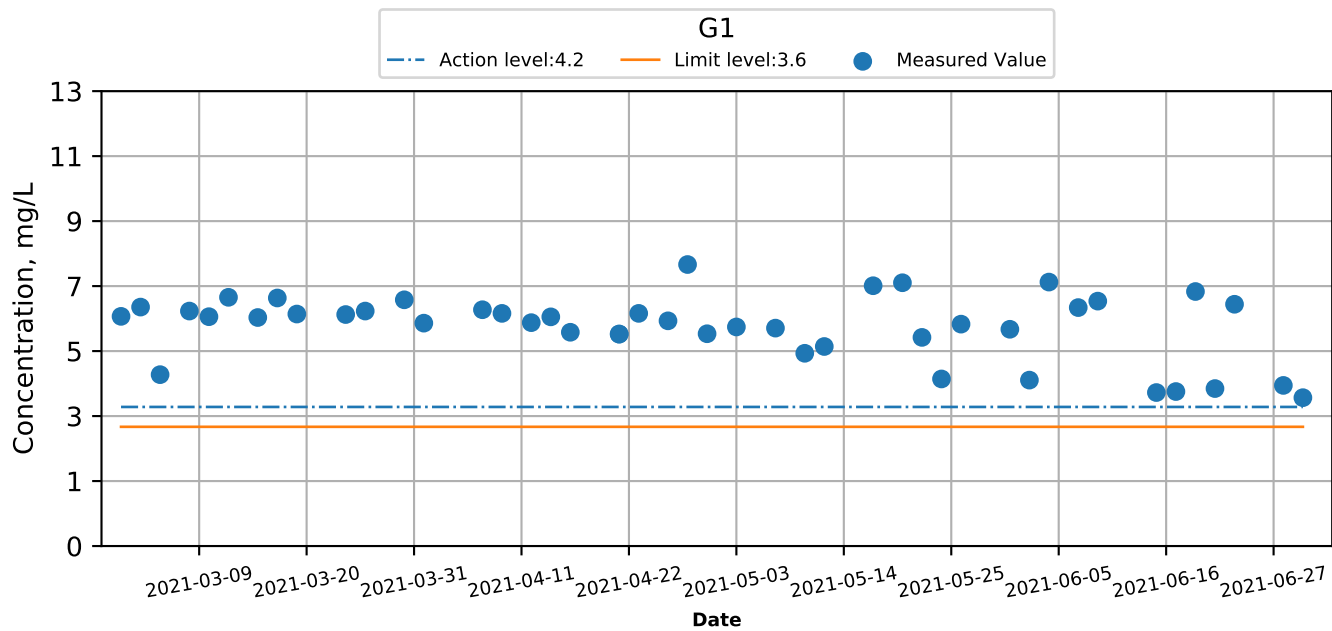
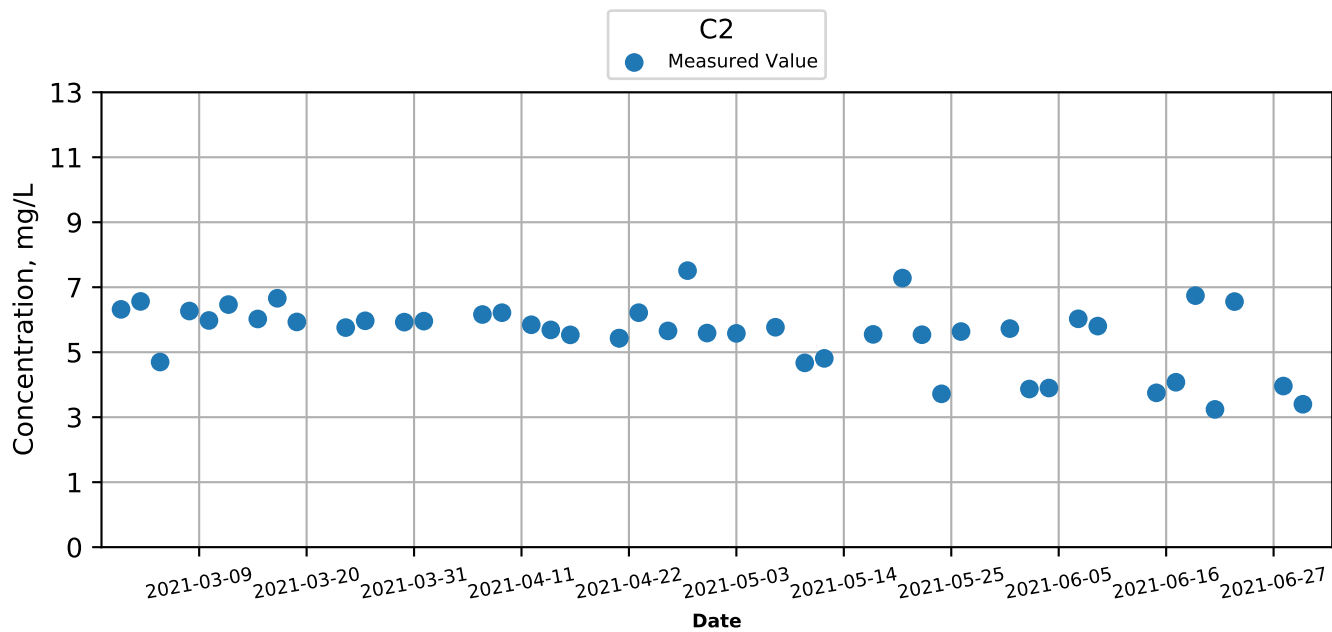
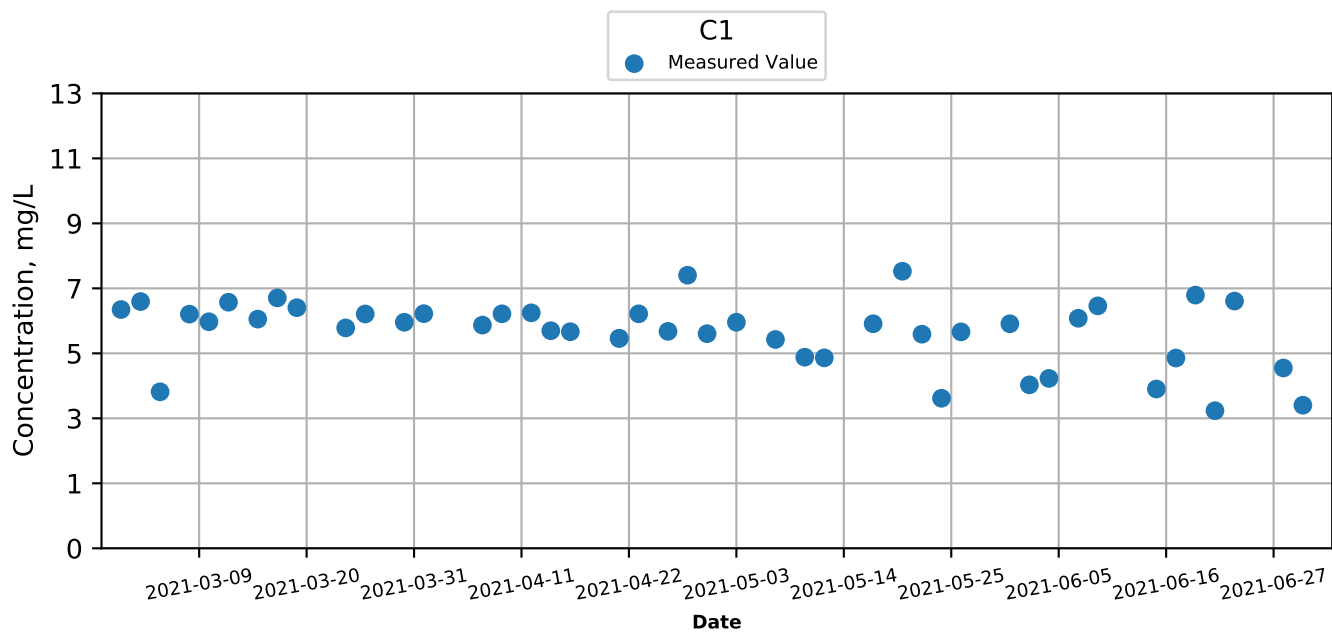
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Ebb



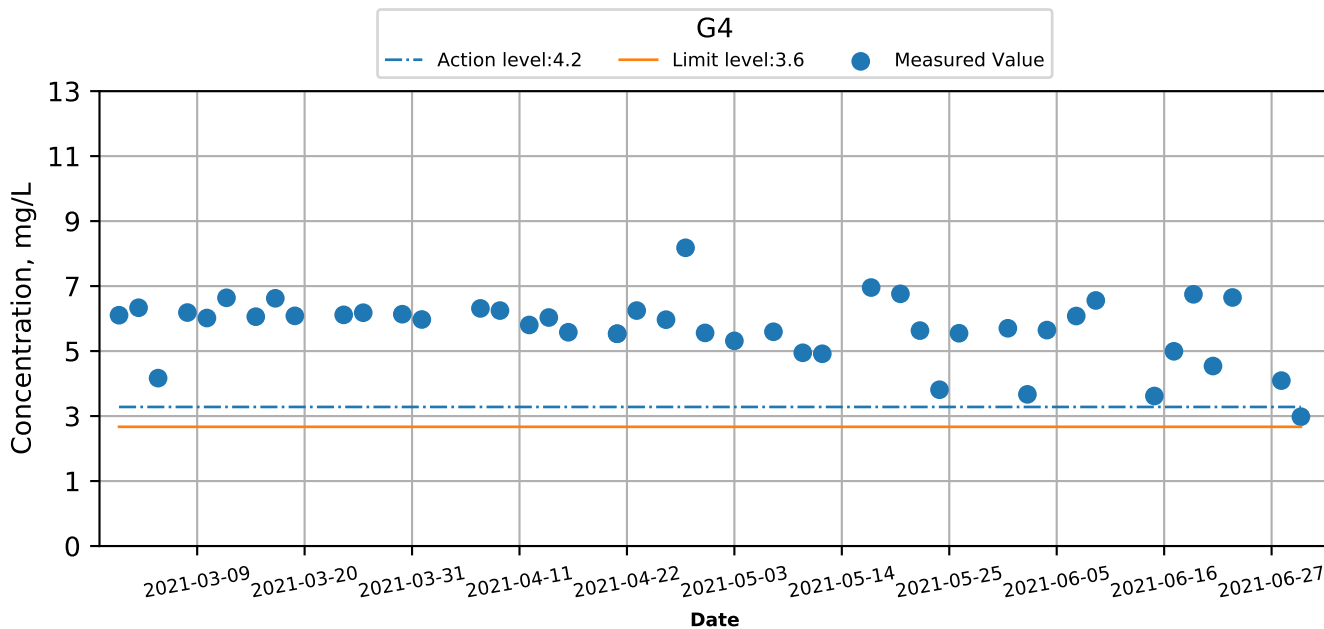
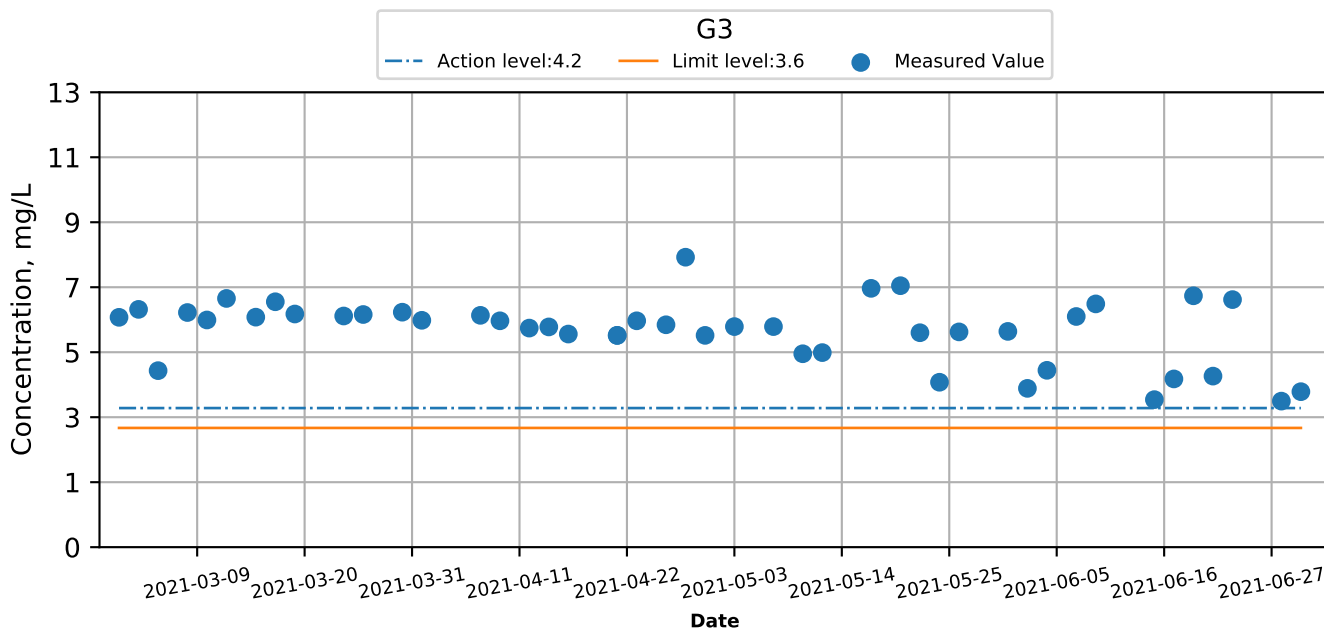
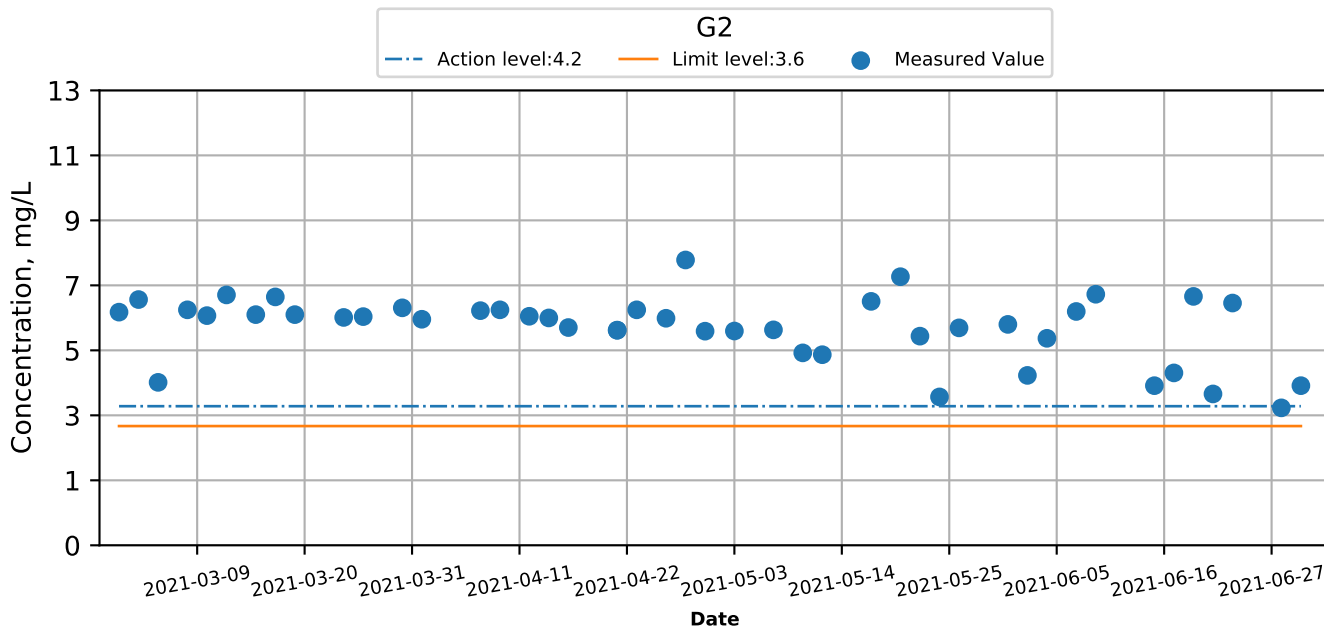
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Flood



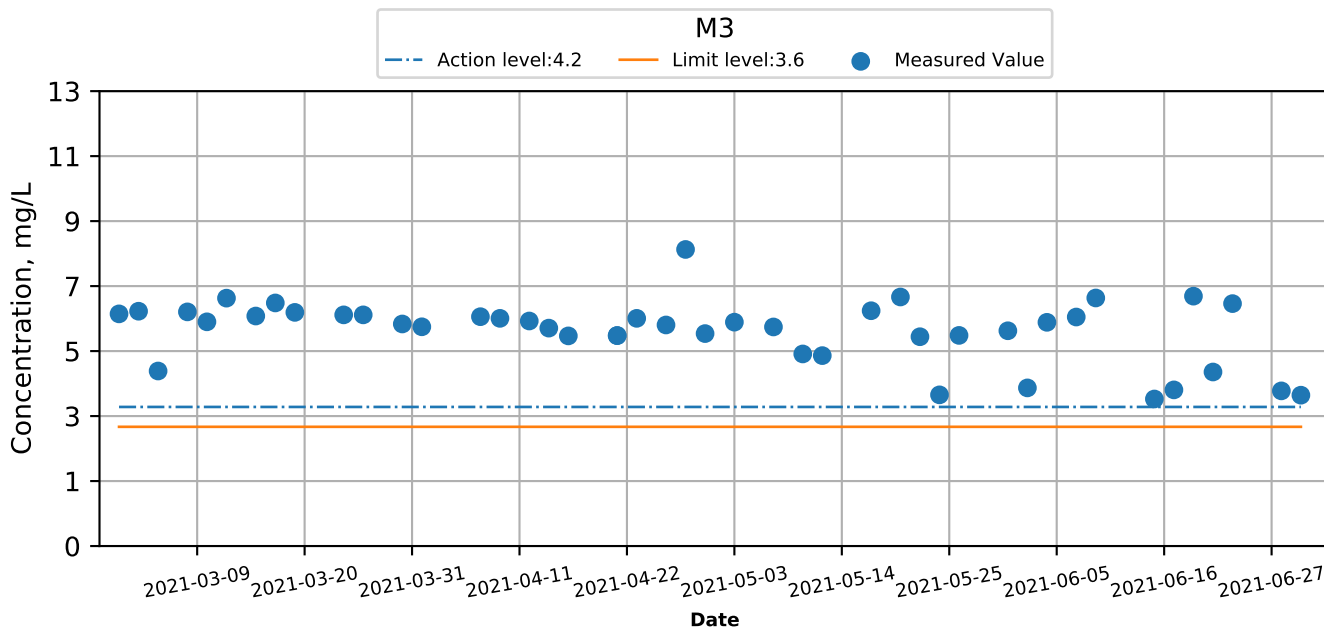
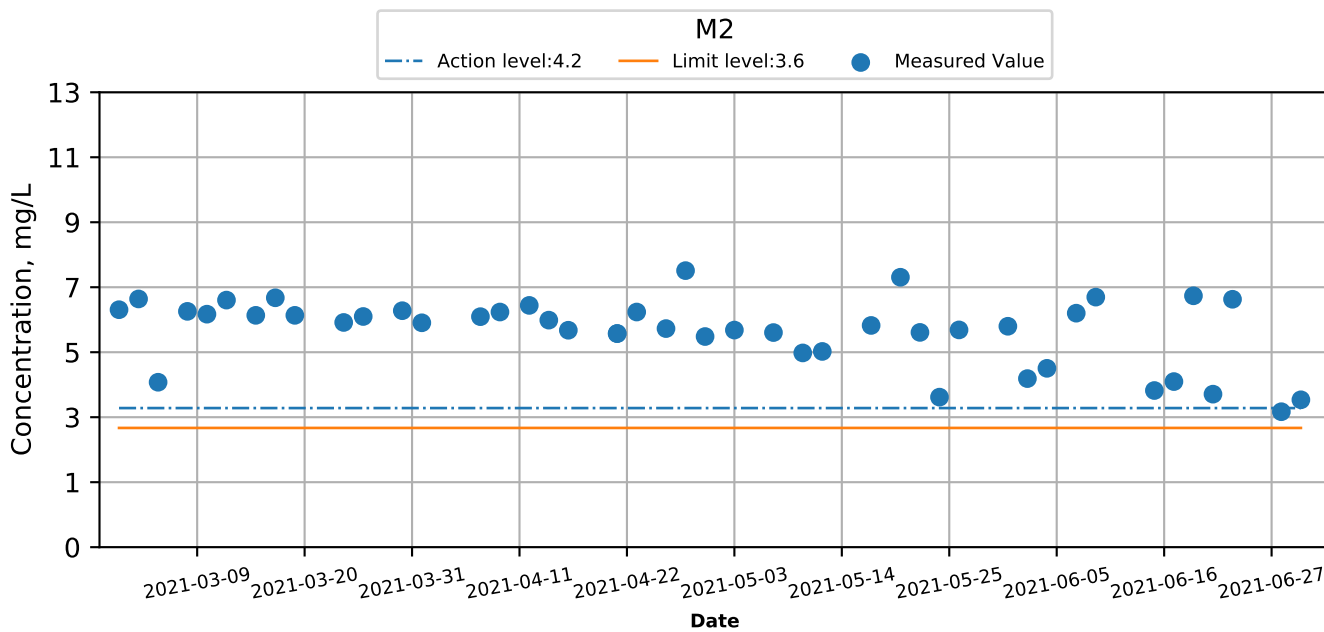
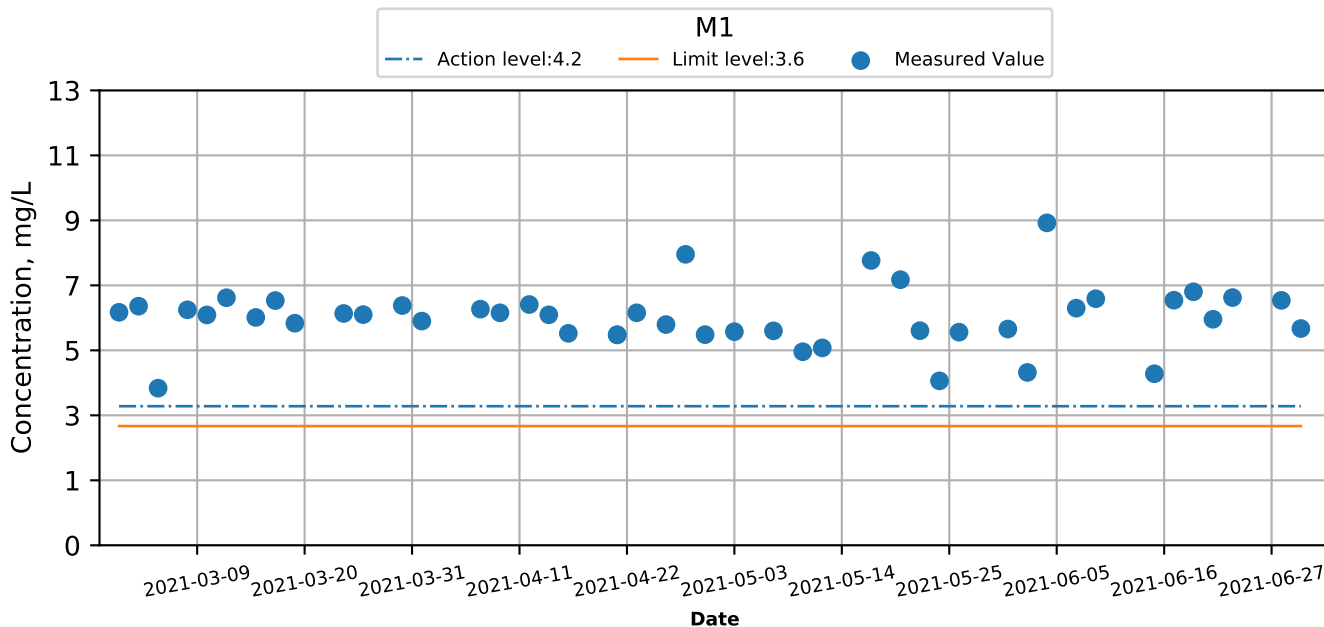
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Flood



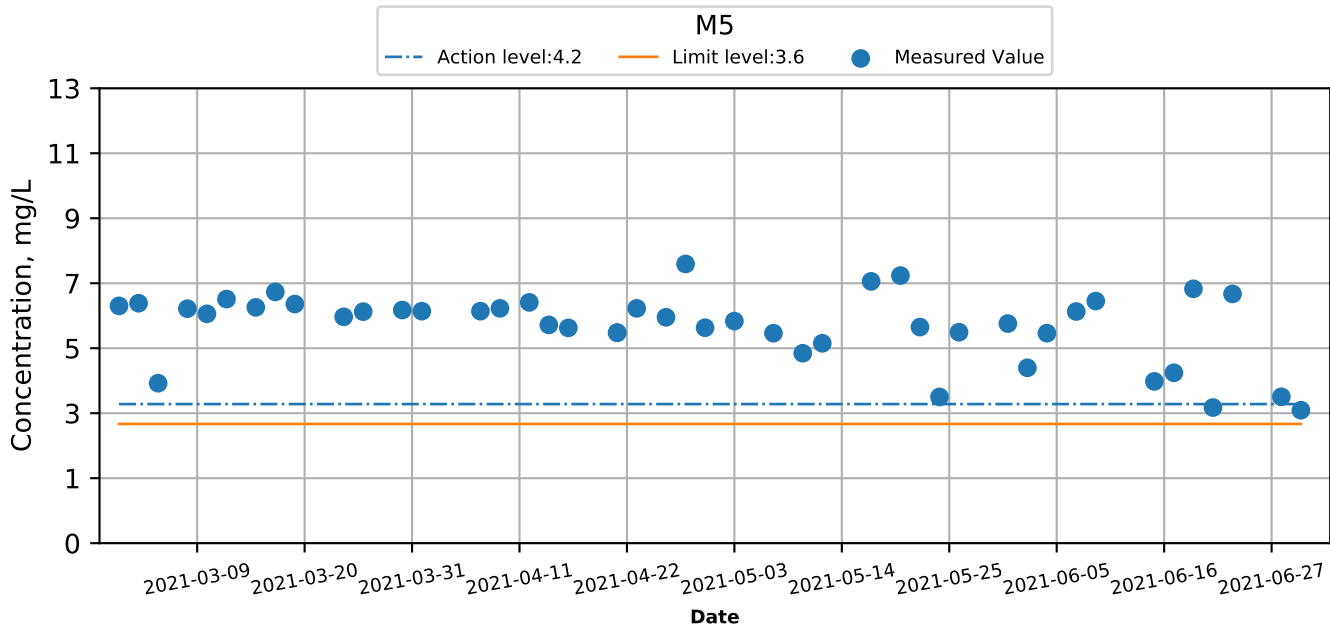
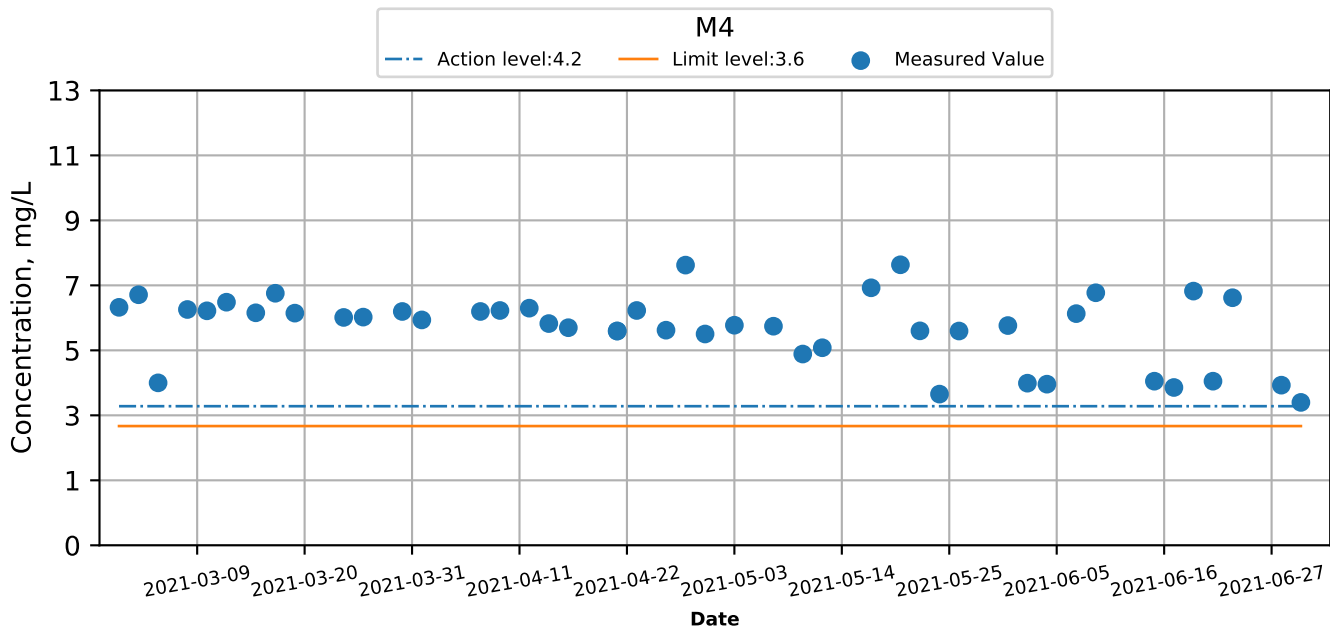
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Flood



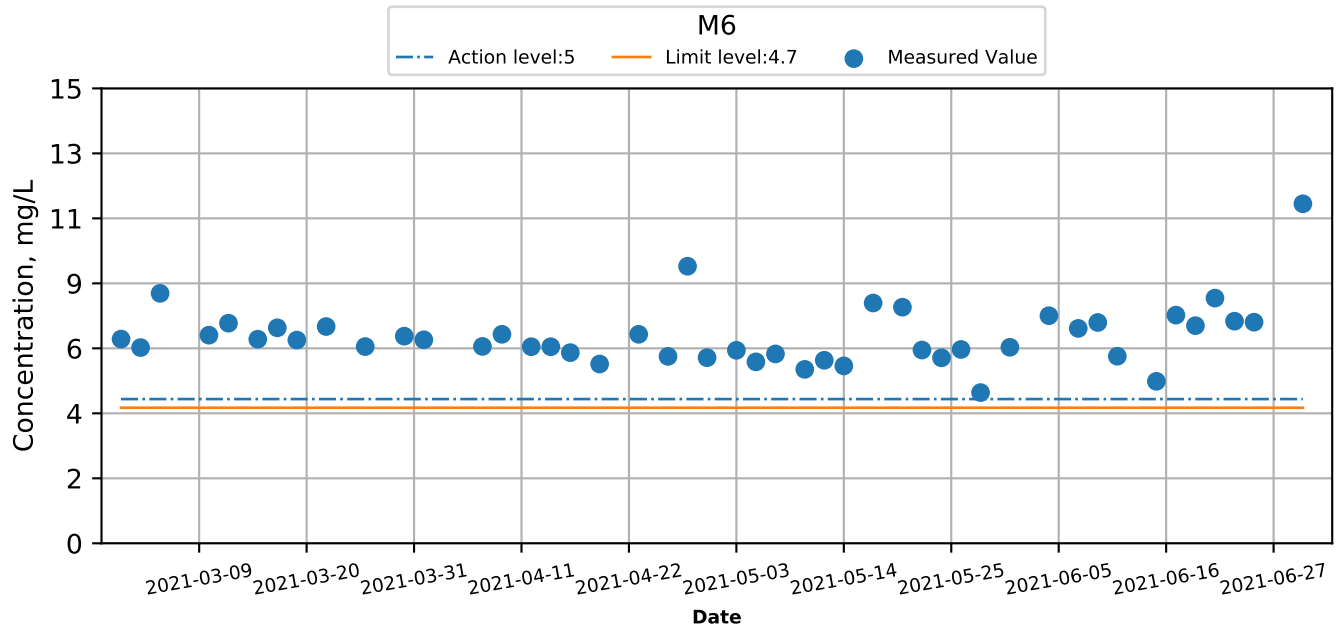
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Bottom) at Monitoring Stations during Mid-Flood



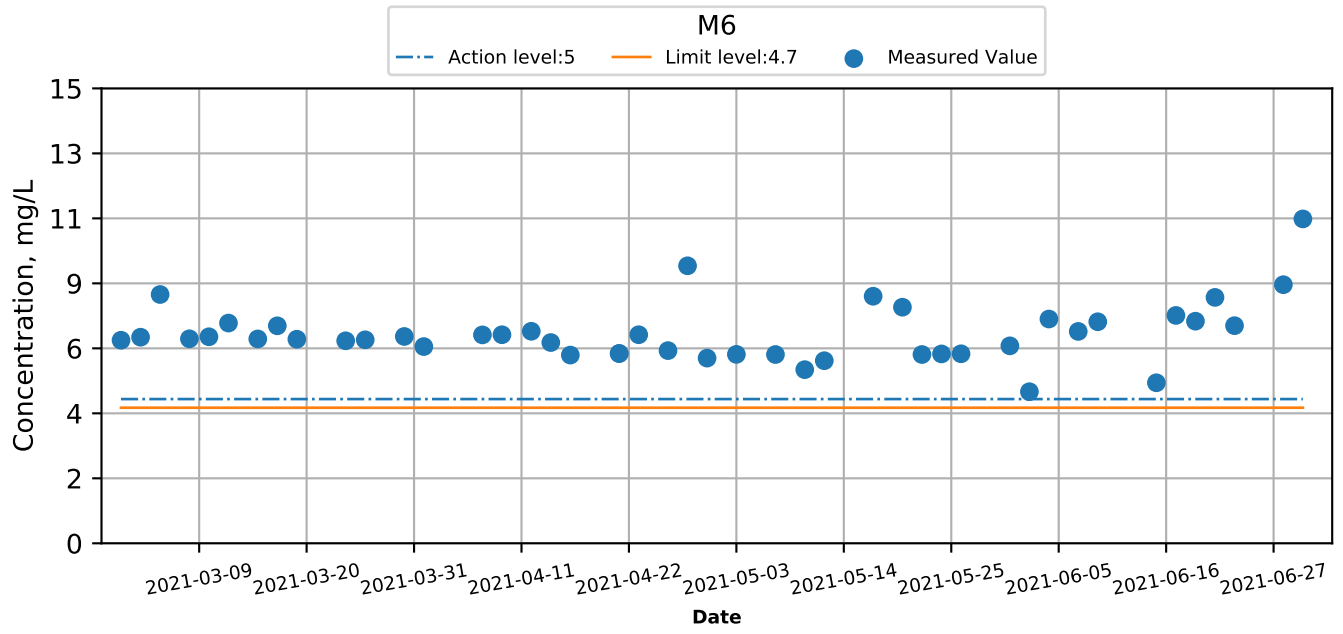
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Intake level) at Monitoring Stations during Mid-Ebb



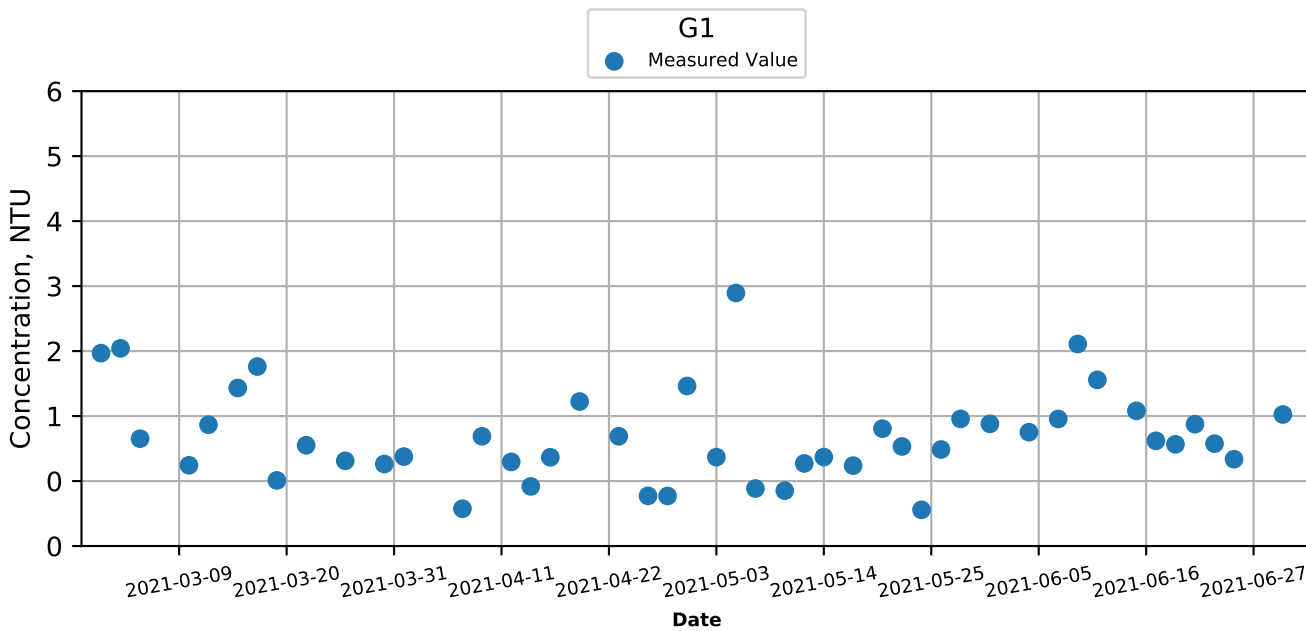
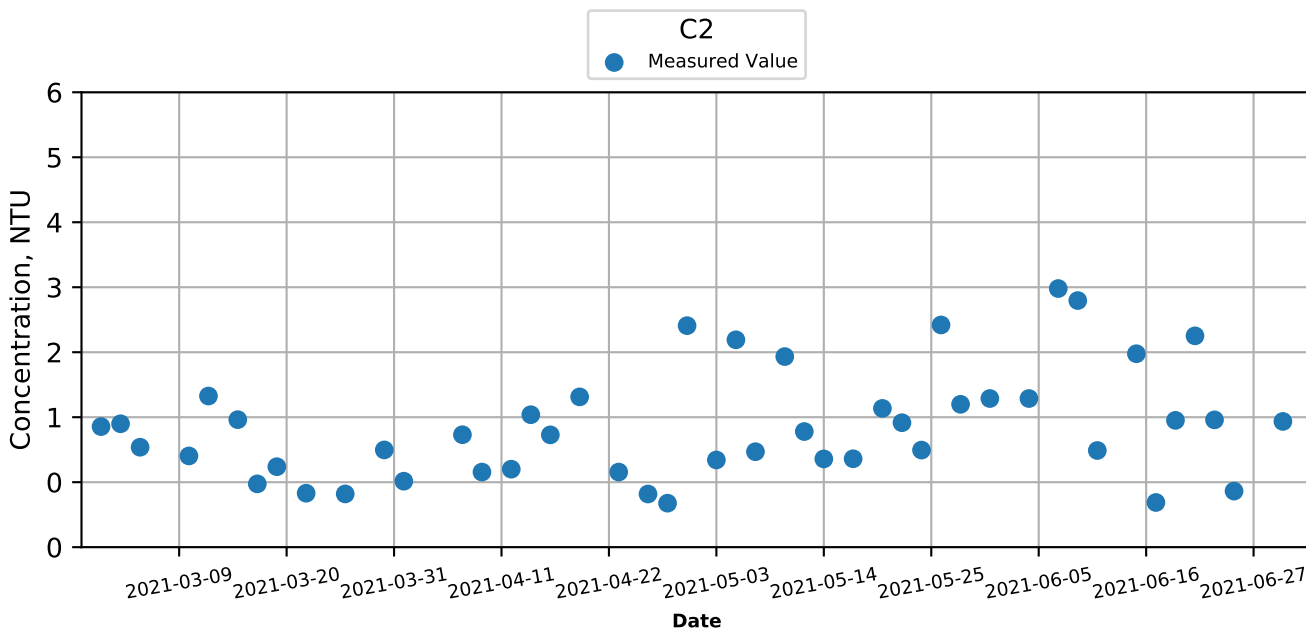
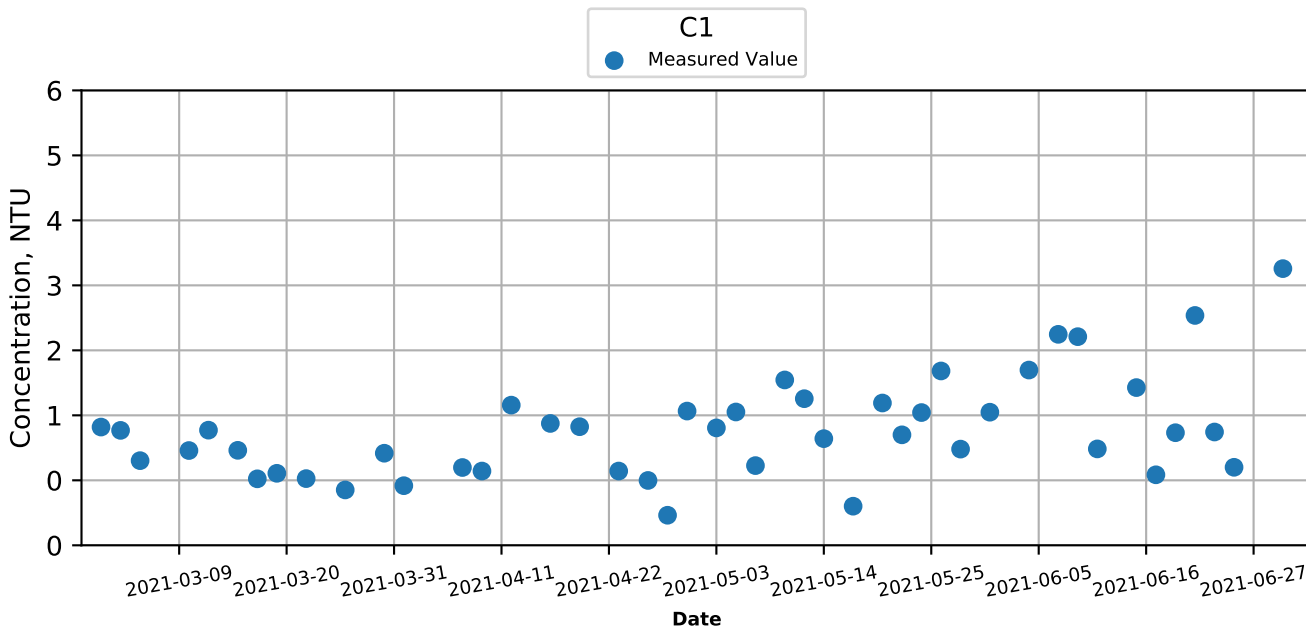
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Dissolved Oxygen (Intake level) at Monitoring Stations during Mid-Flood



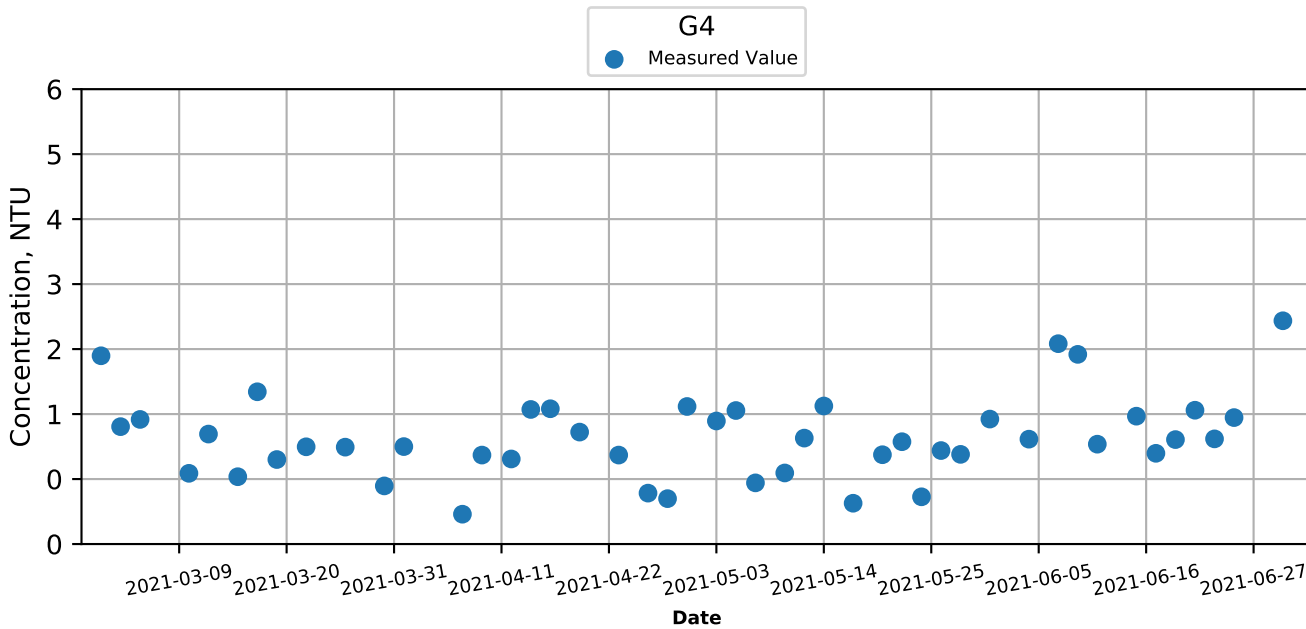
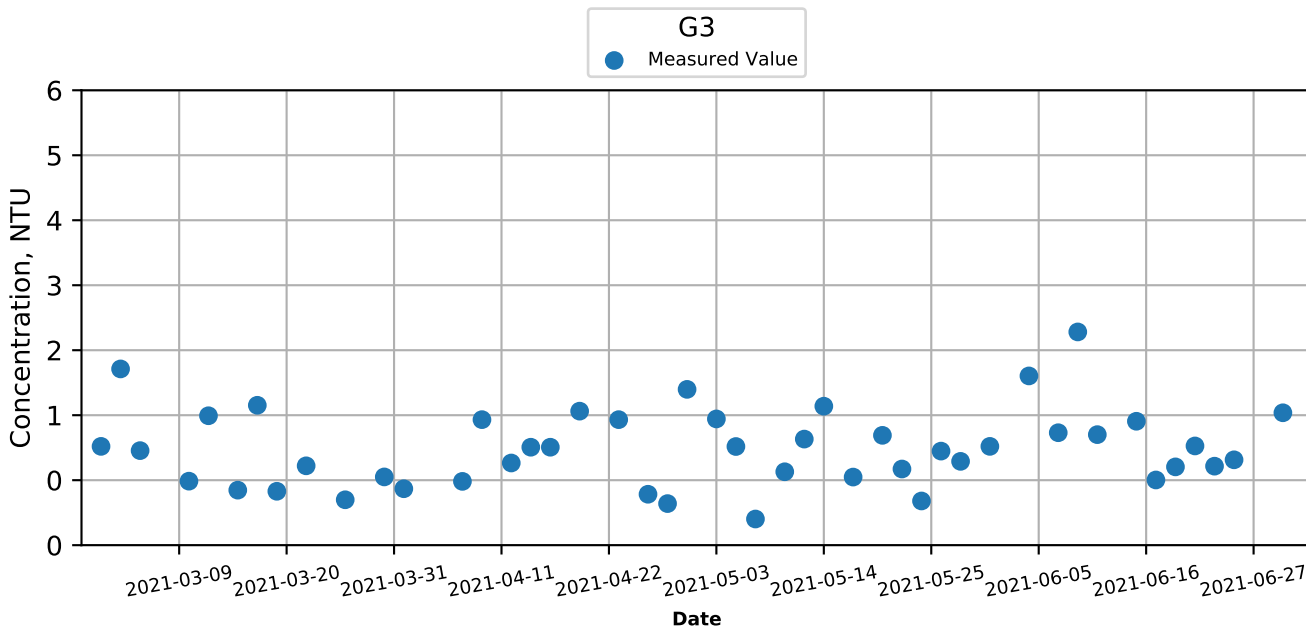
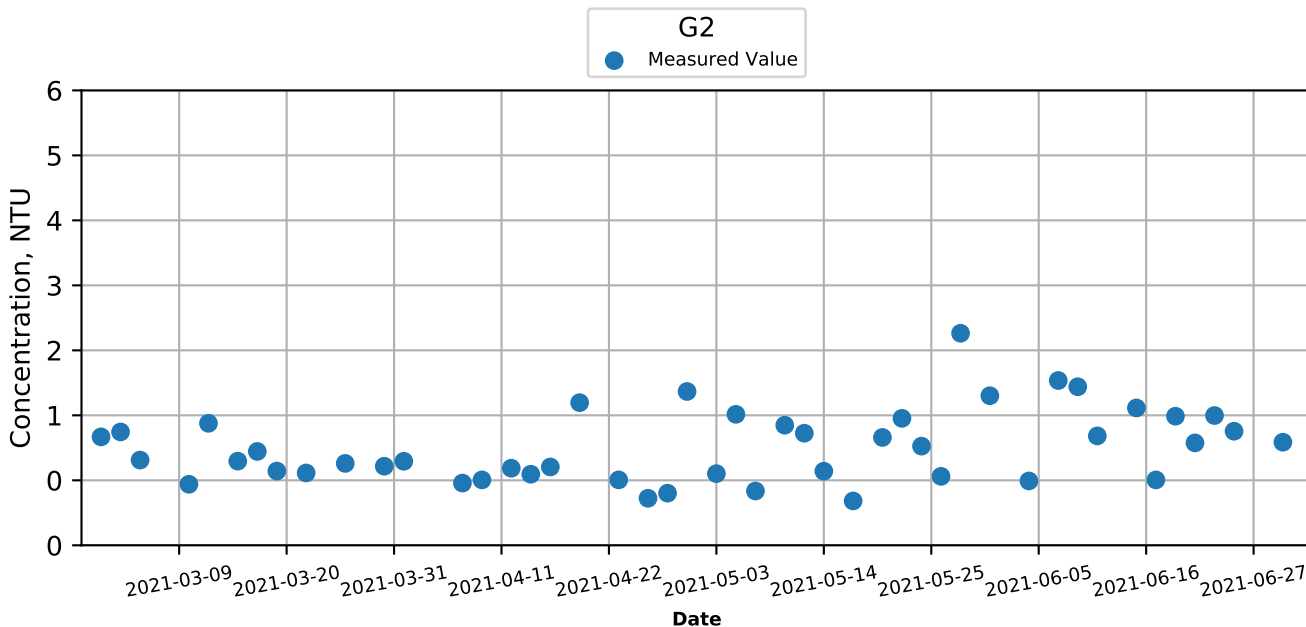
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Ebb



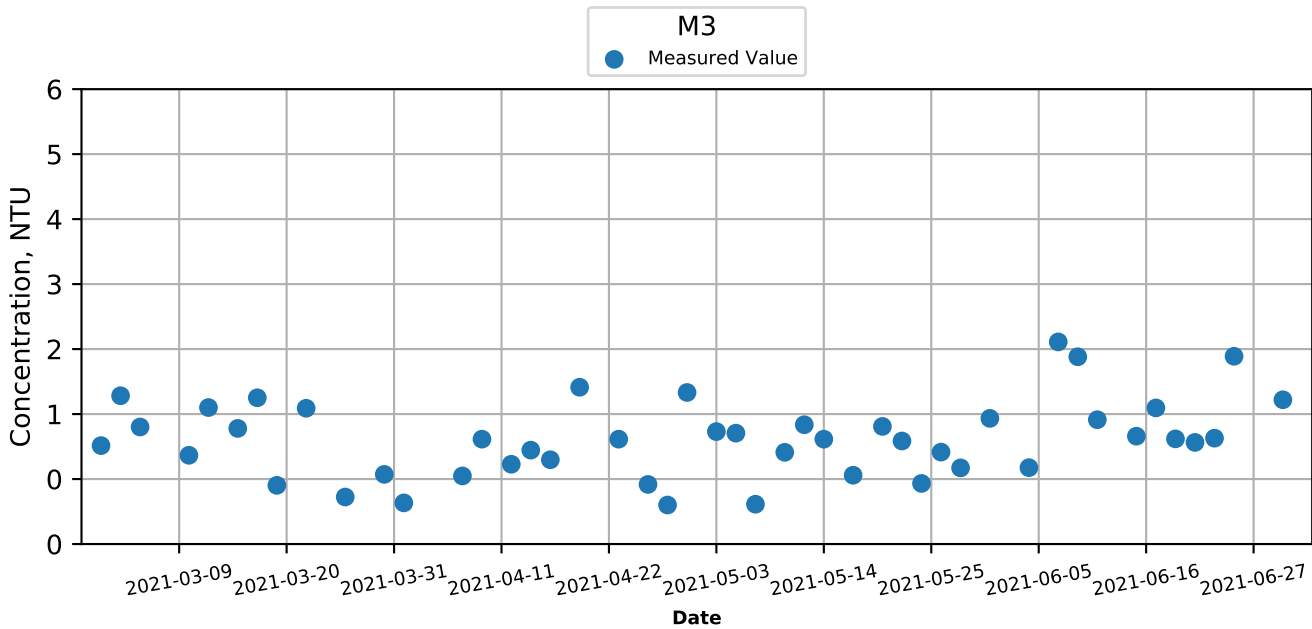
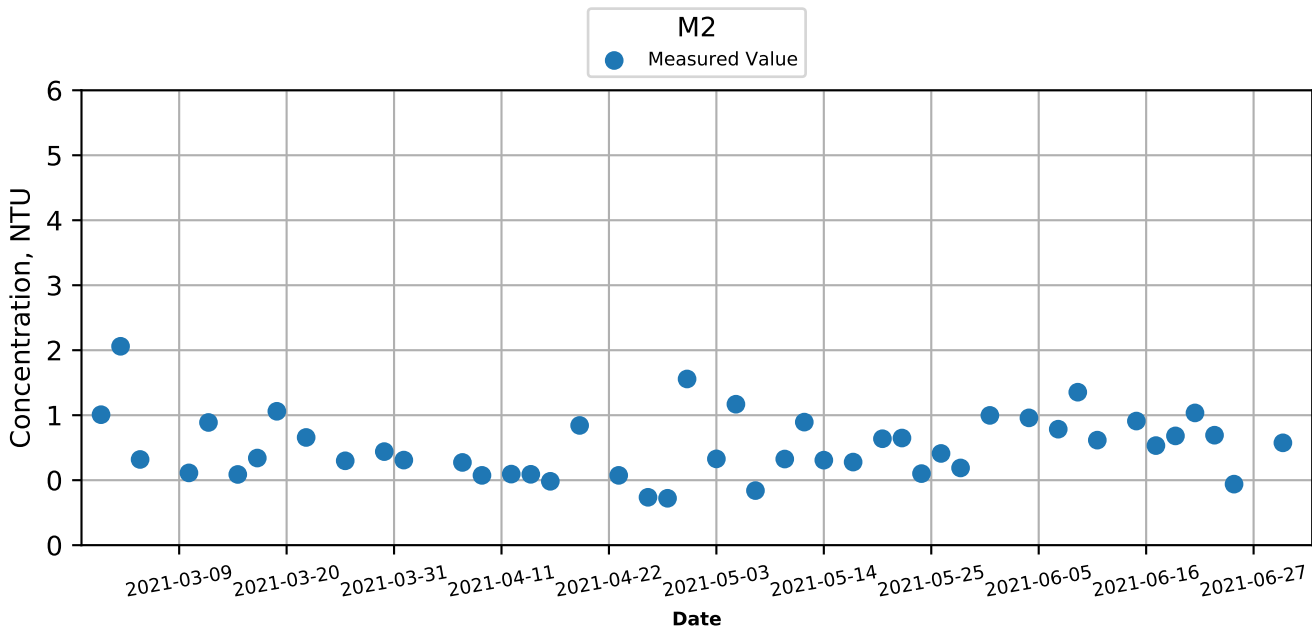
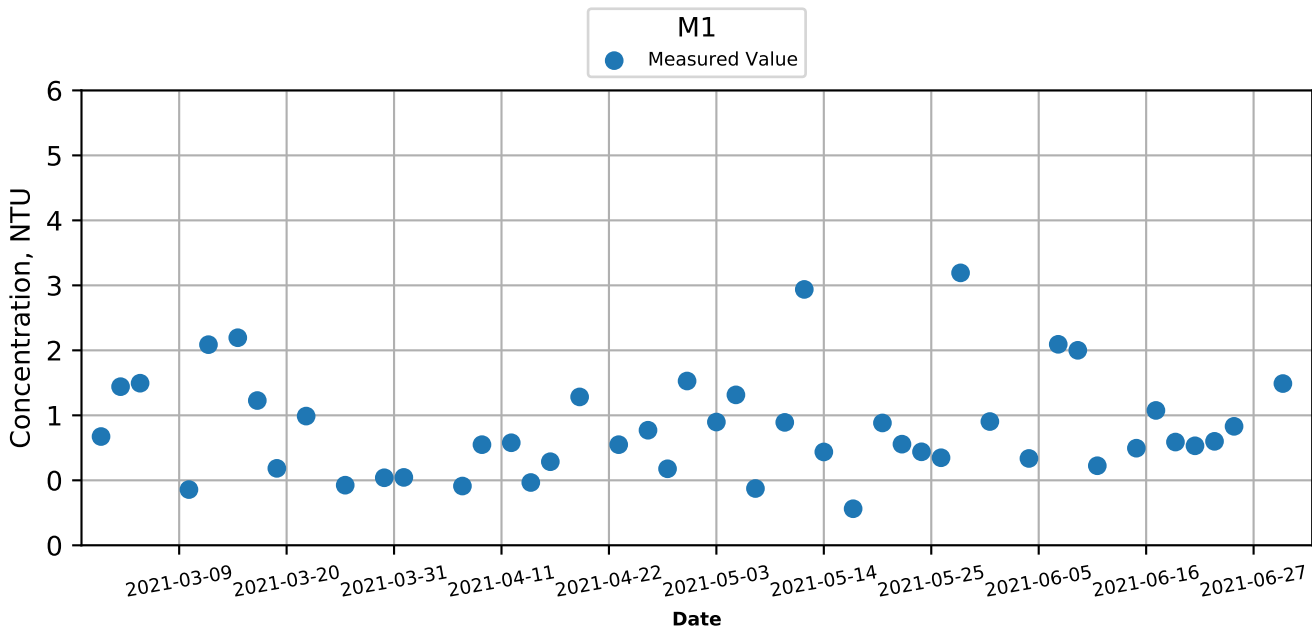
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Ebb



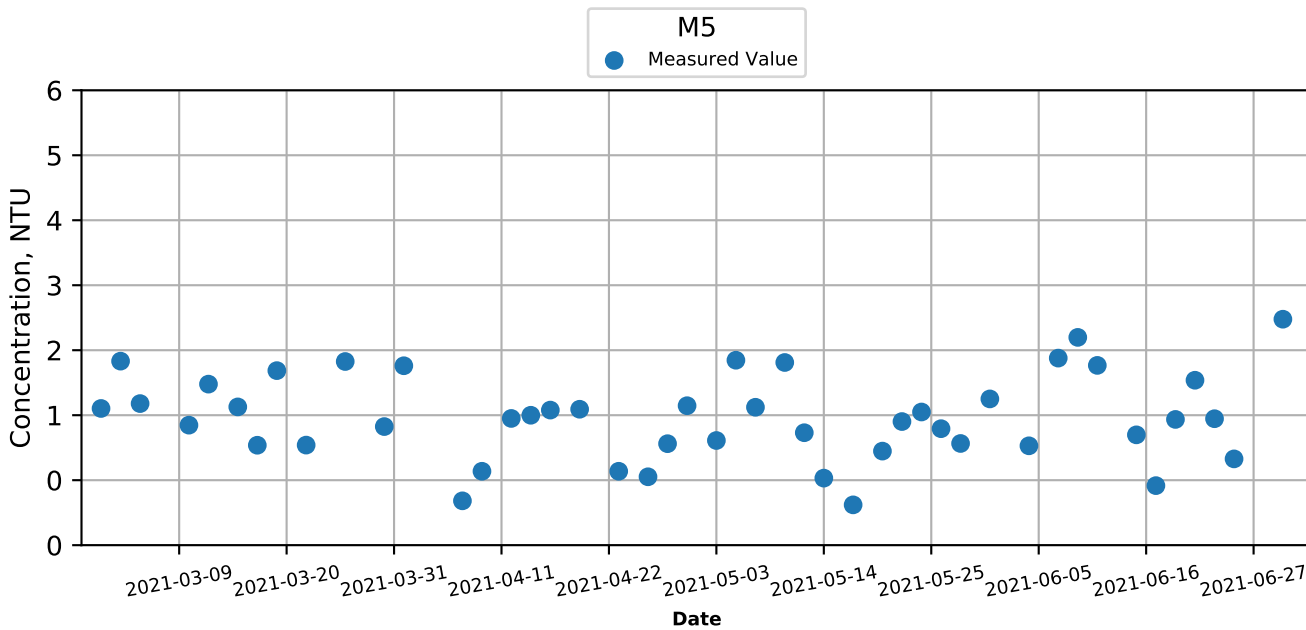
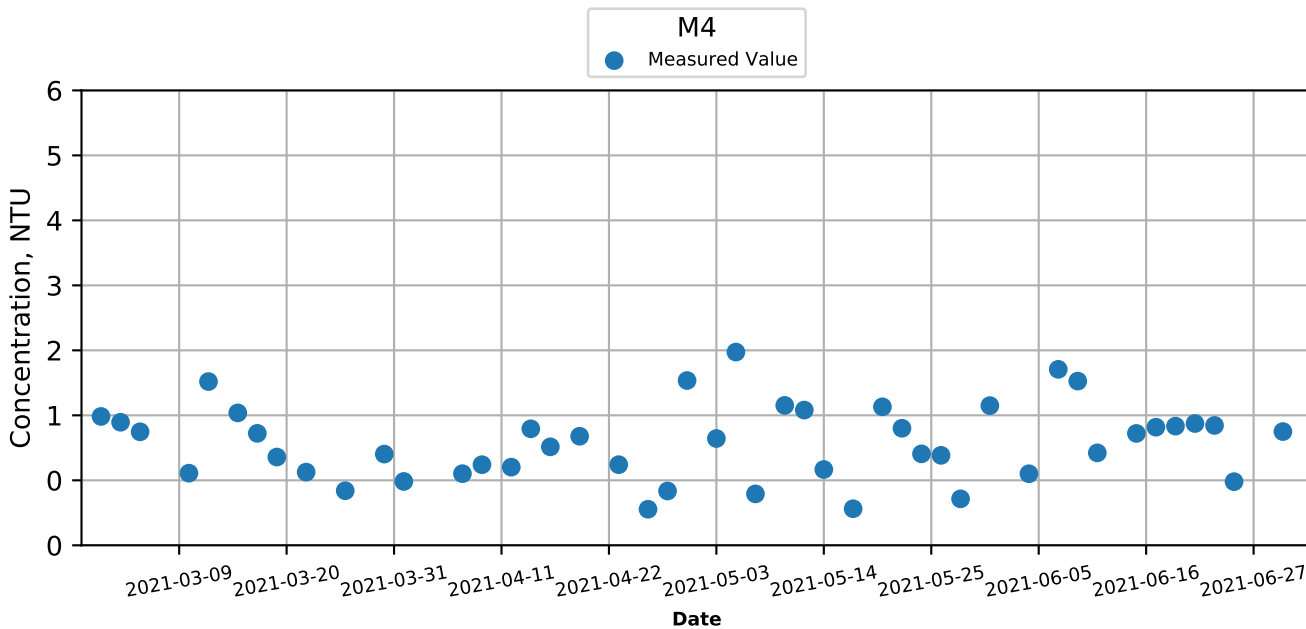
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Ebb



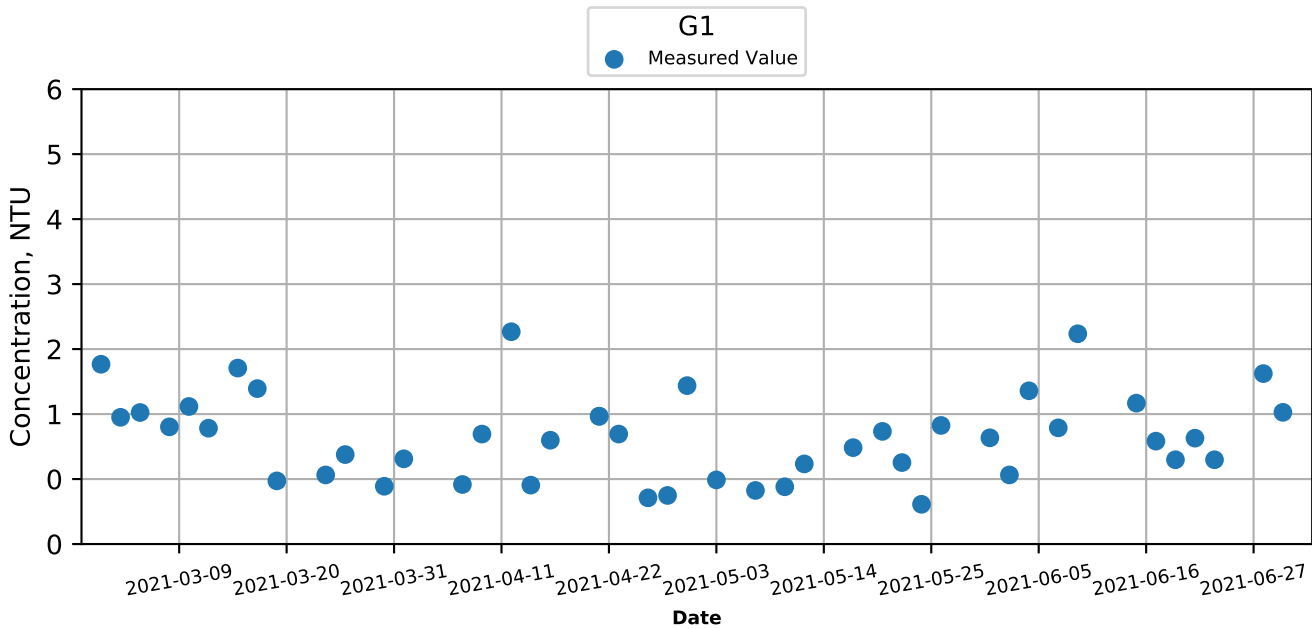
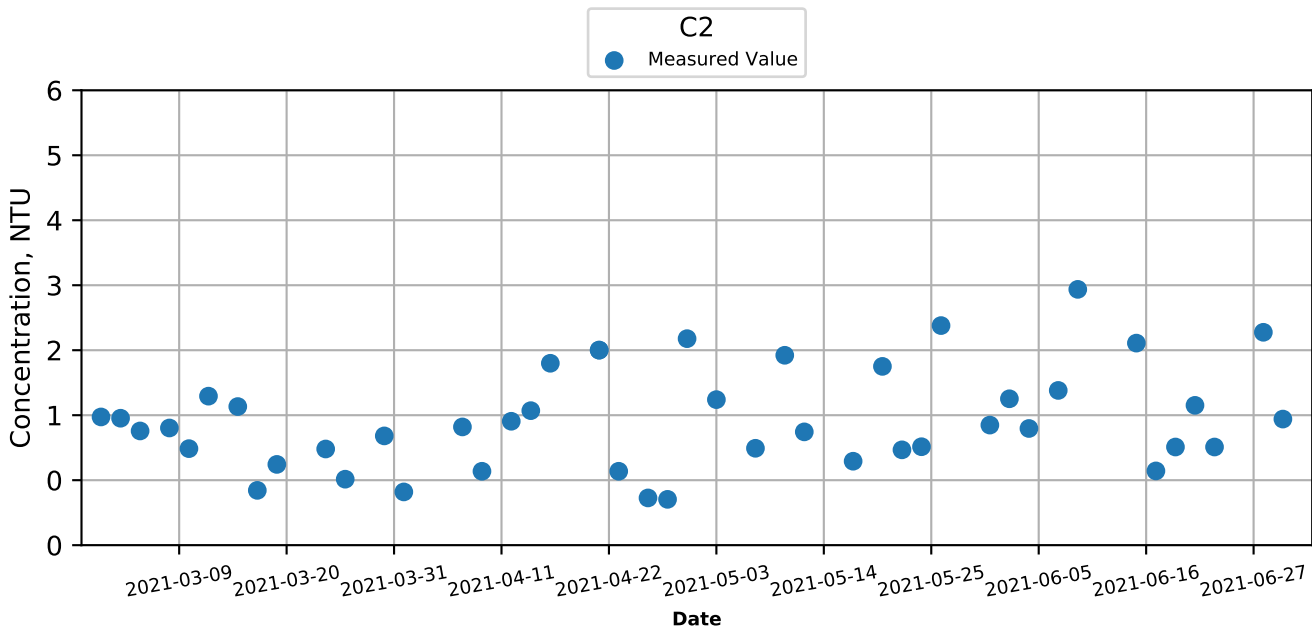
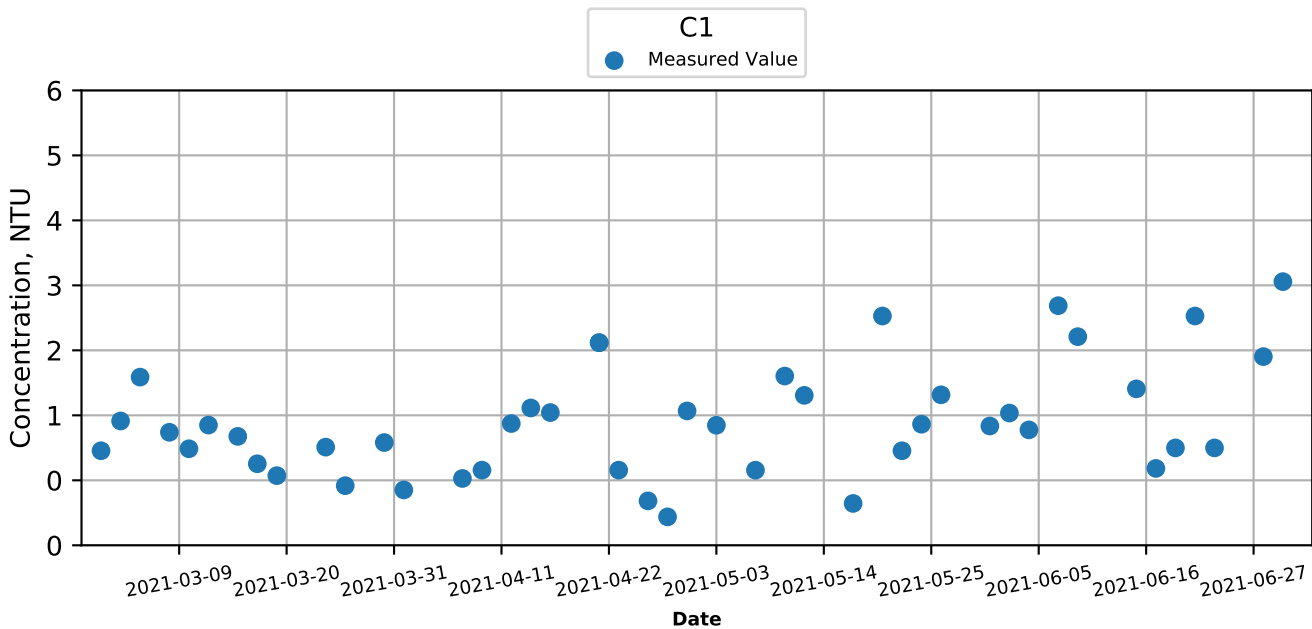
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Ebb



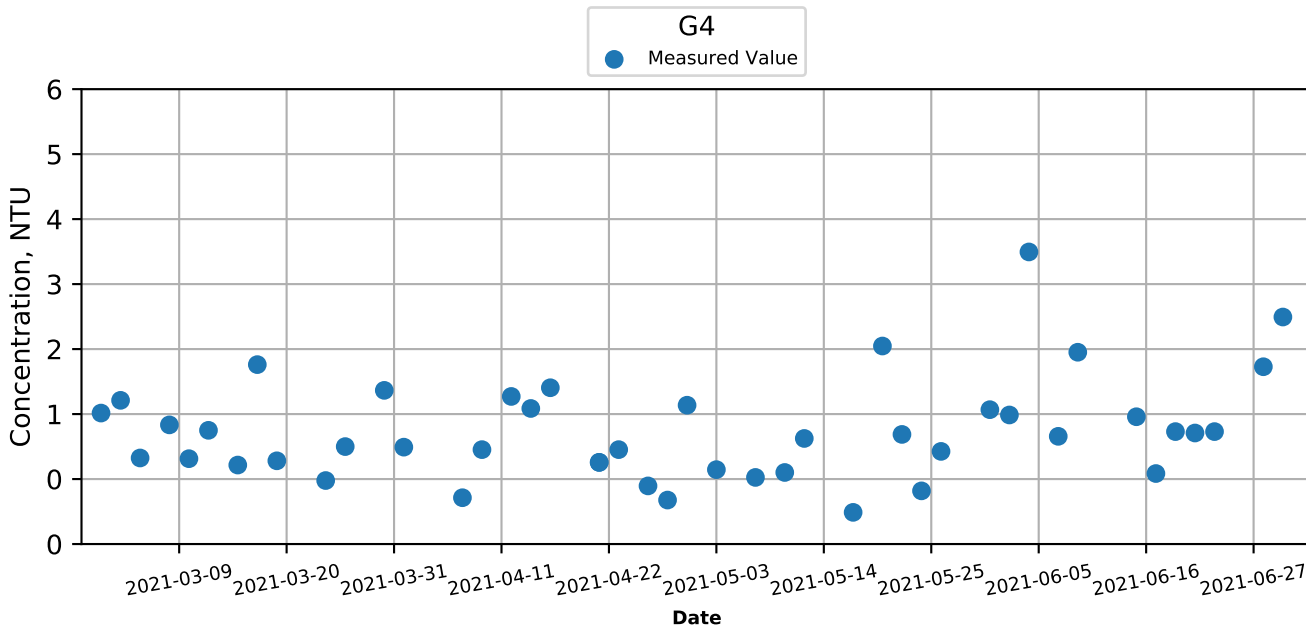
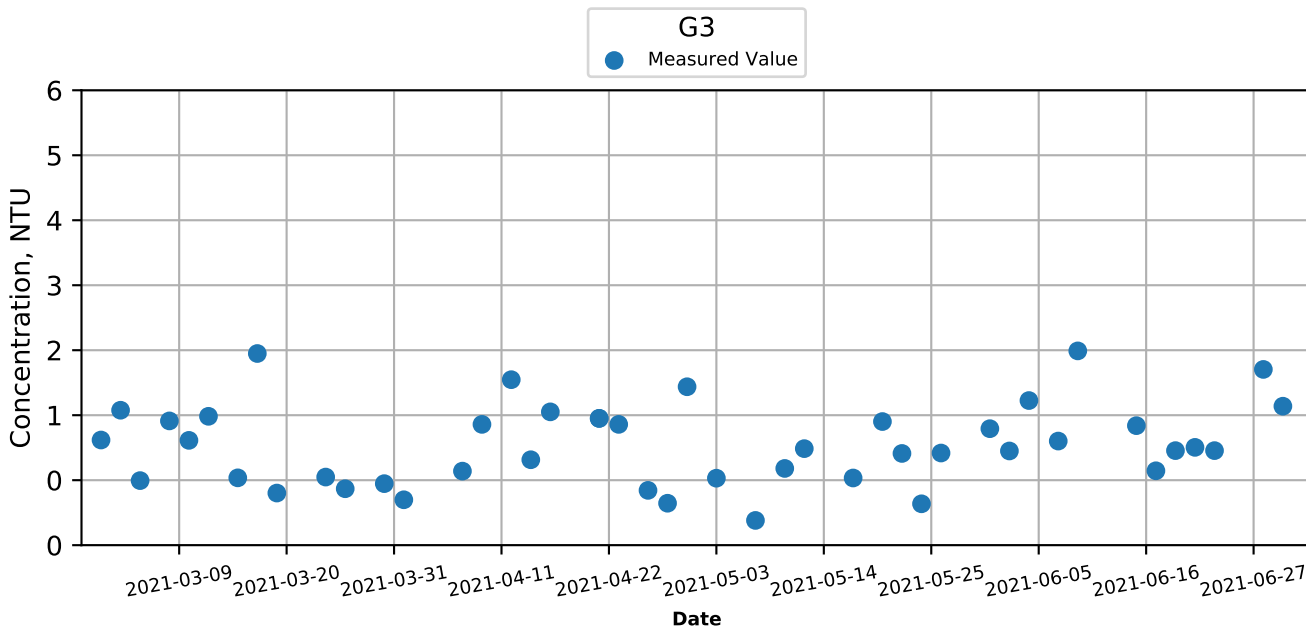
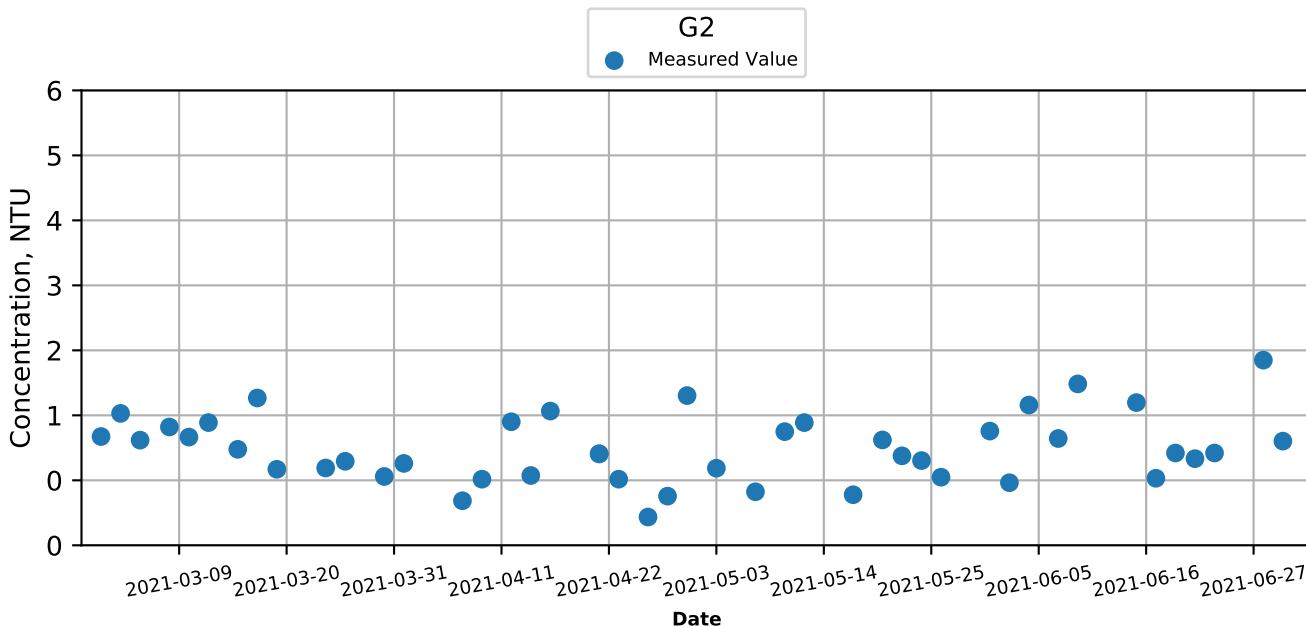
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Flood



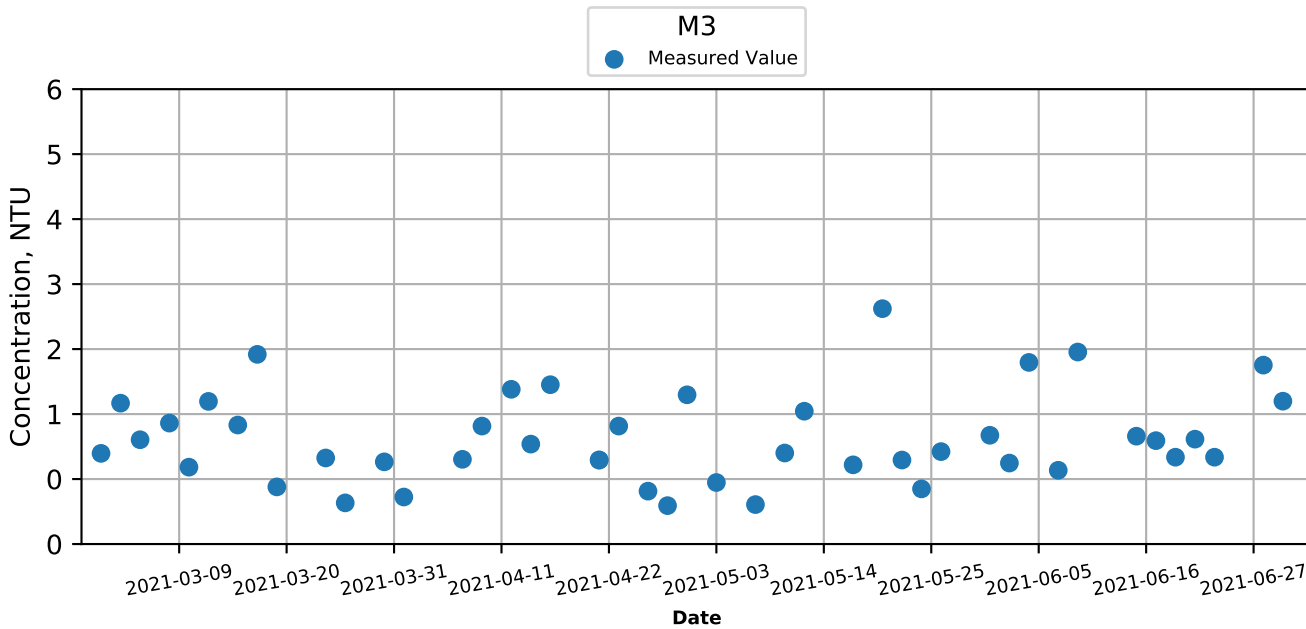
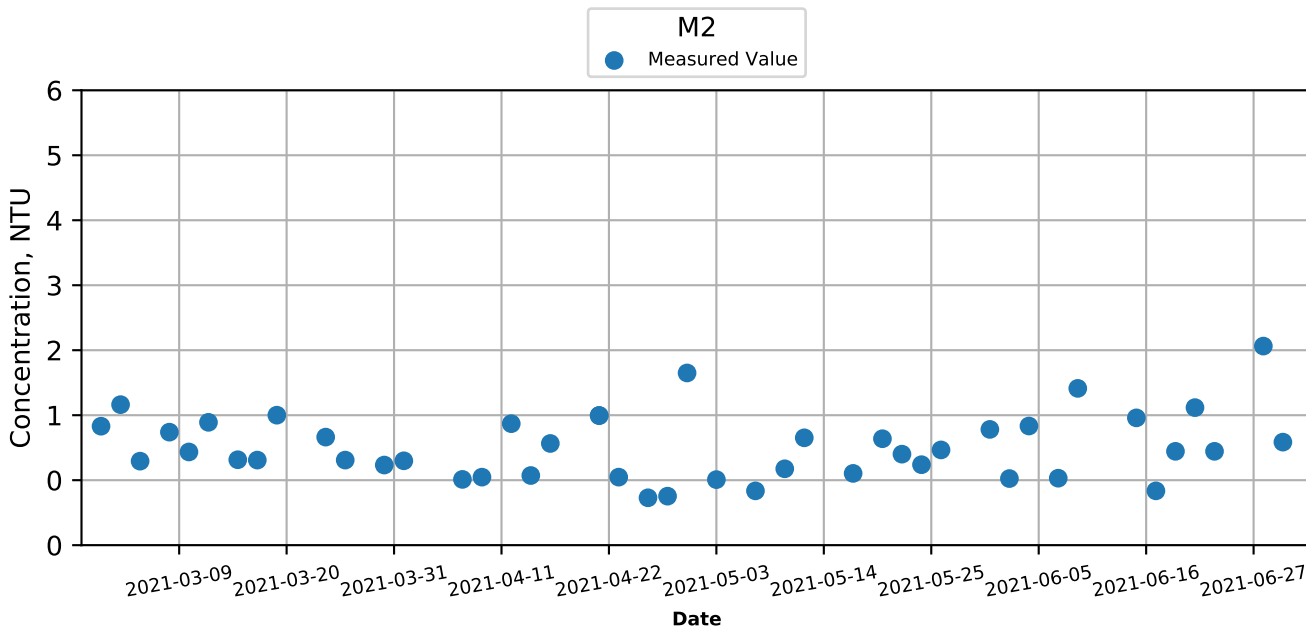
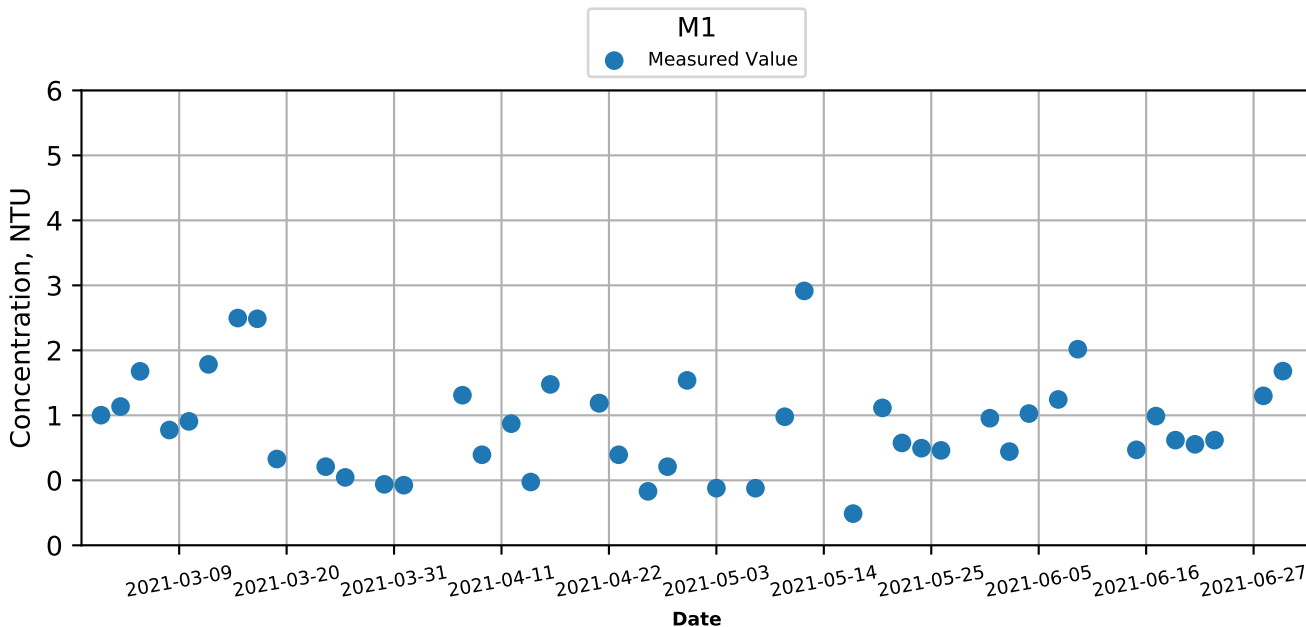
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Flood



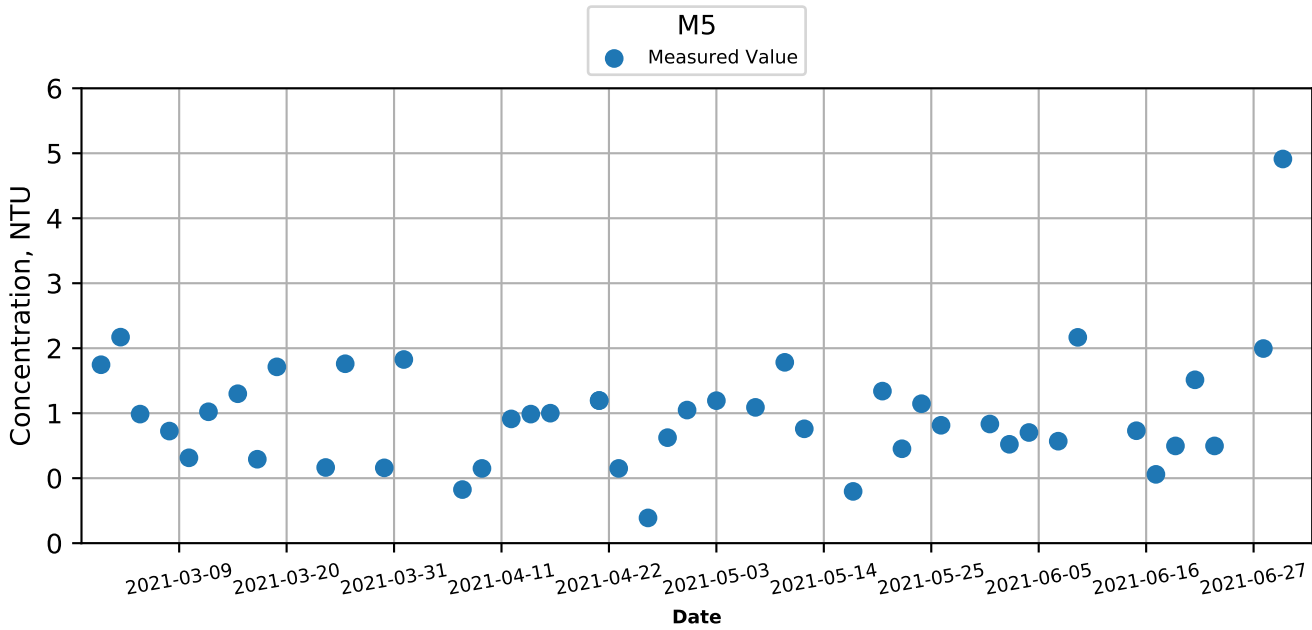
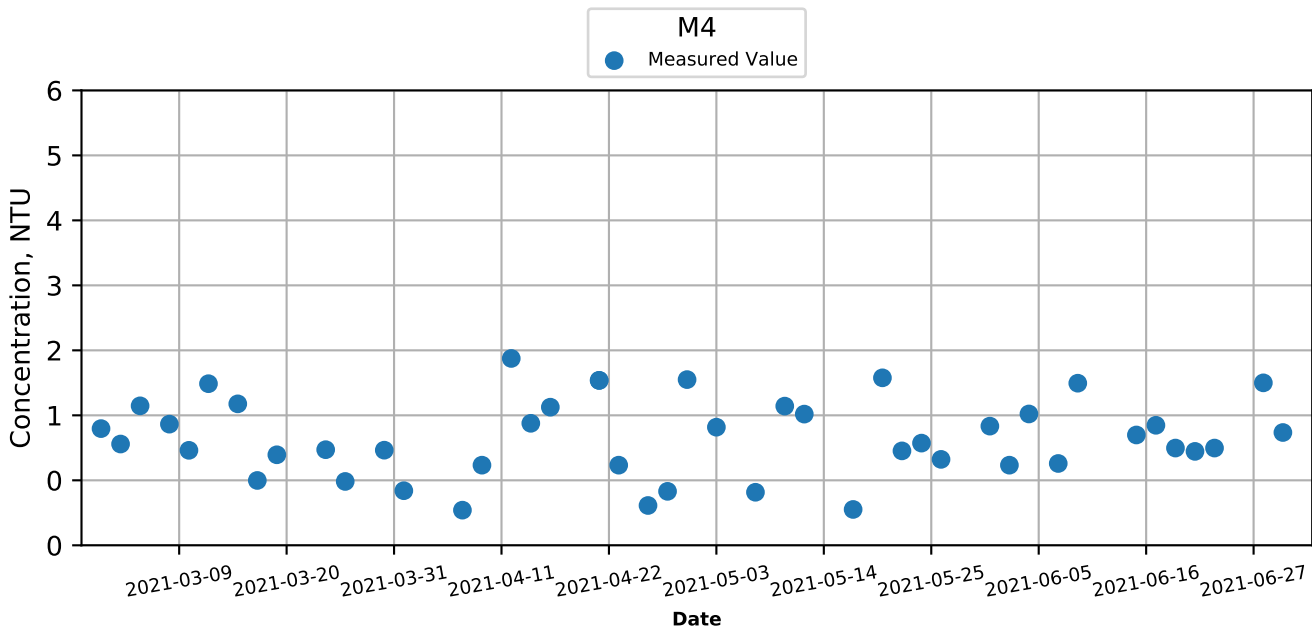
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Flood



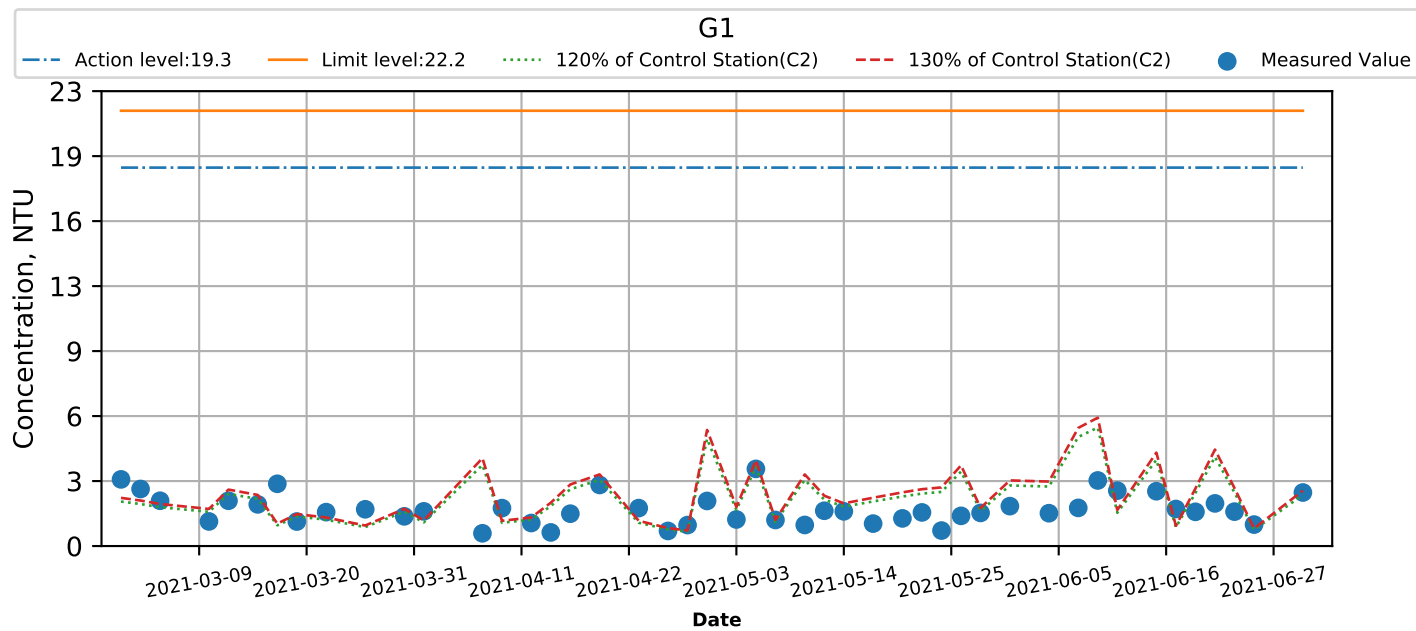
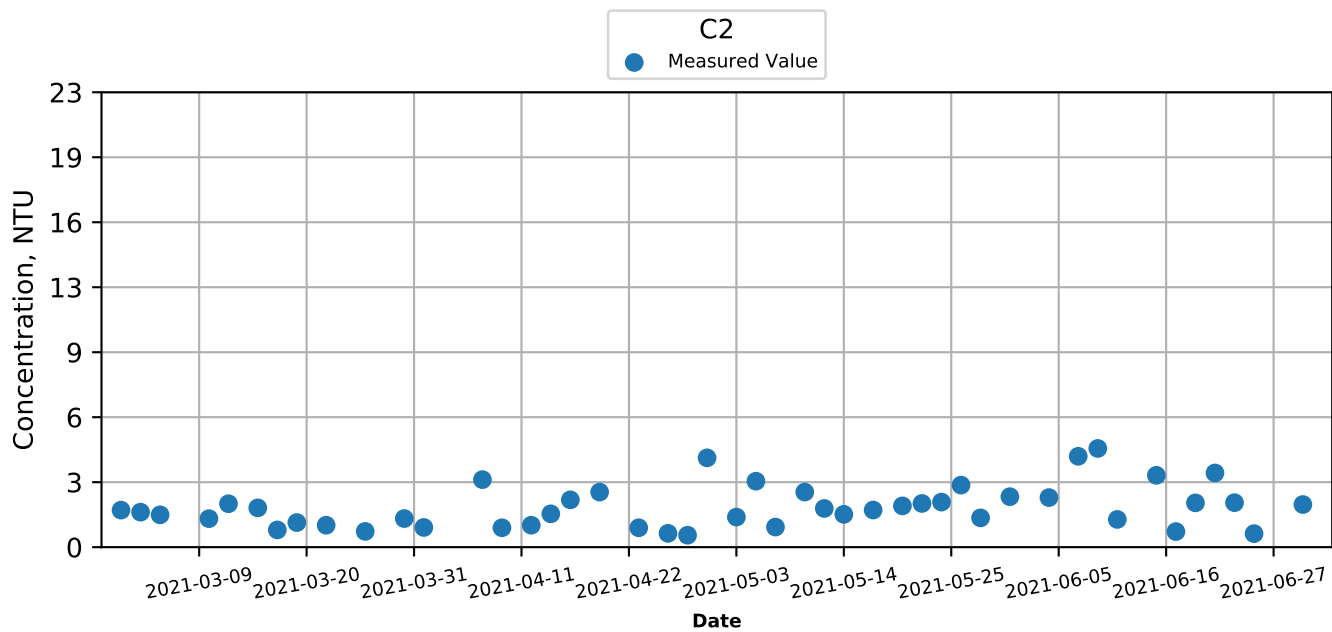
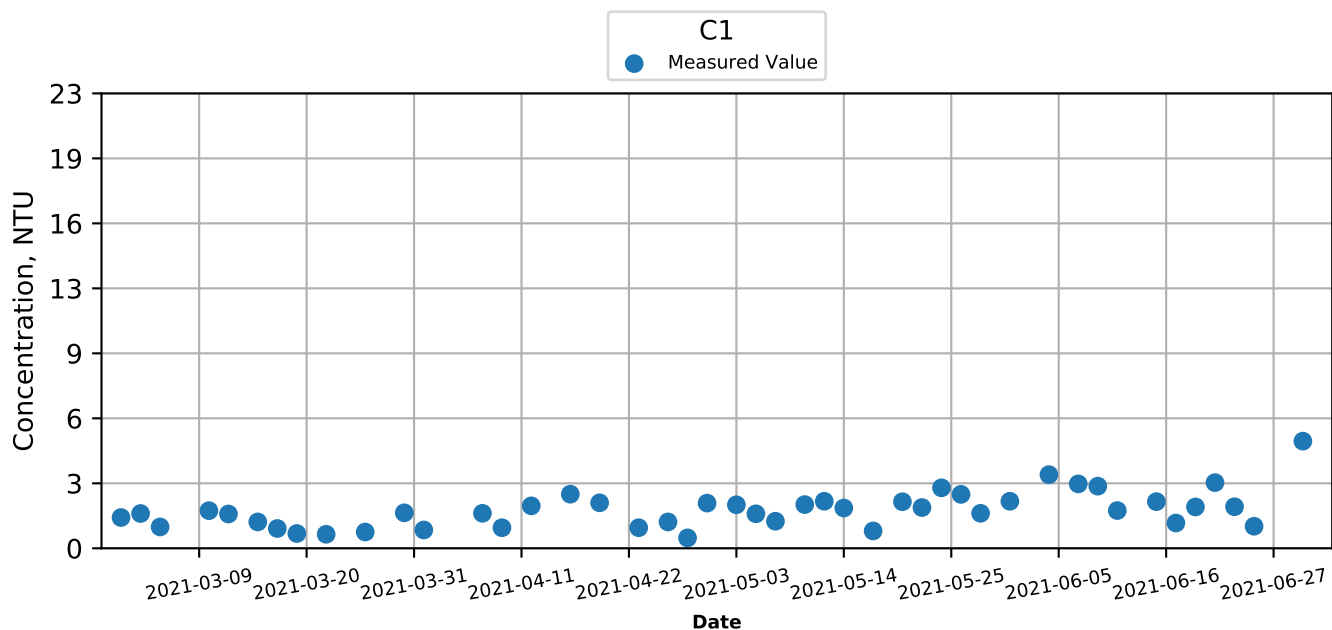
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Depth-Averaged) at Monitoring Stations during Mid-Flood



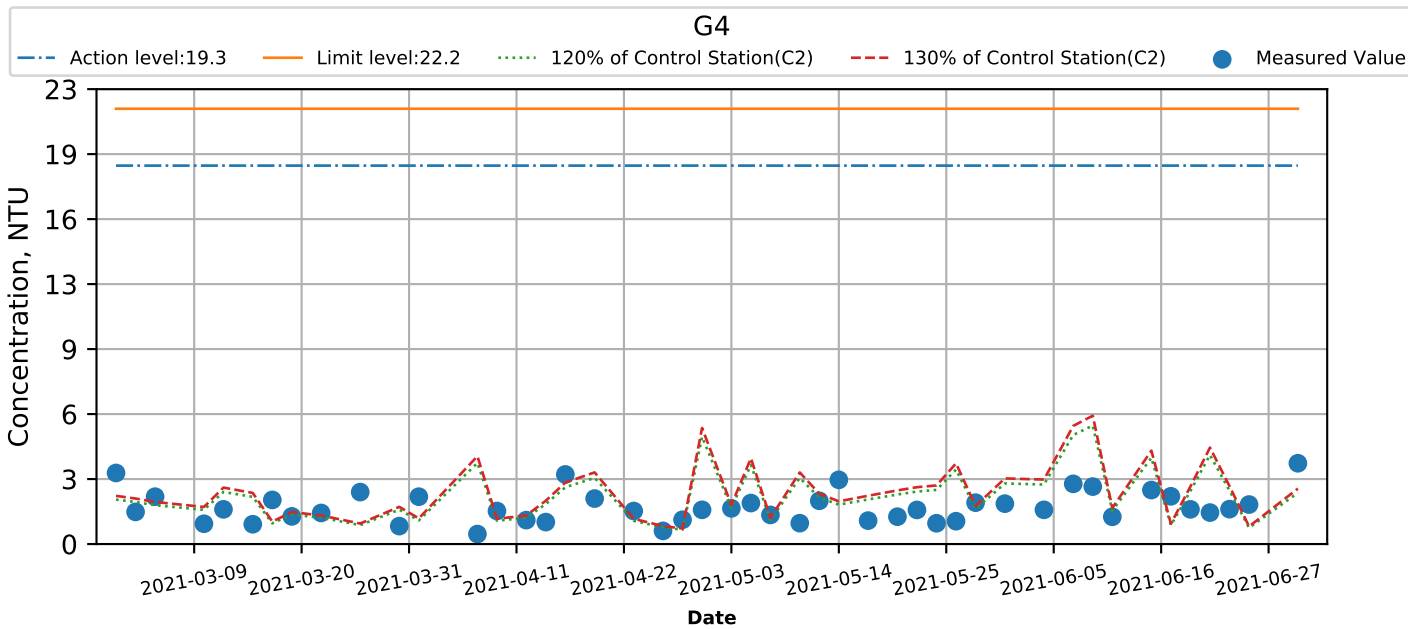
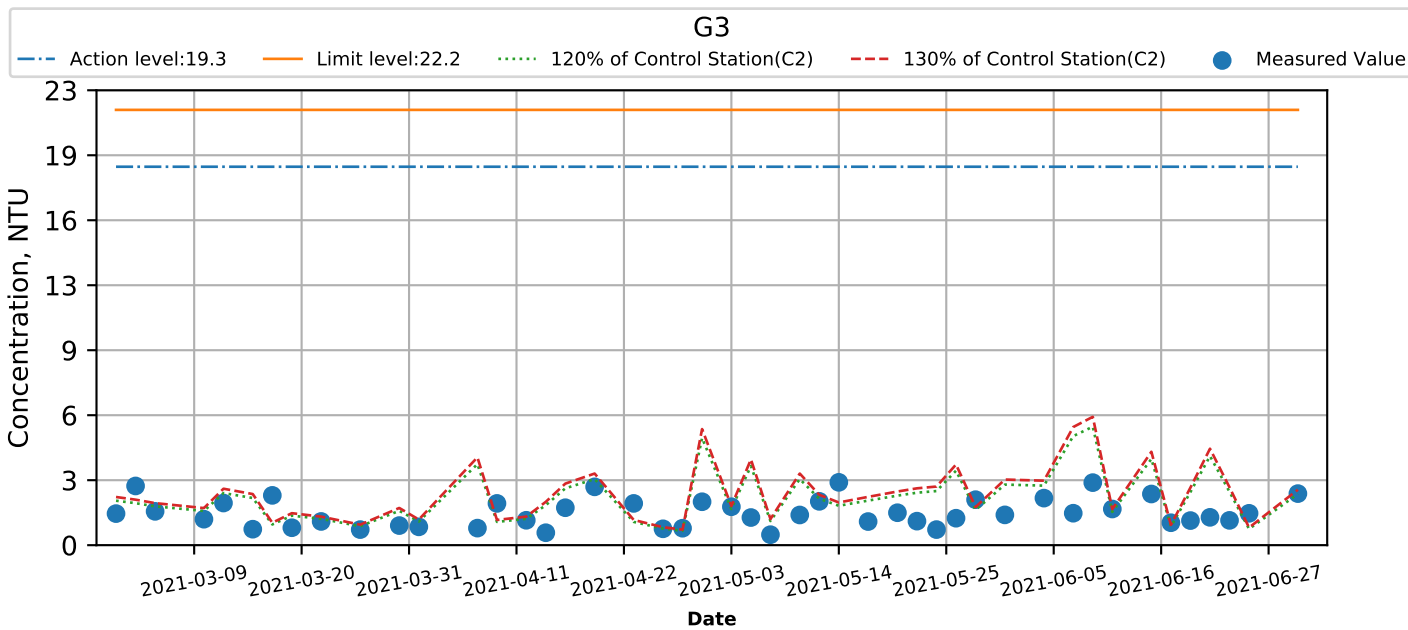
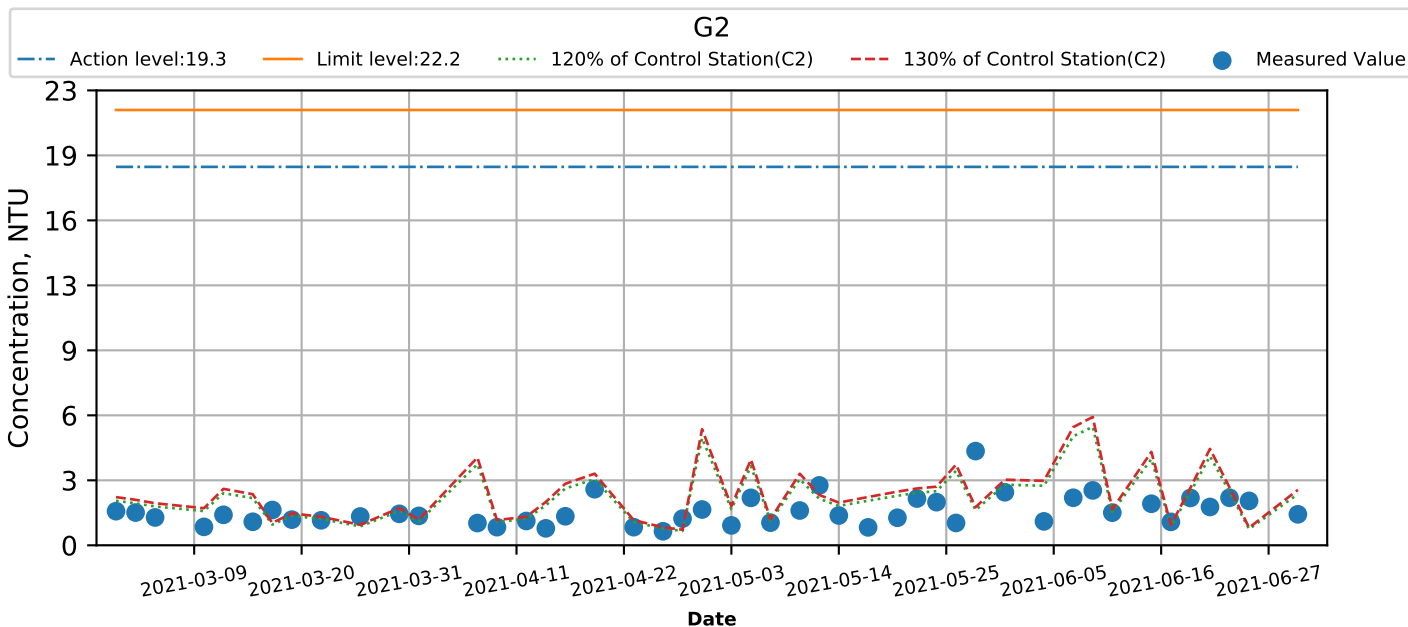
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Ebb



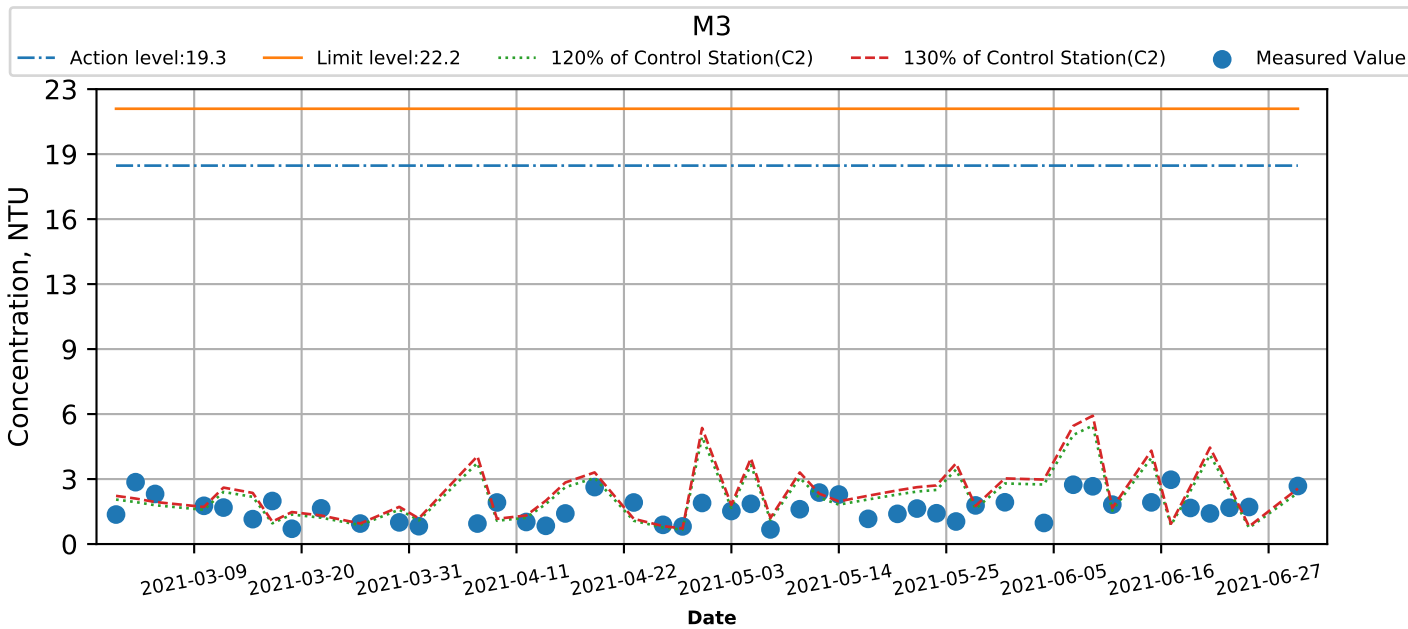
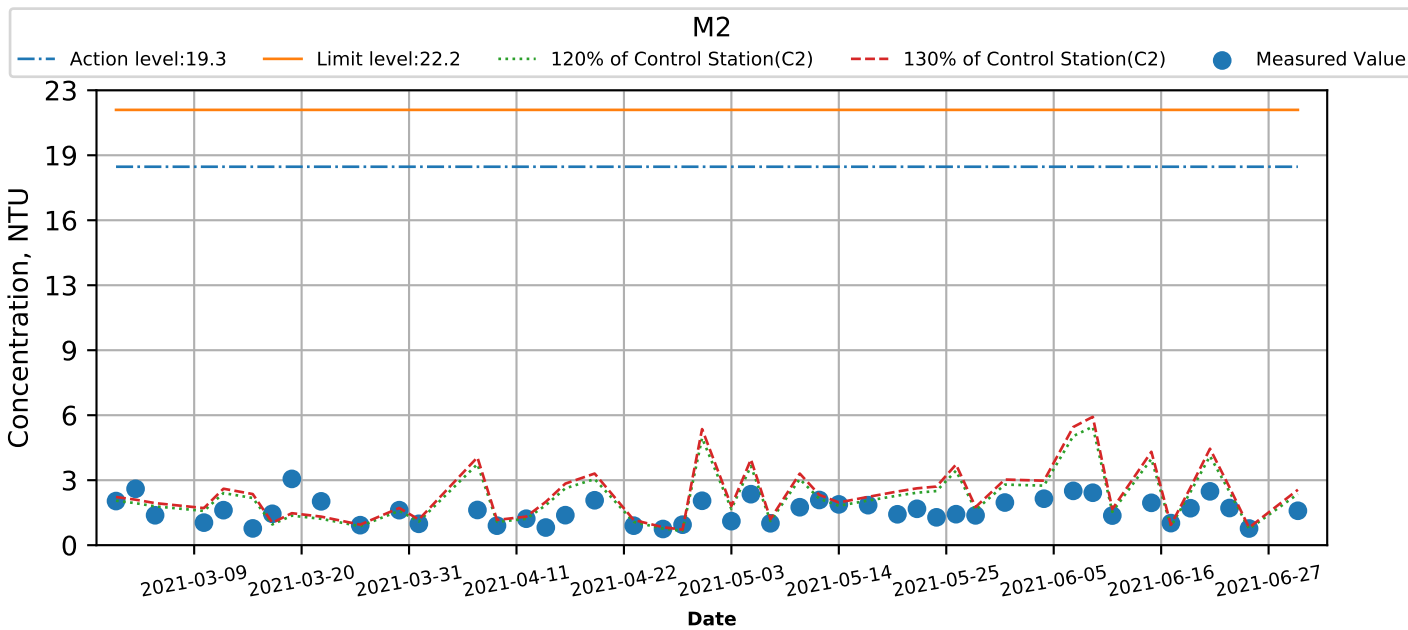
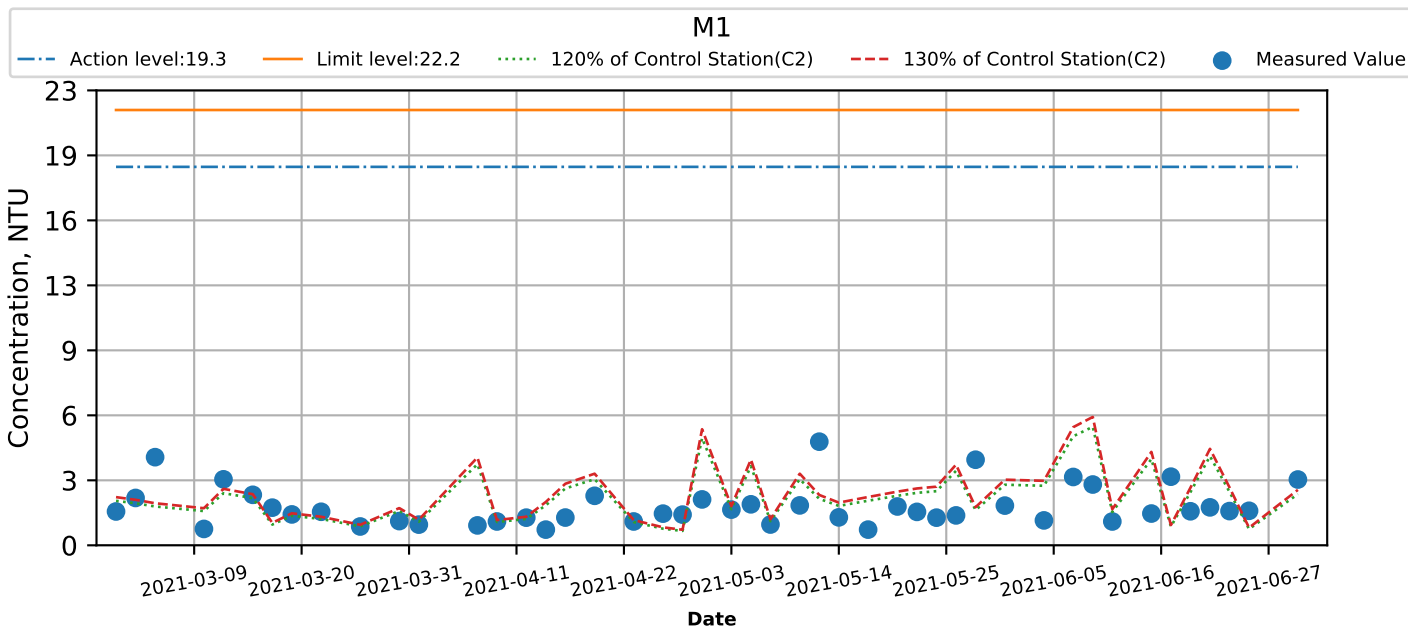
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Ebb



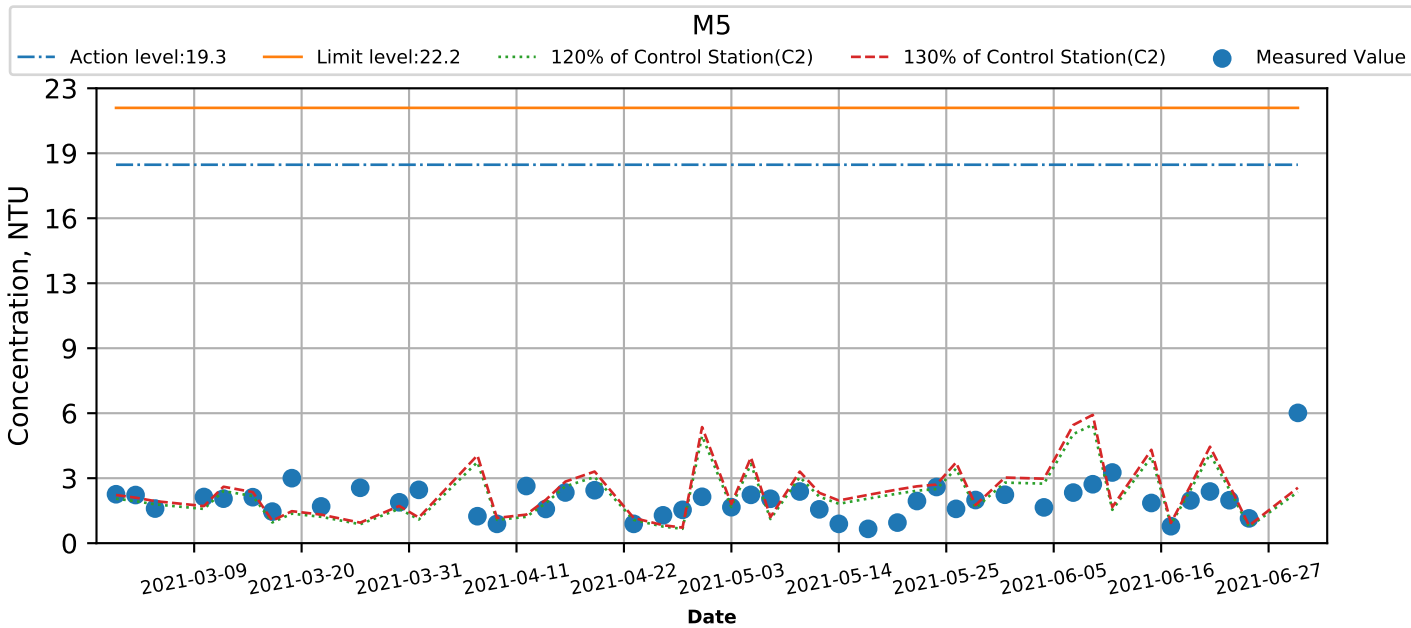
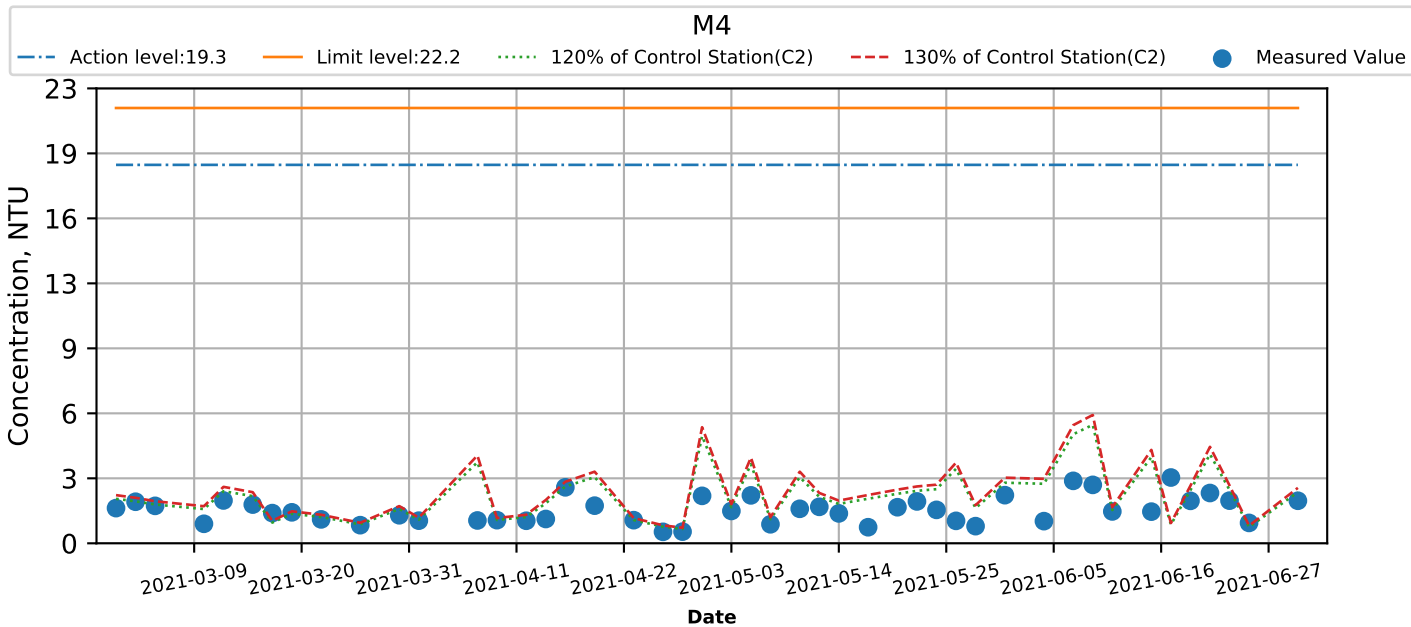
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Ebb



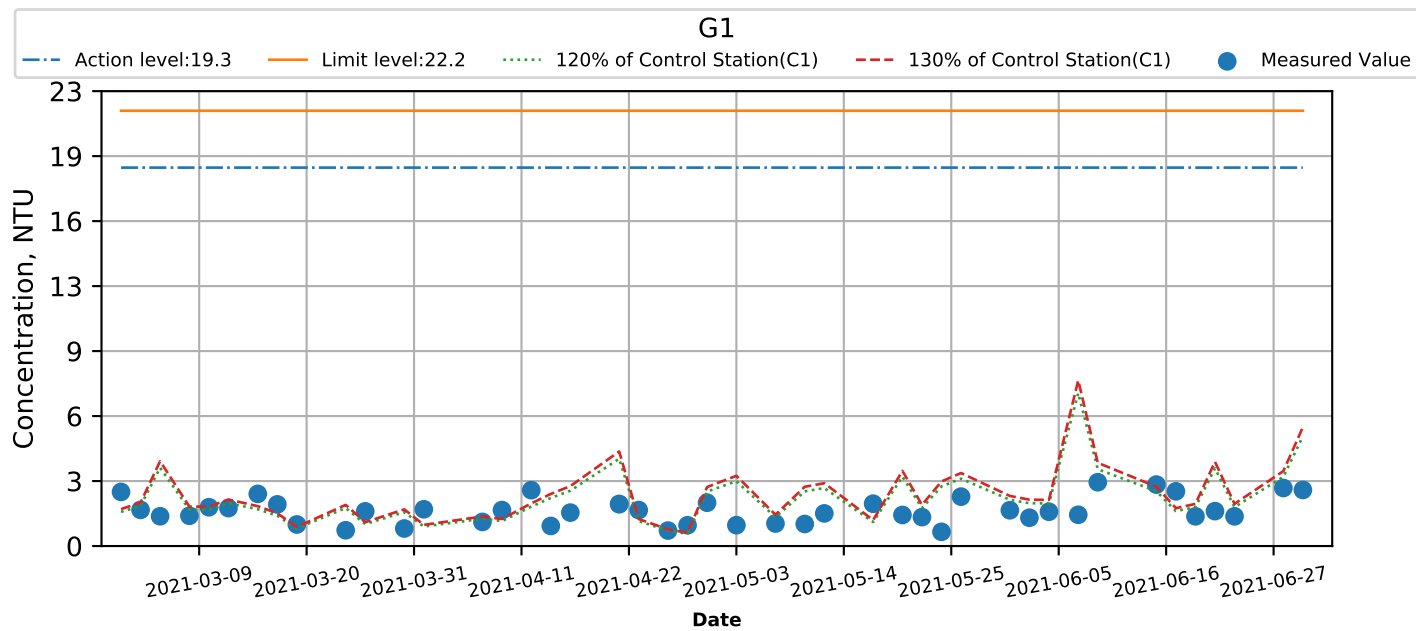
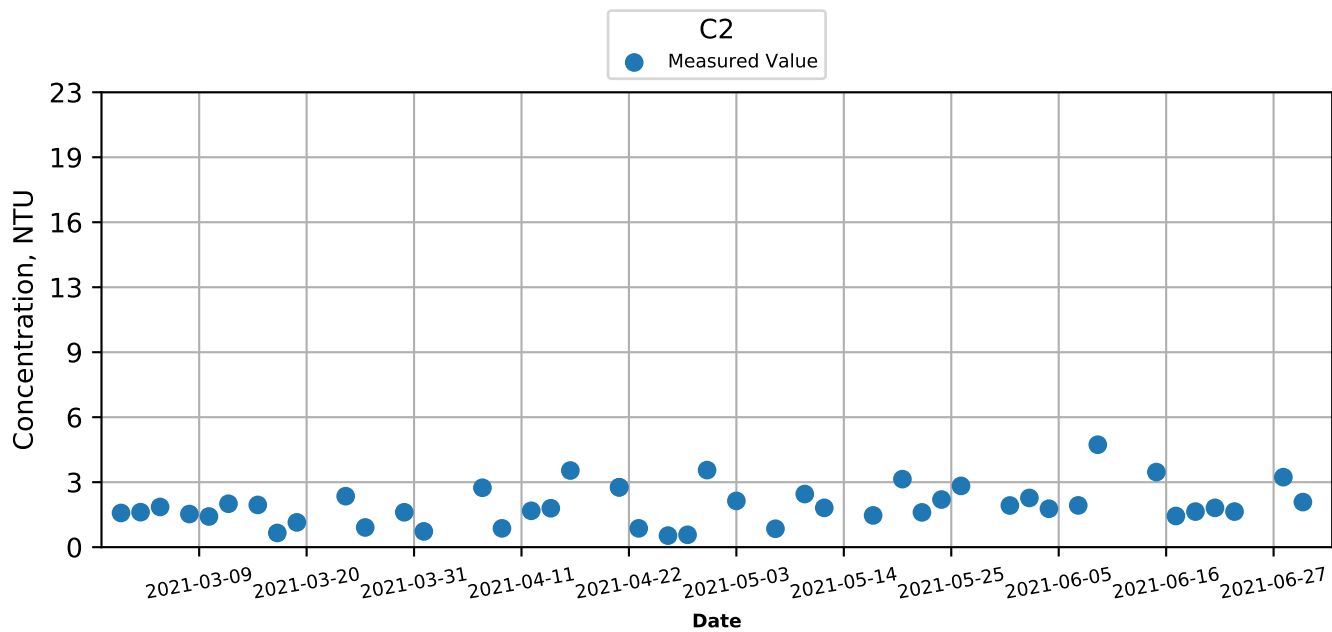
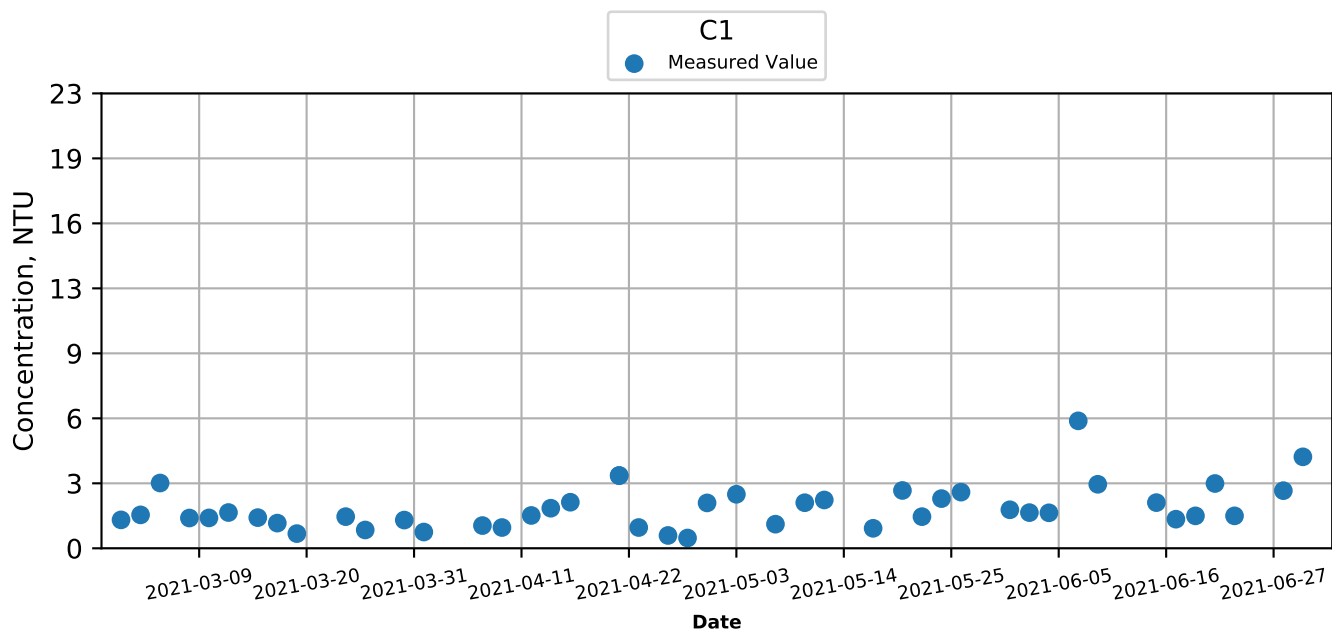
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Ebb



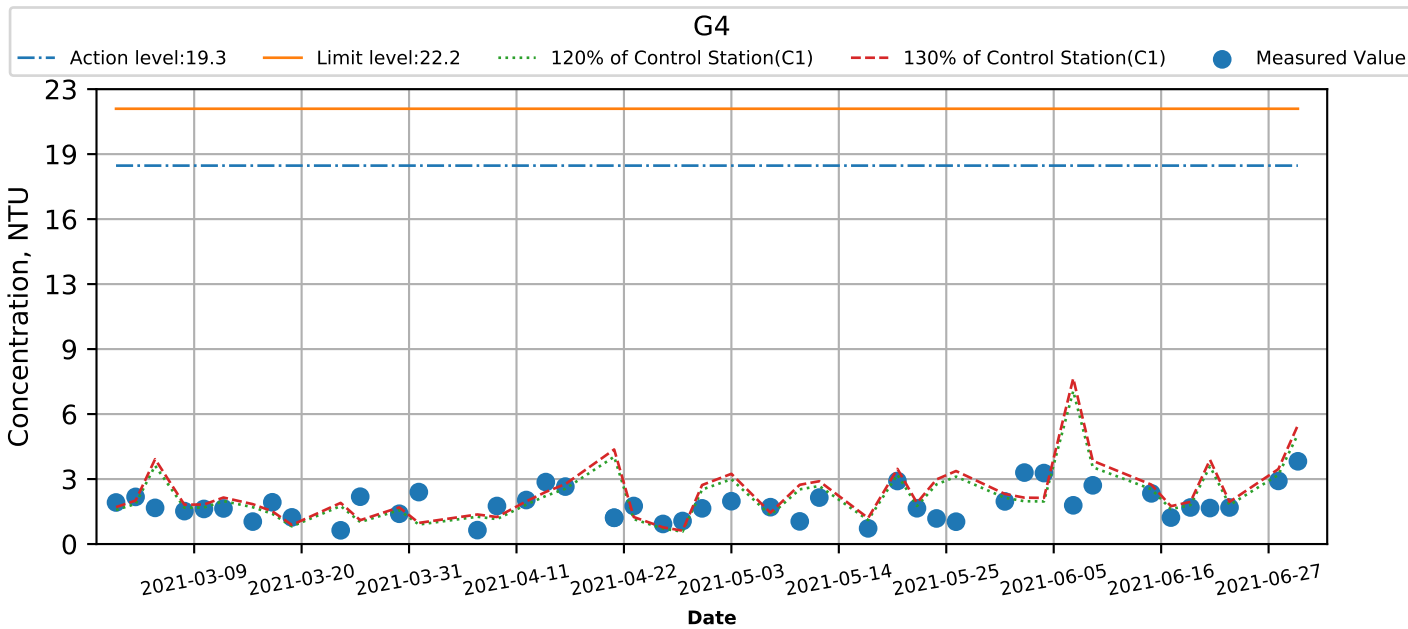
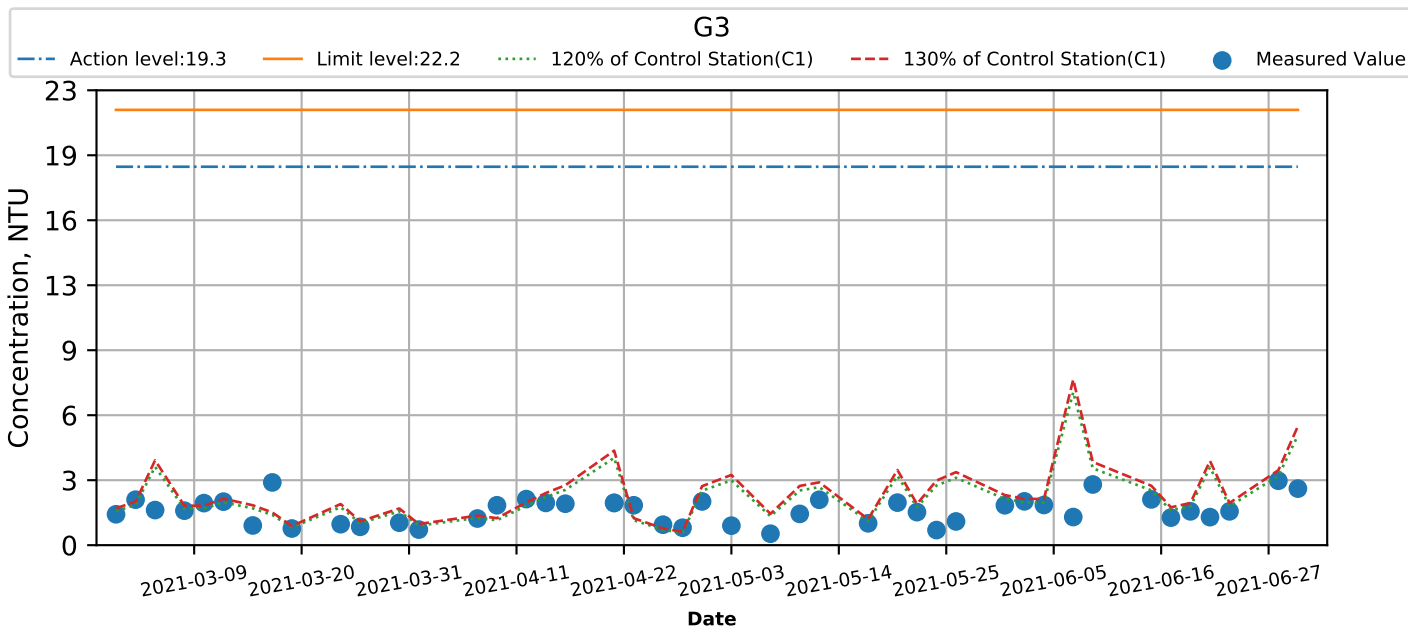
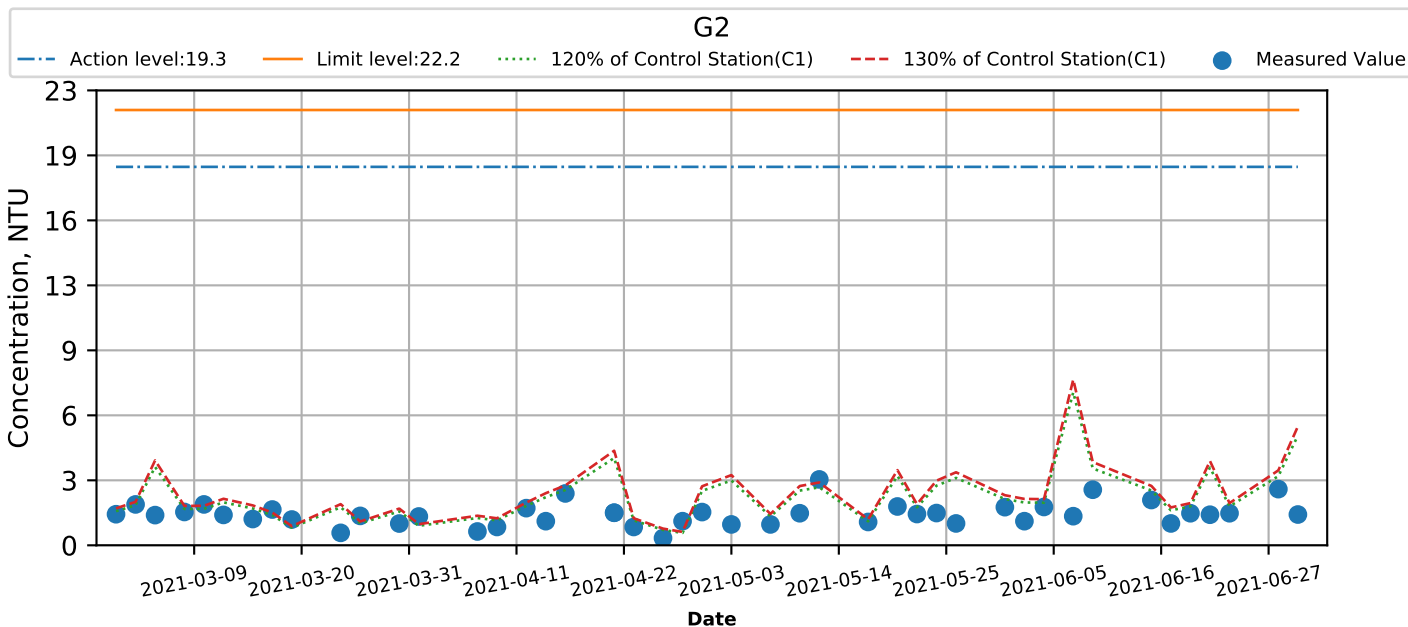
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Flood



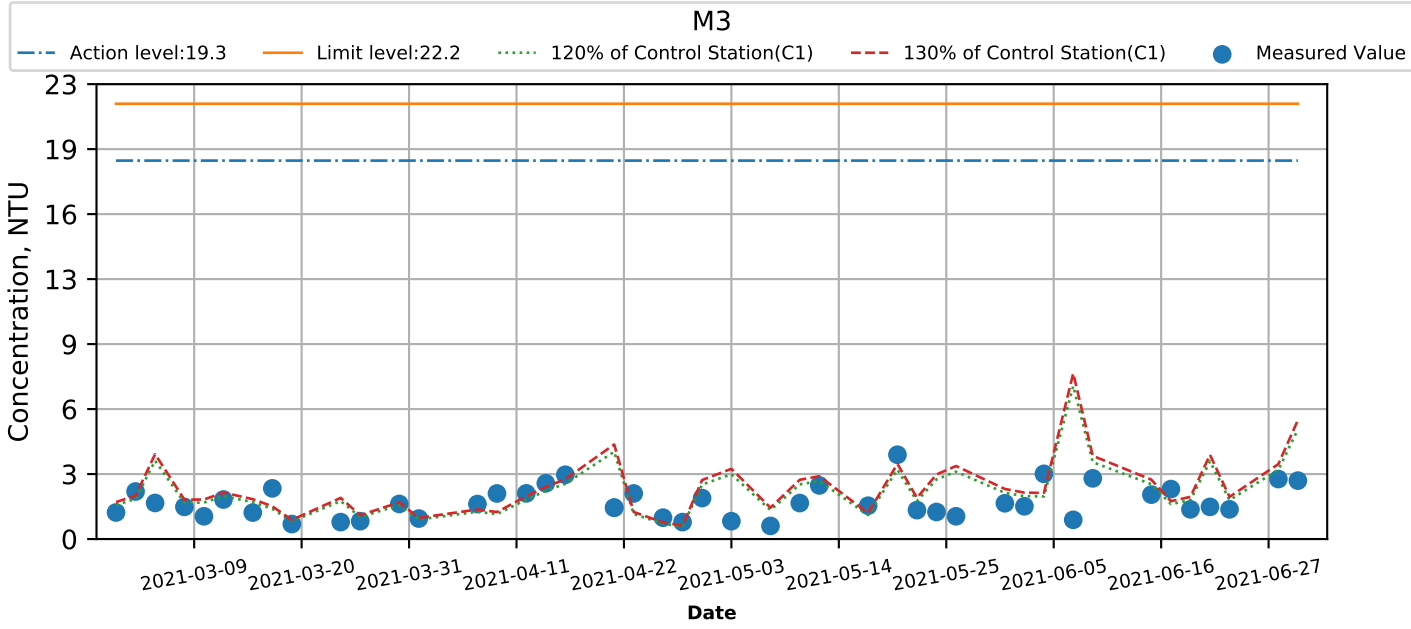
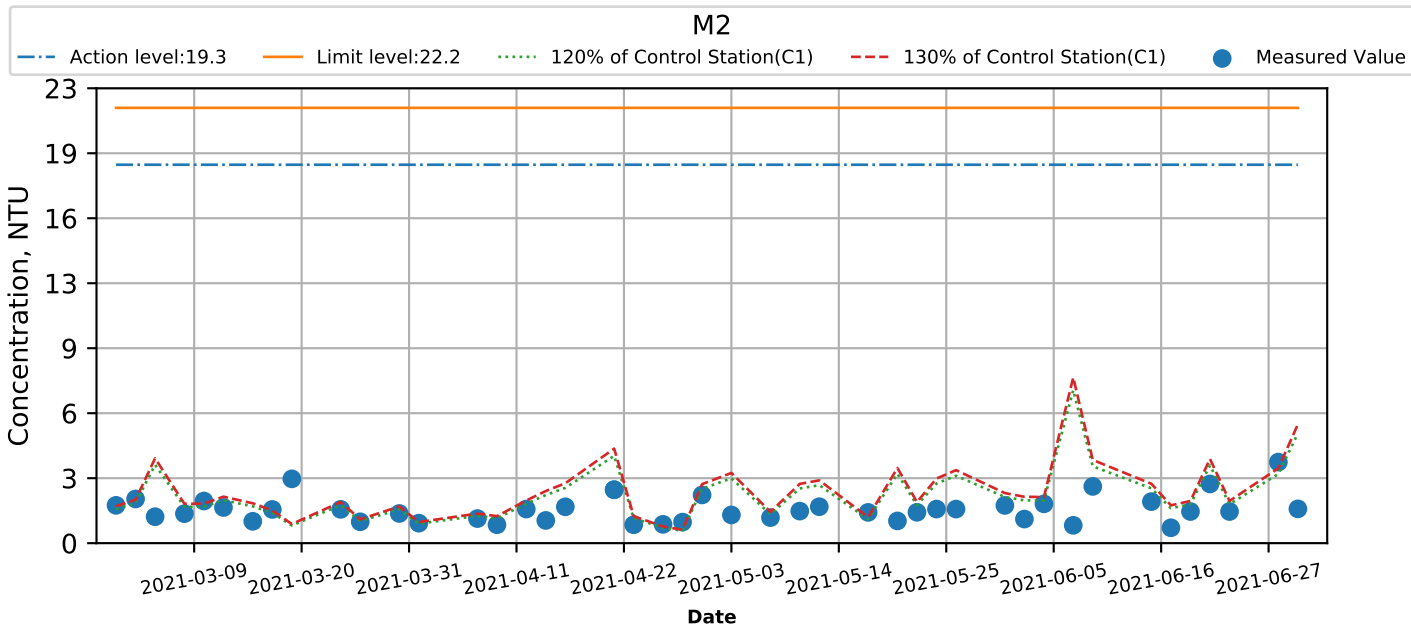
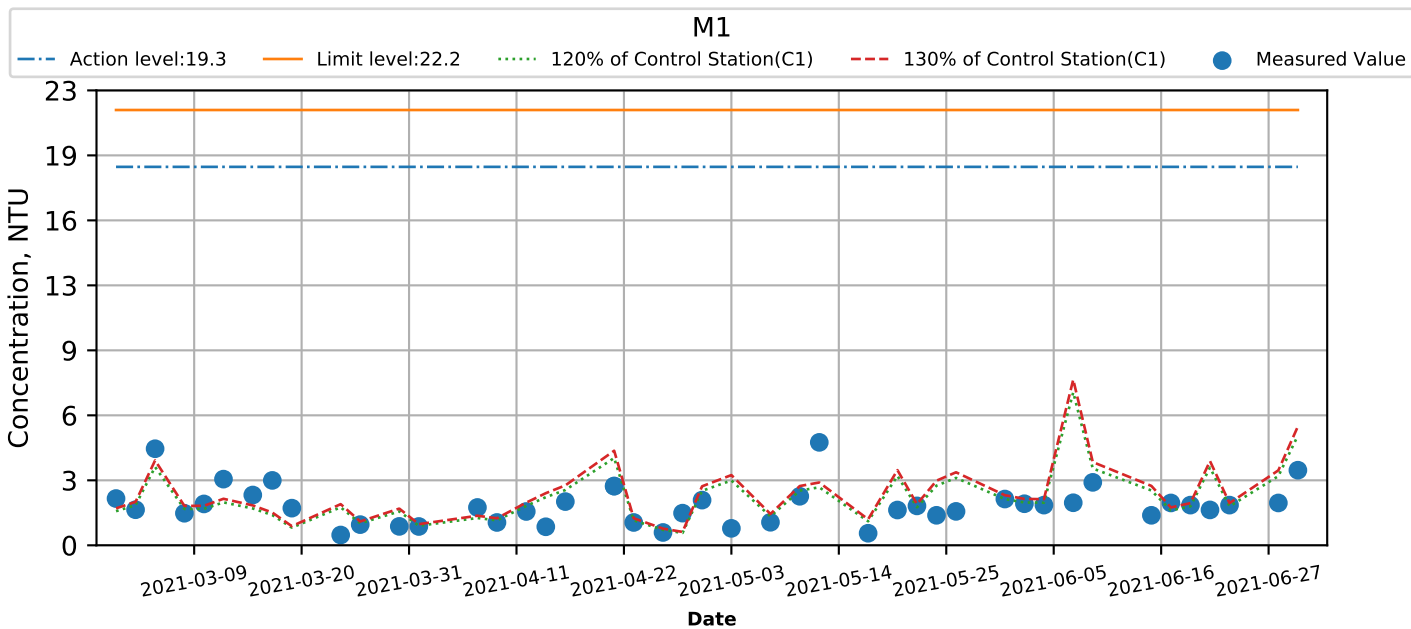
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Flood



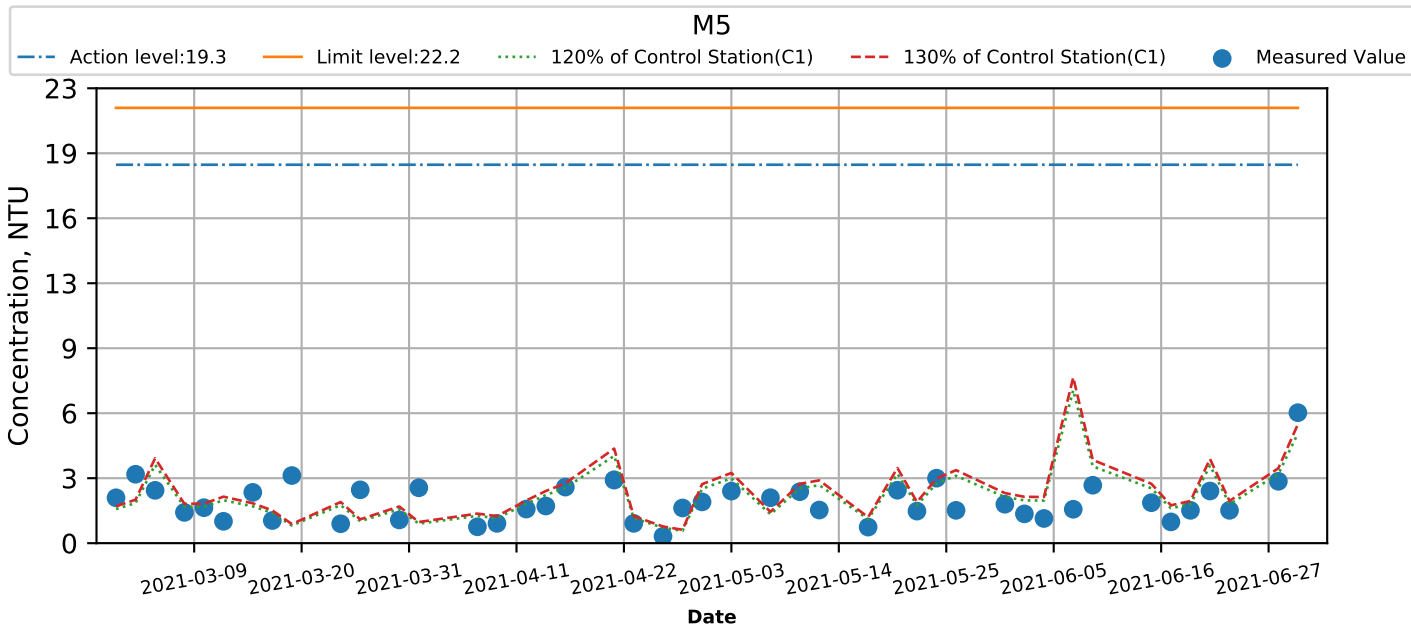
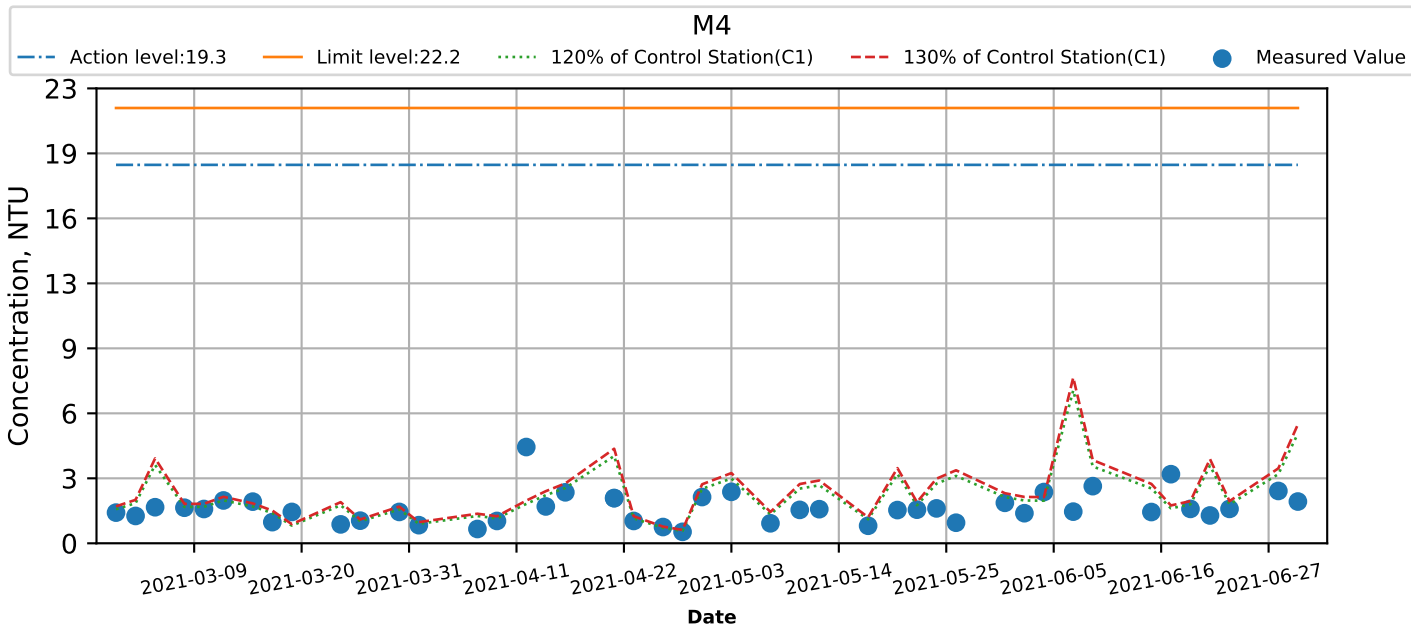
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Flood



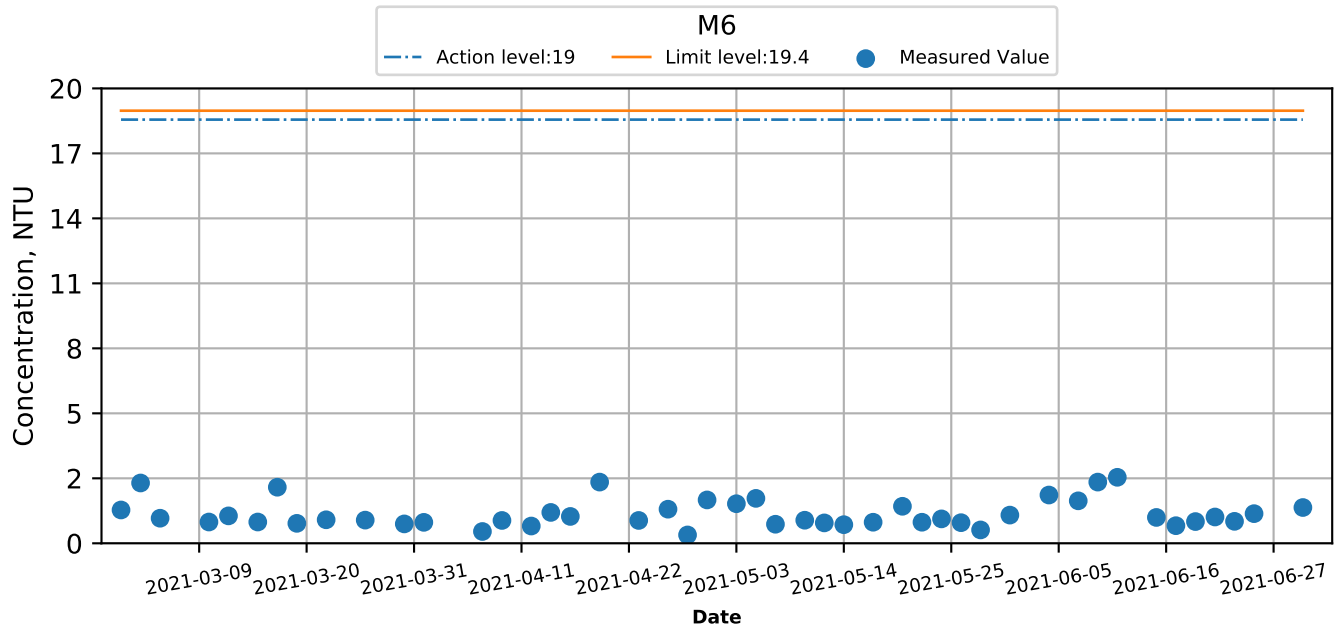
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Bottom) at Monitoring Stations during Mid-Flood



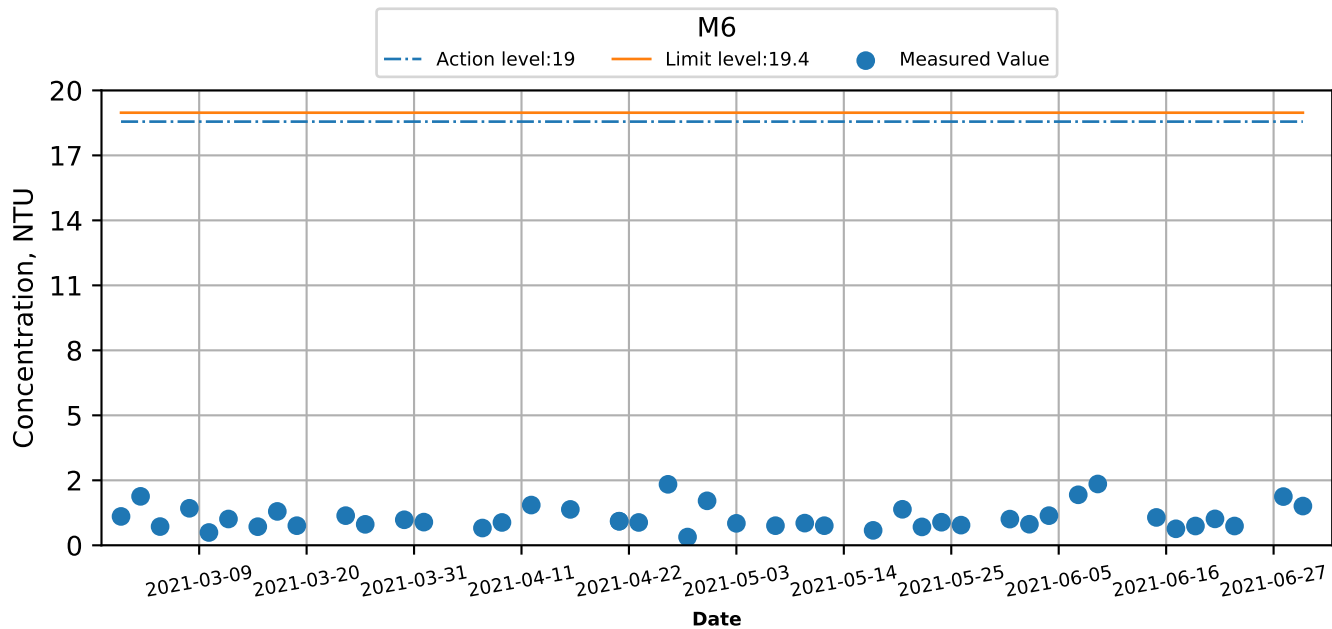
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Intake level) at Monitoring Stations during Mid-Ebb



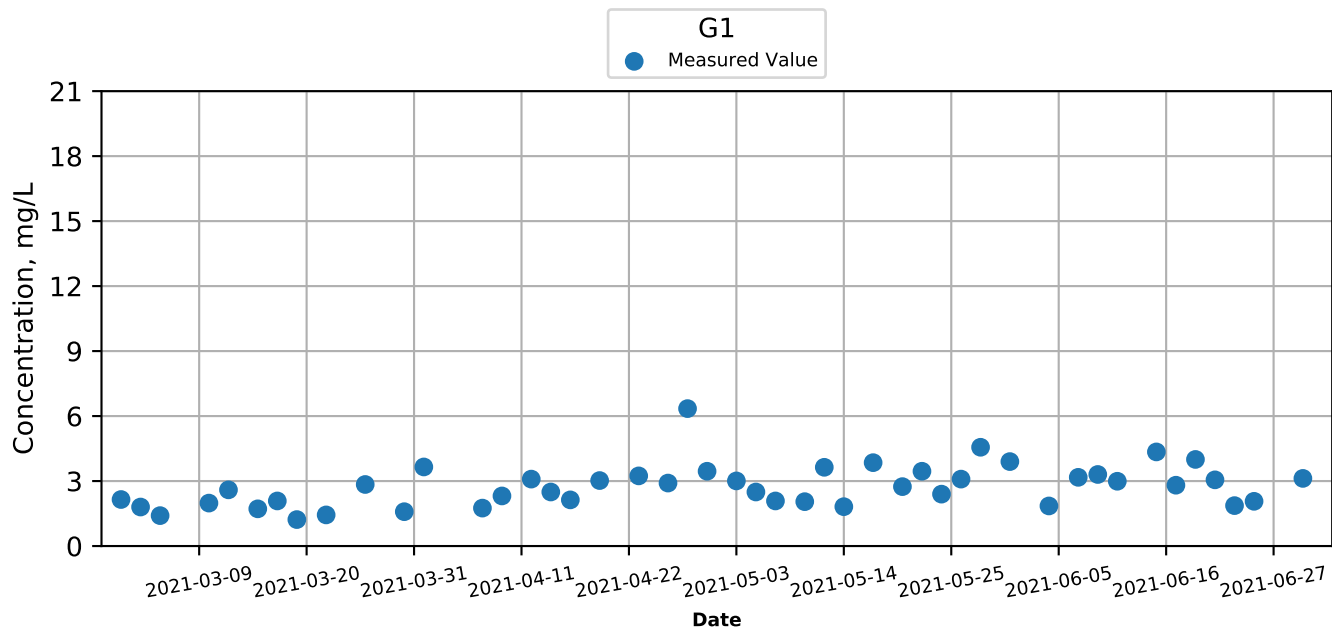
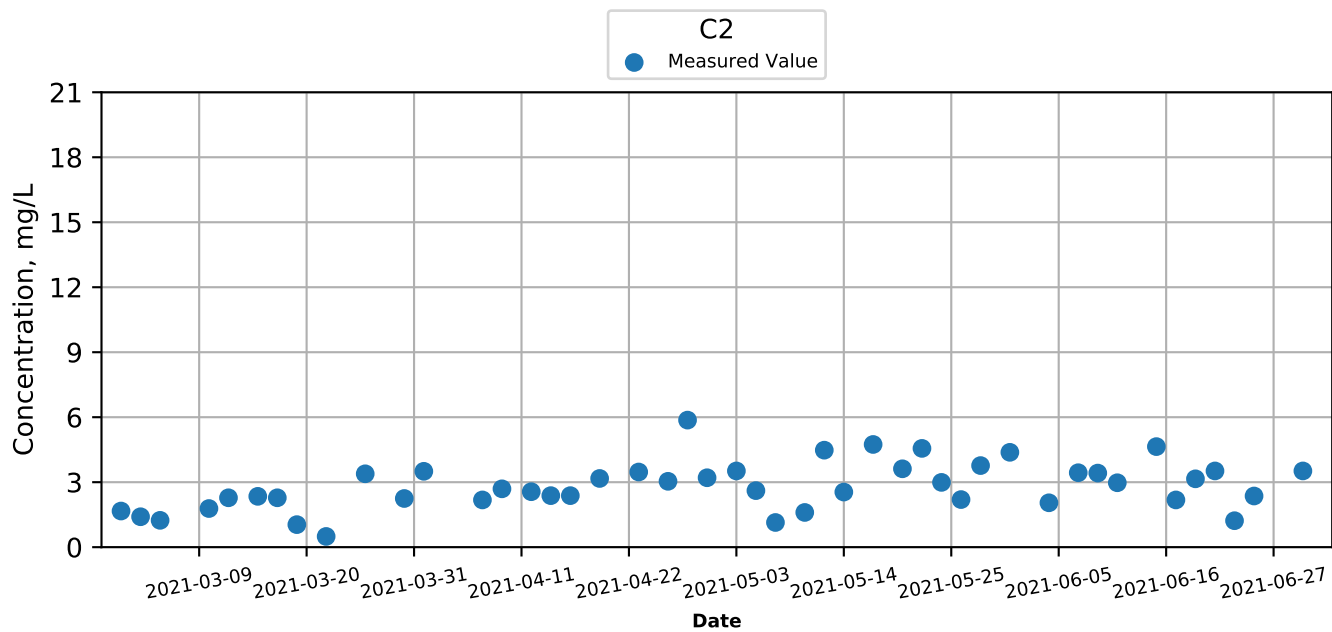
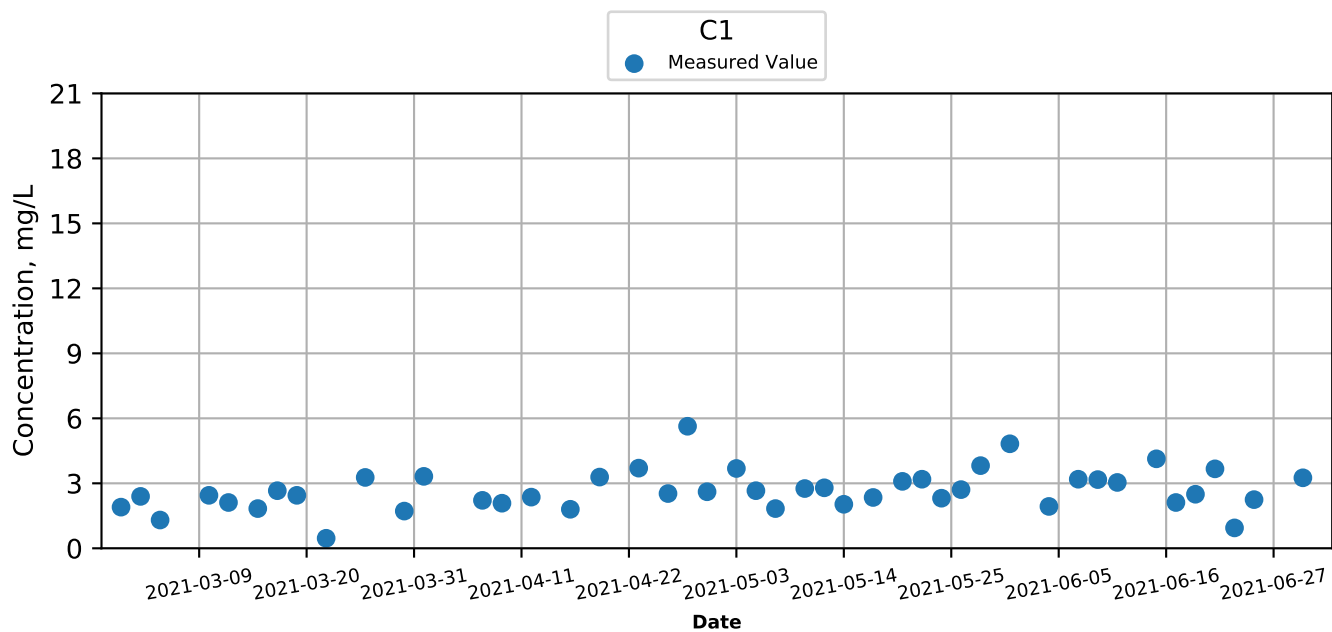
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Turbidity (Intake level) at Monitoring Stations during Mid-Flood



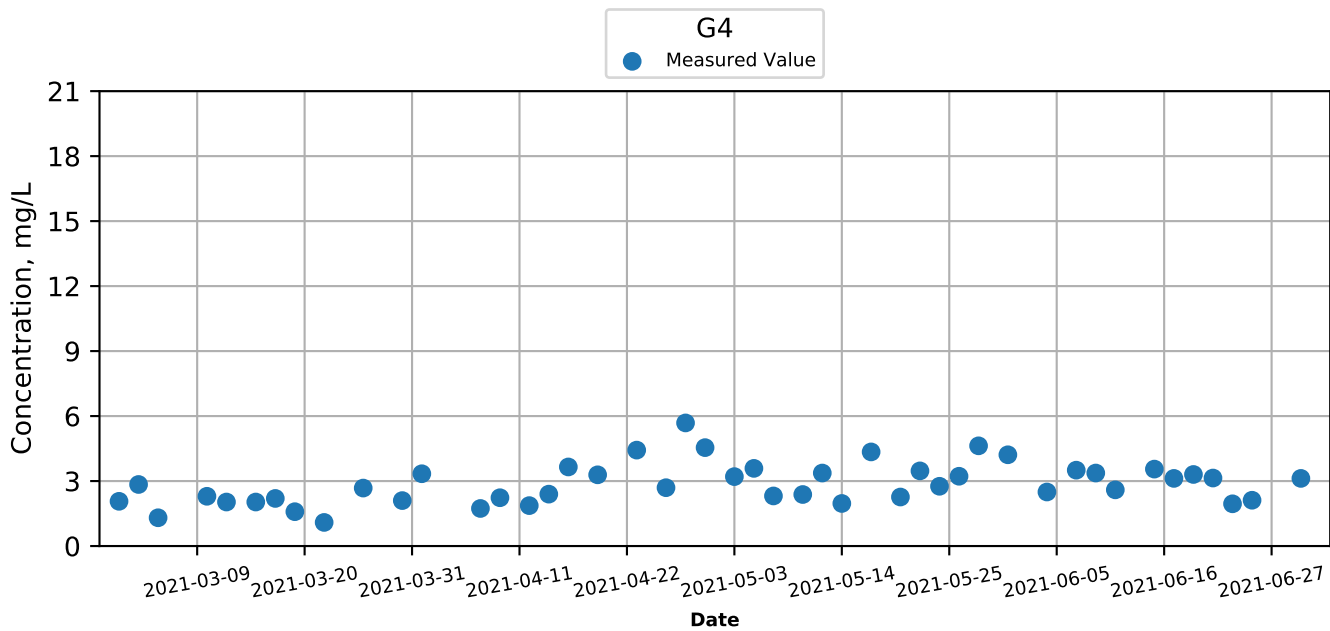
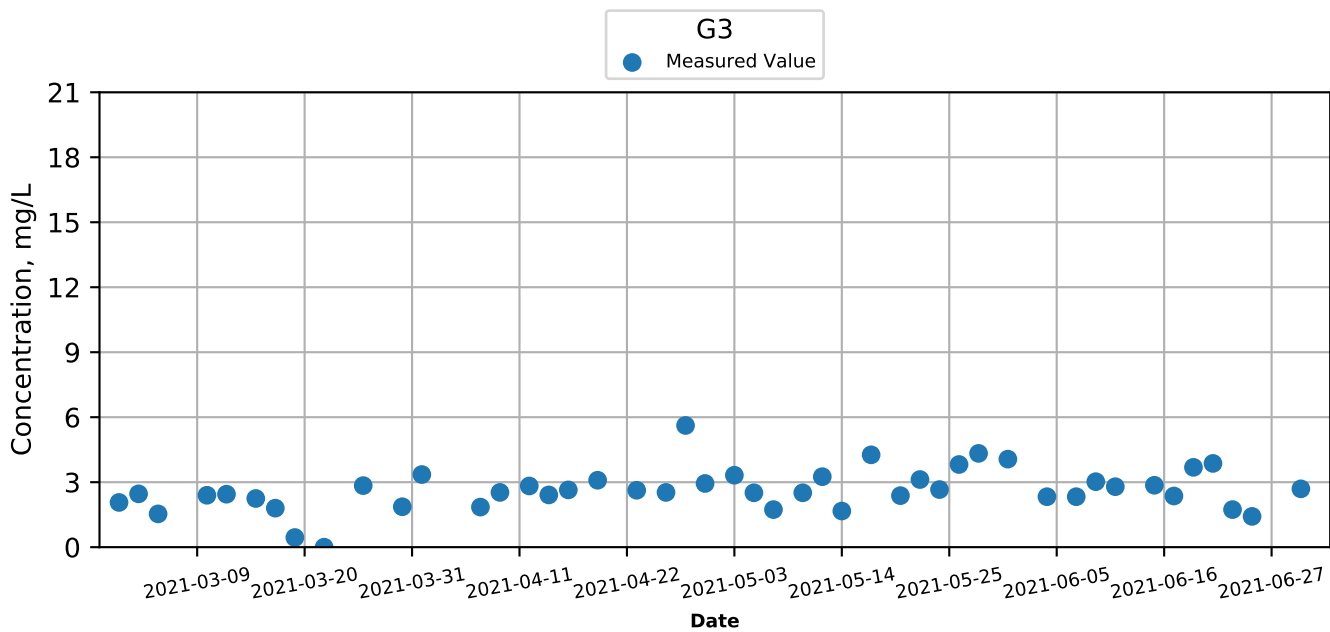
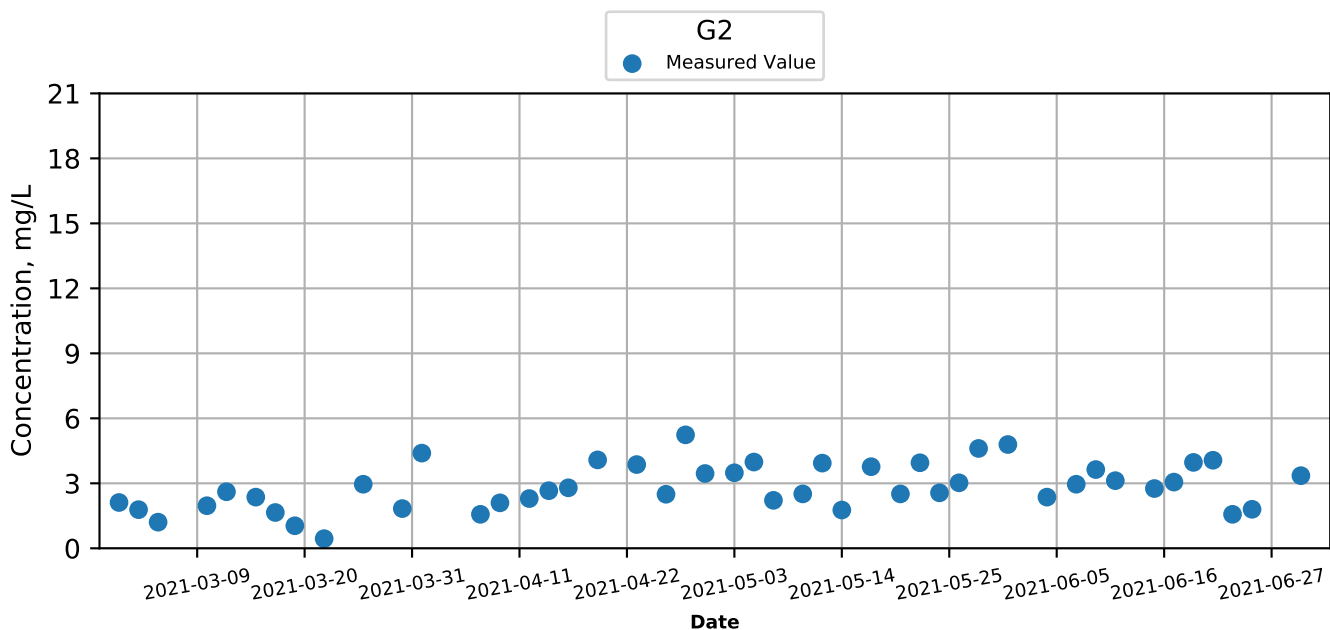
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Ebb



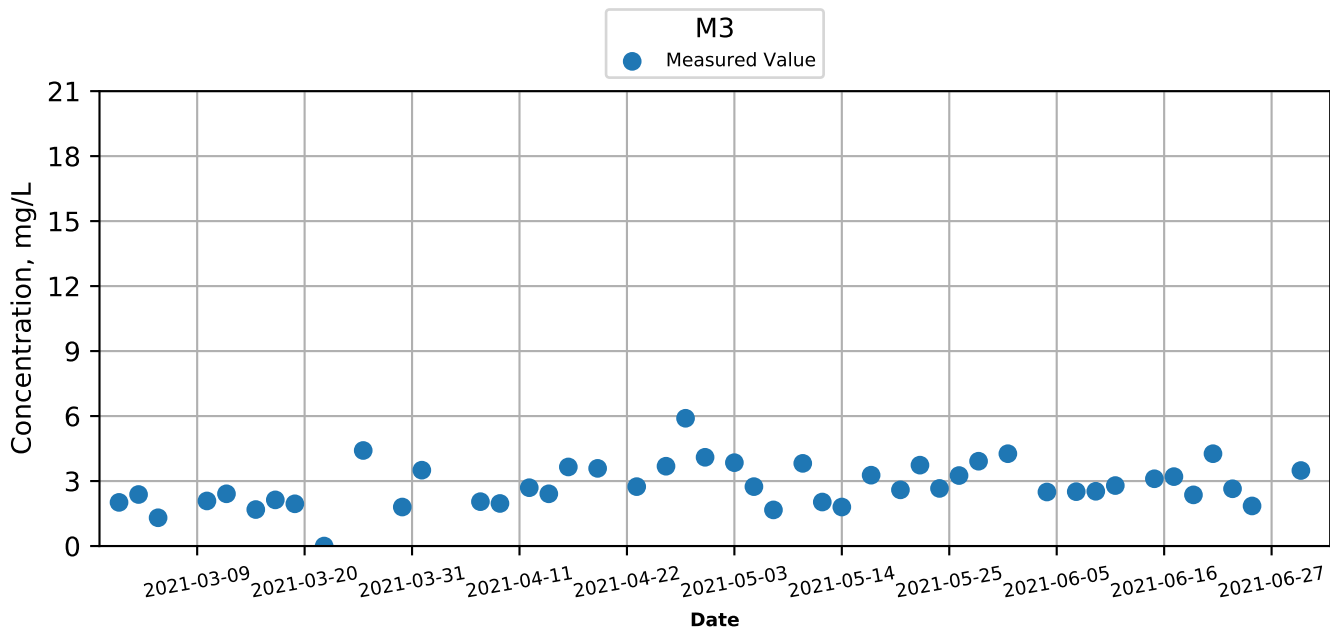
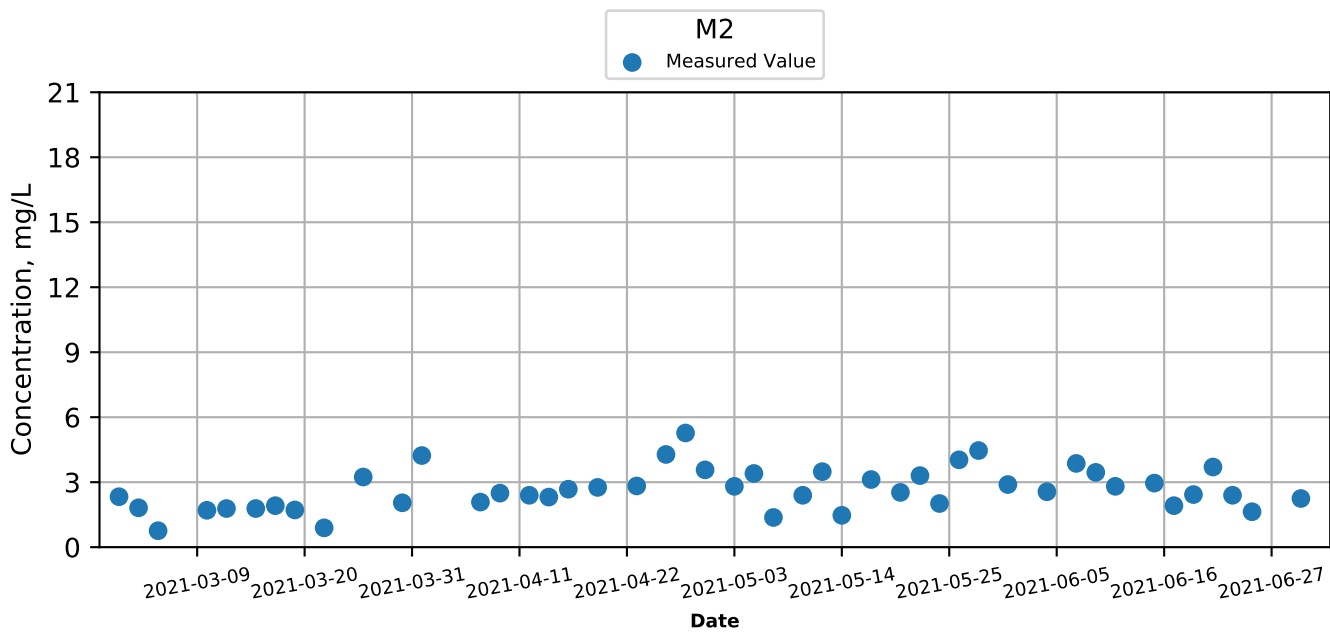
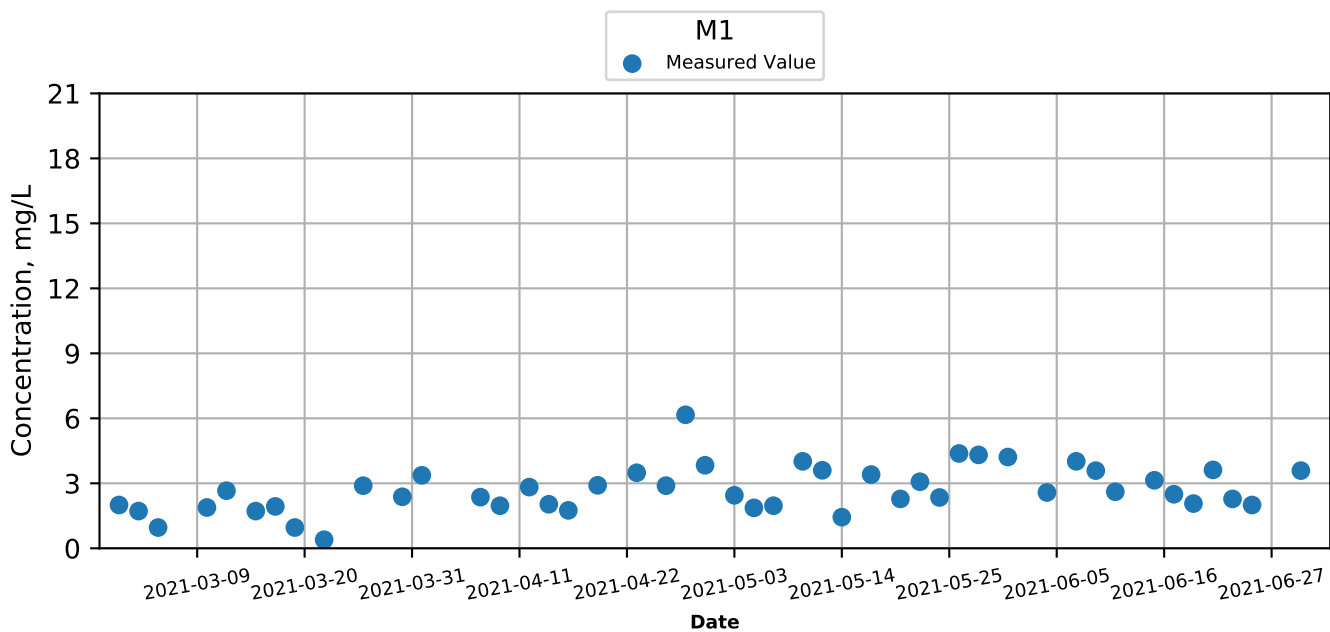
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Ebb



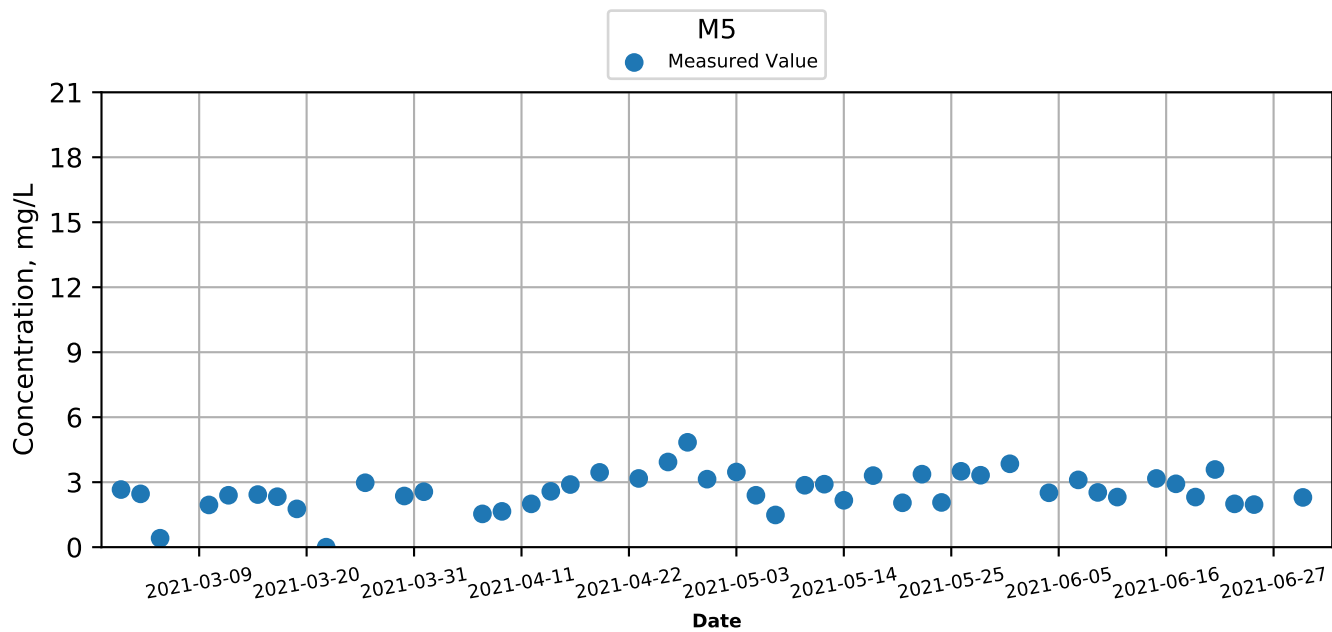
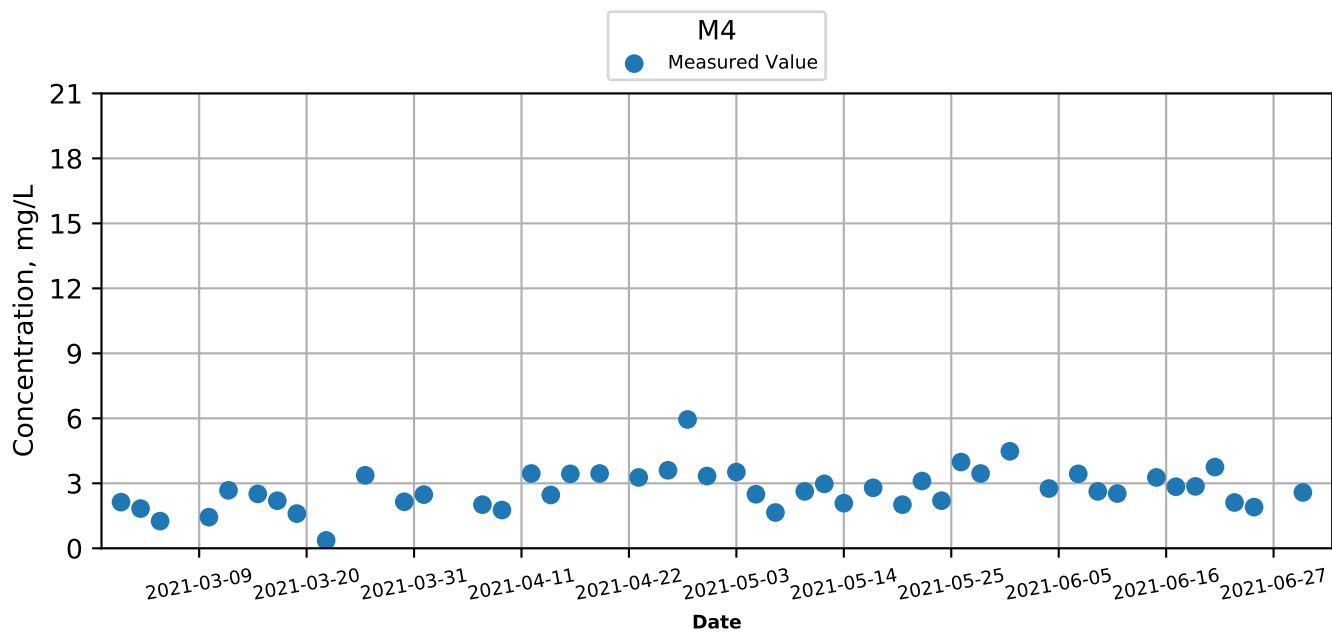
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Ebb



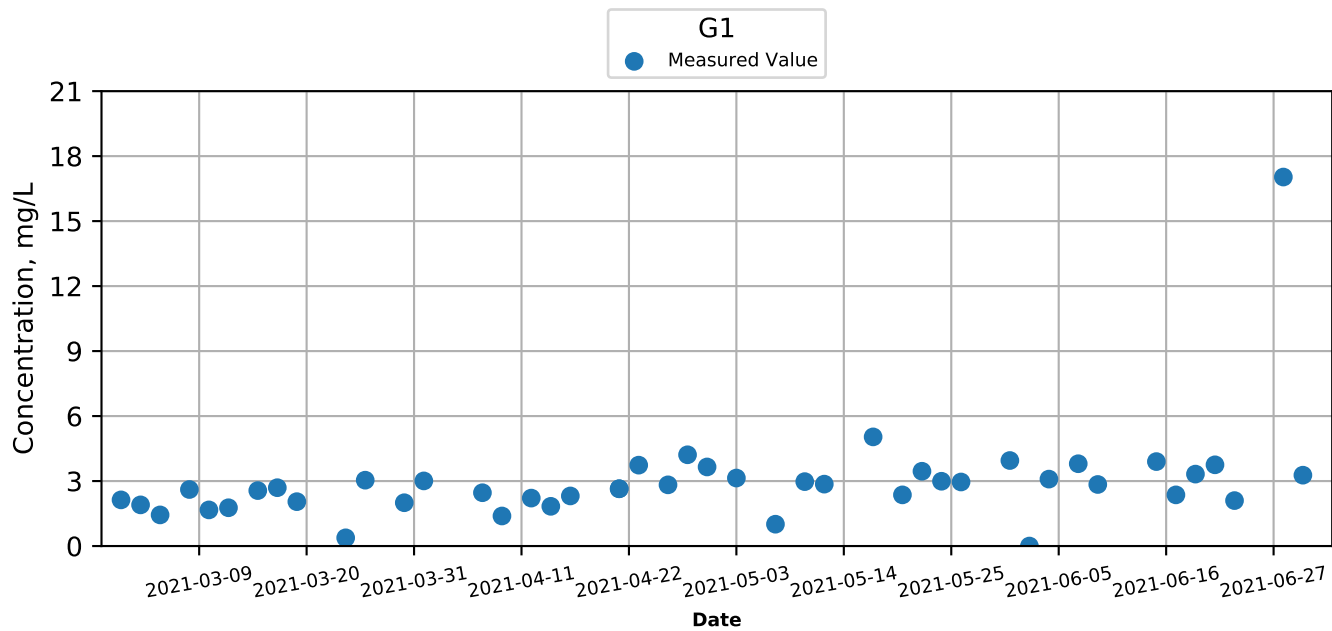
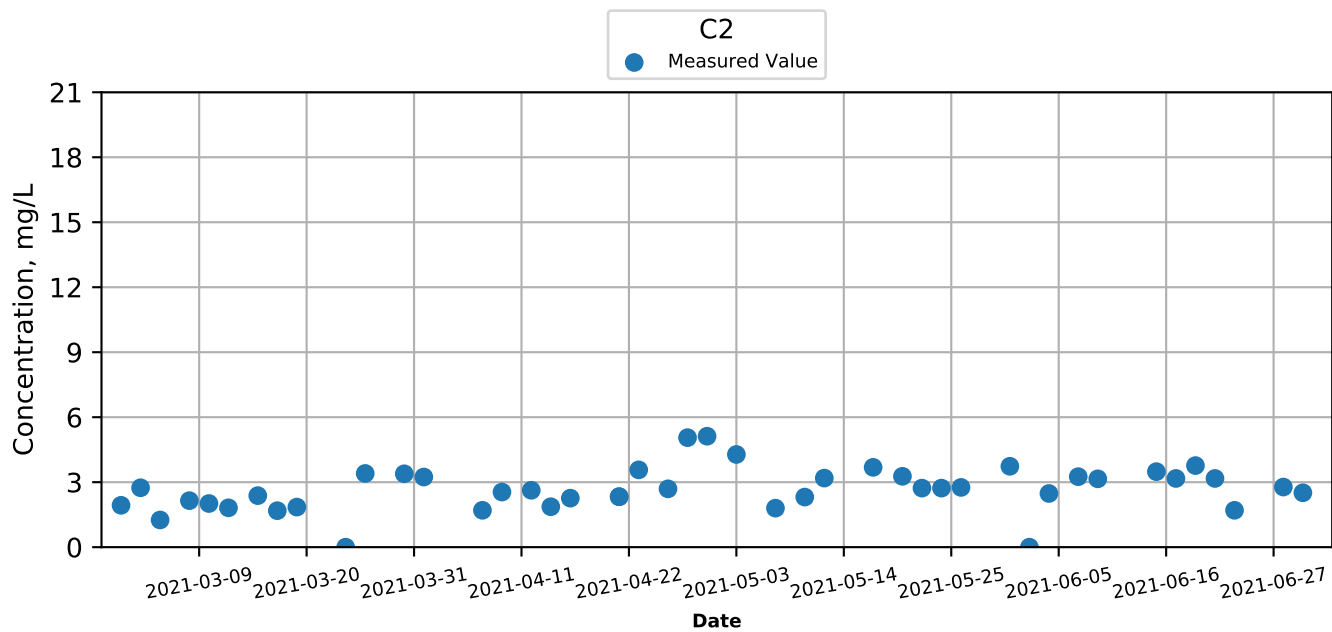
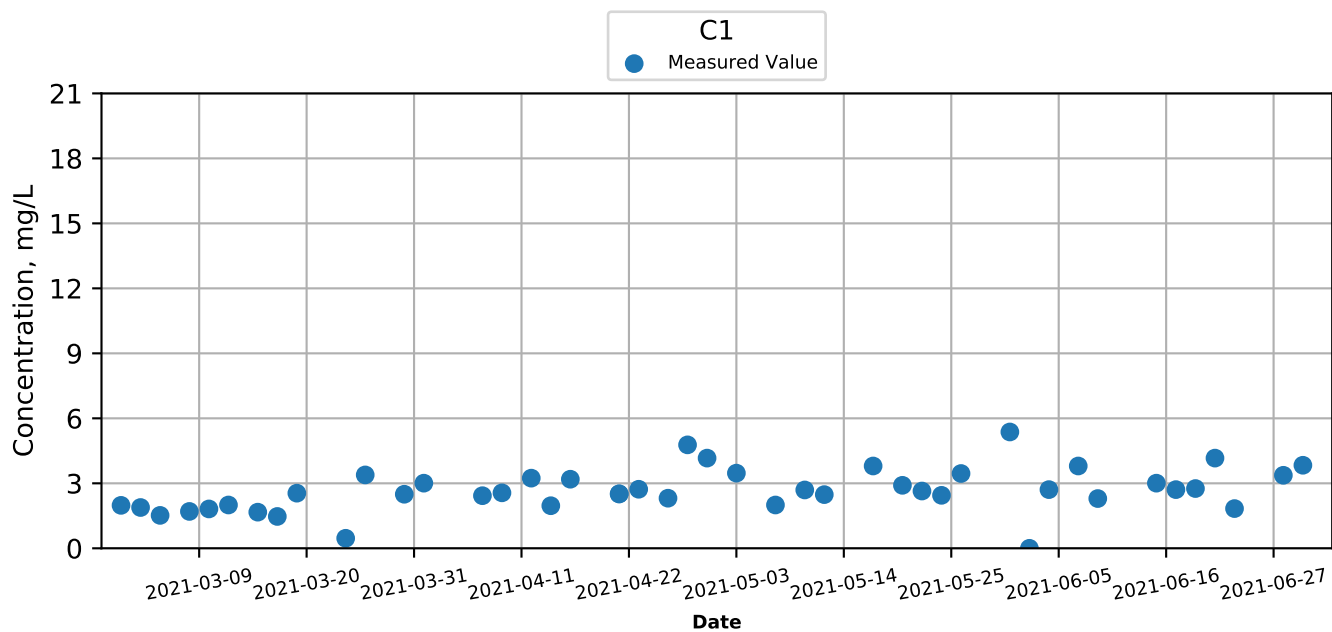
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Ebb



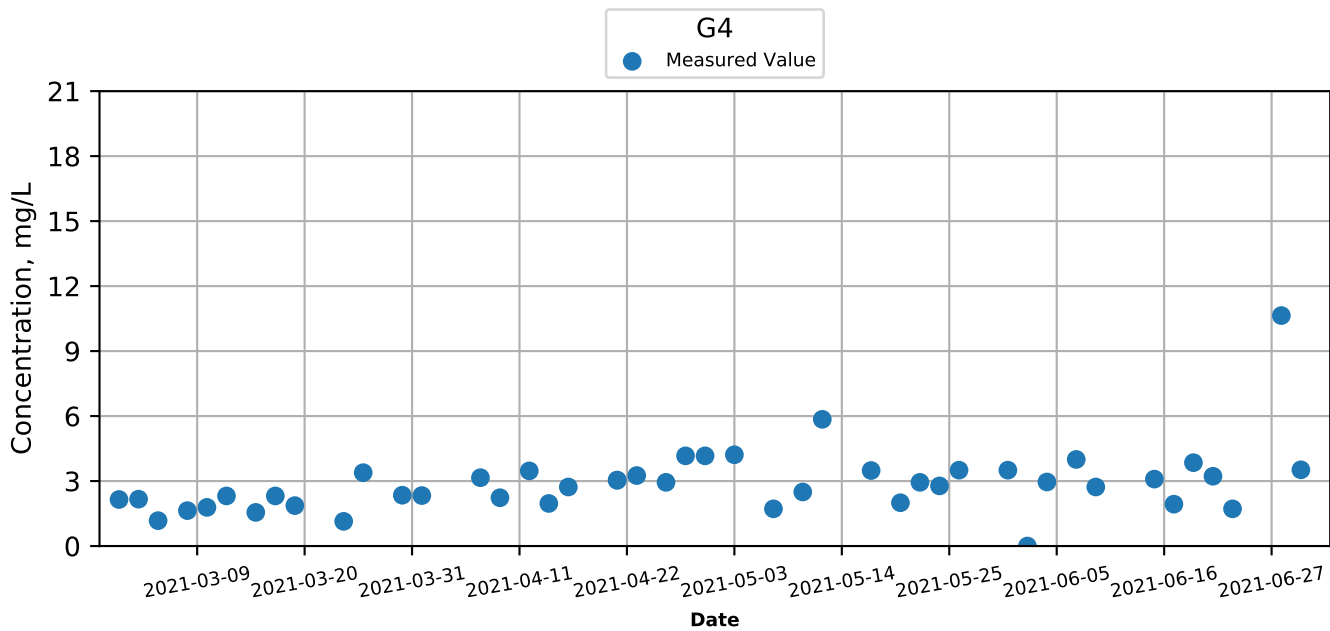
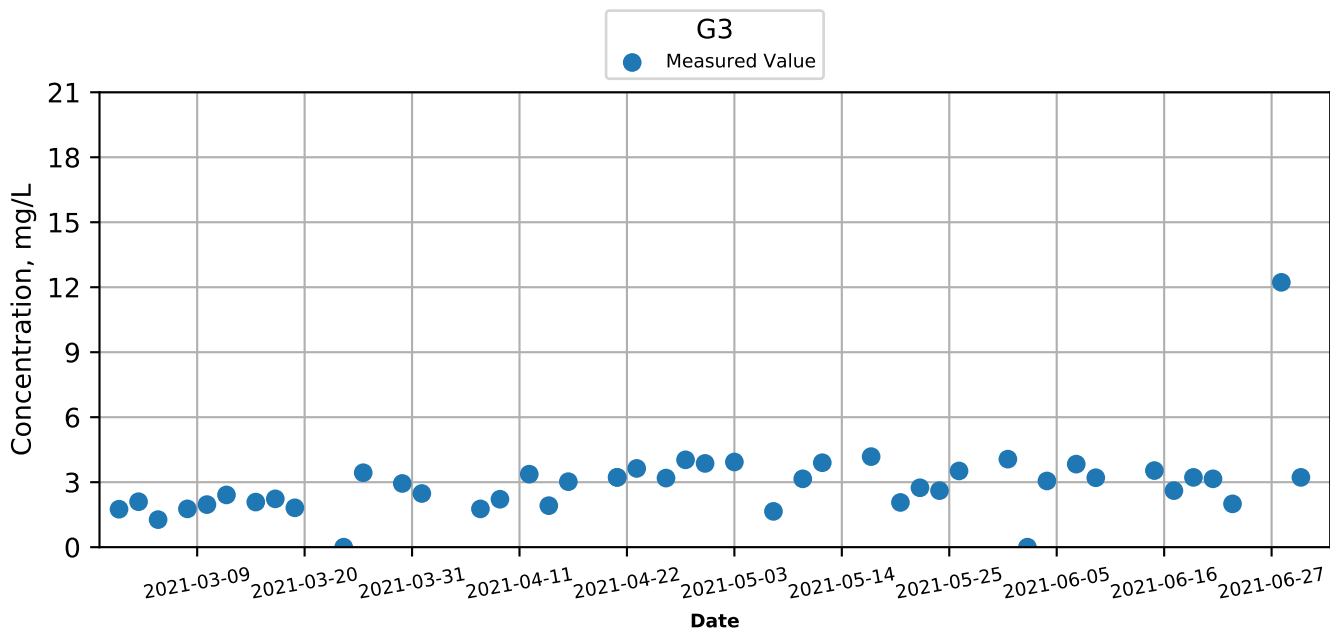
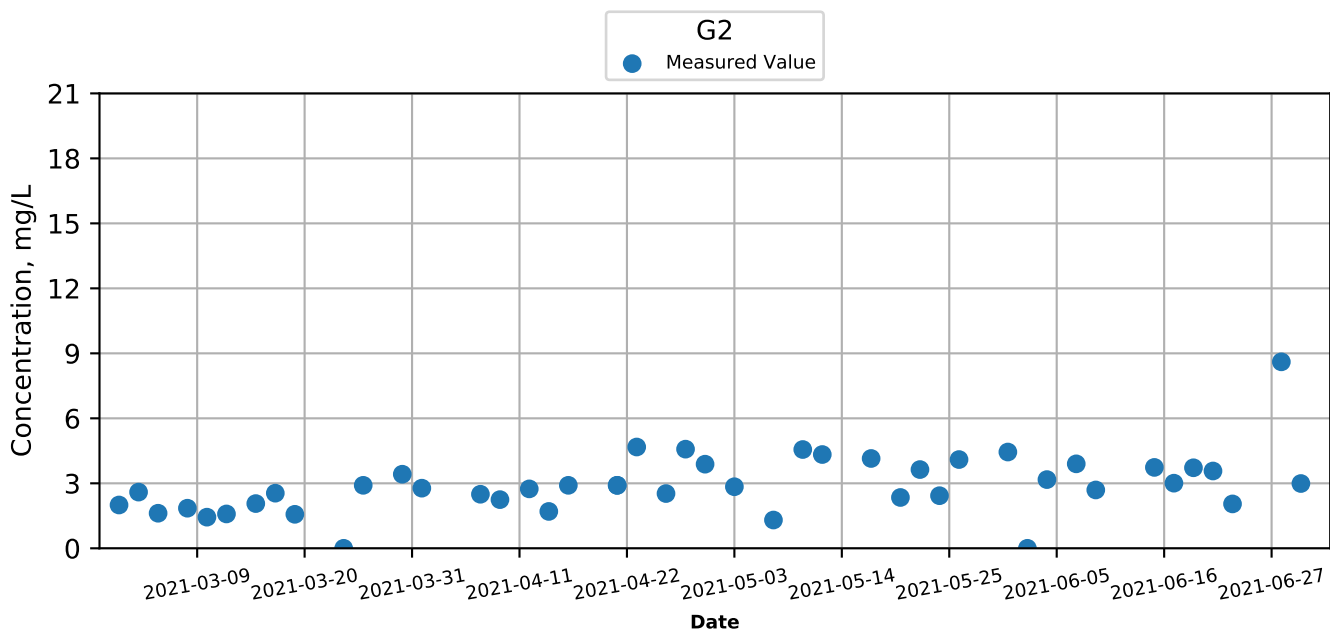
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Flood



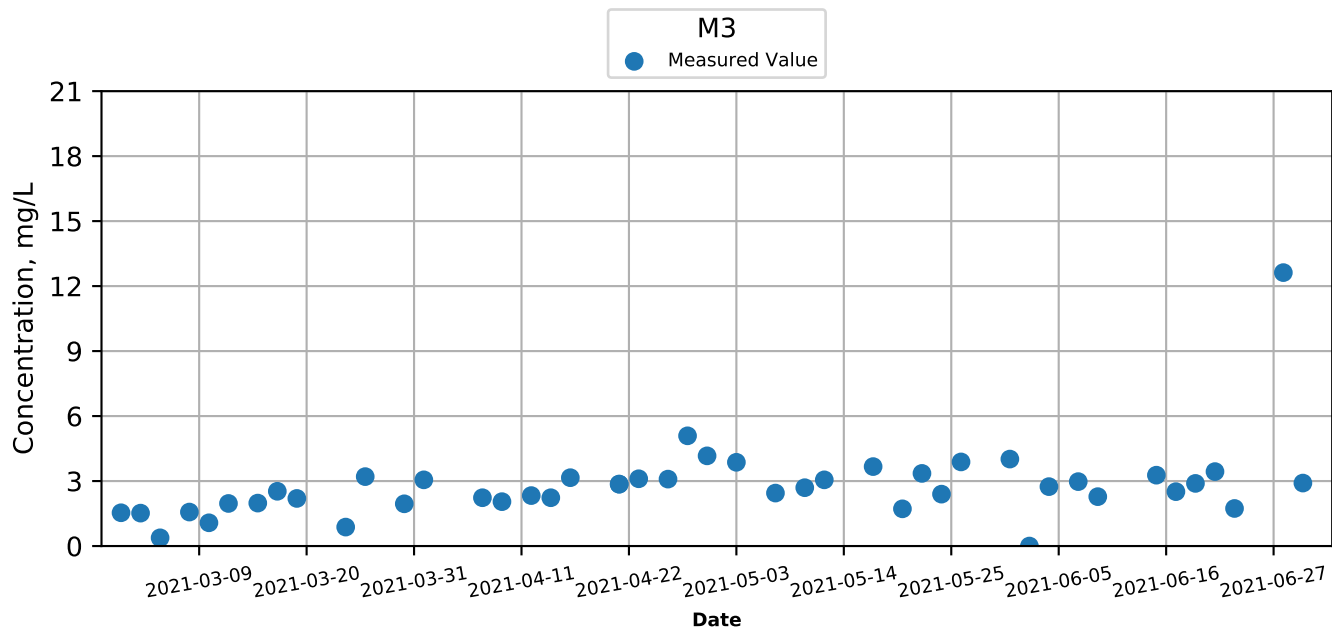
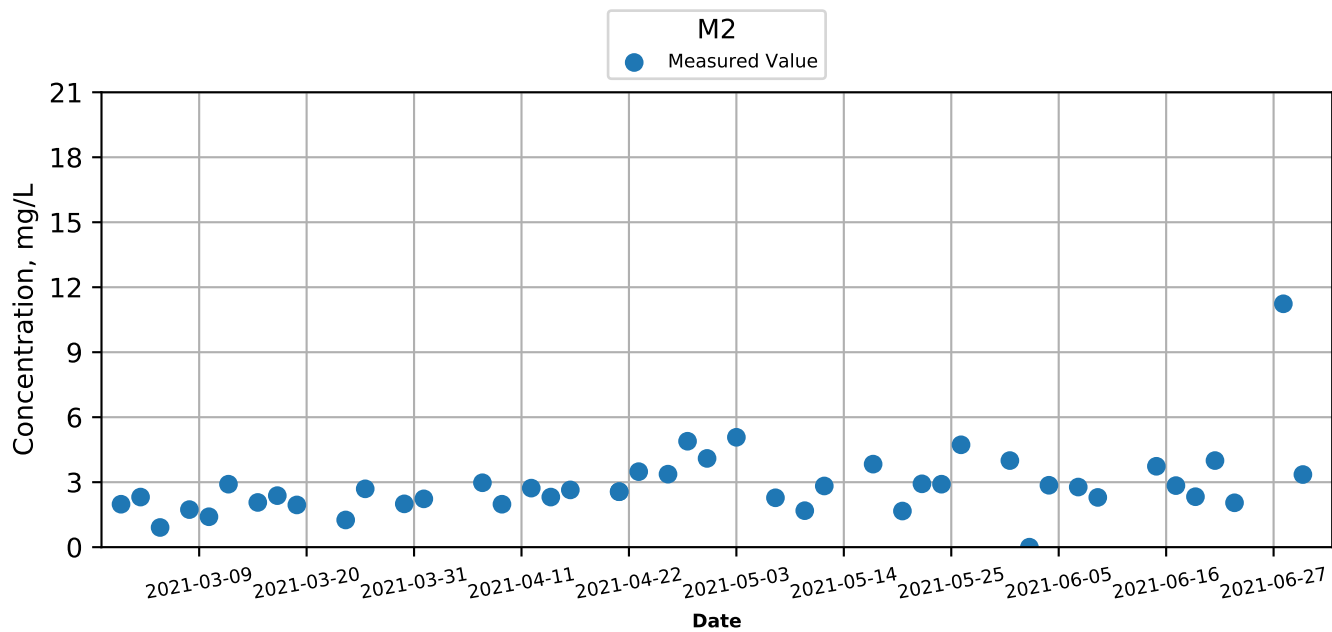
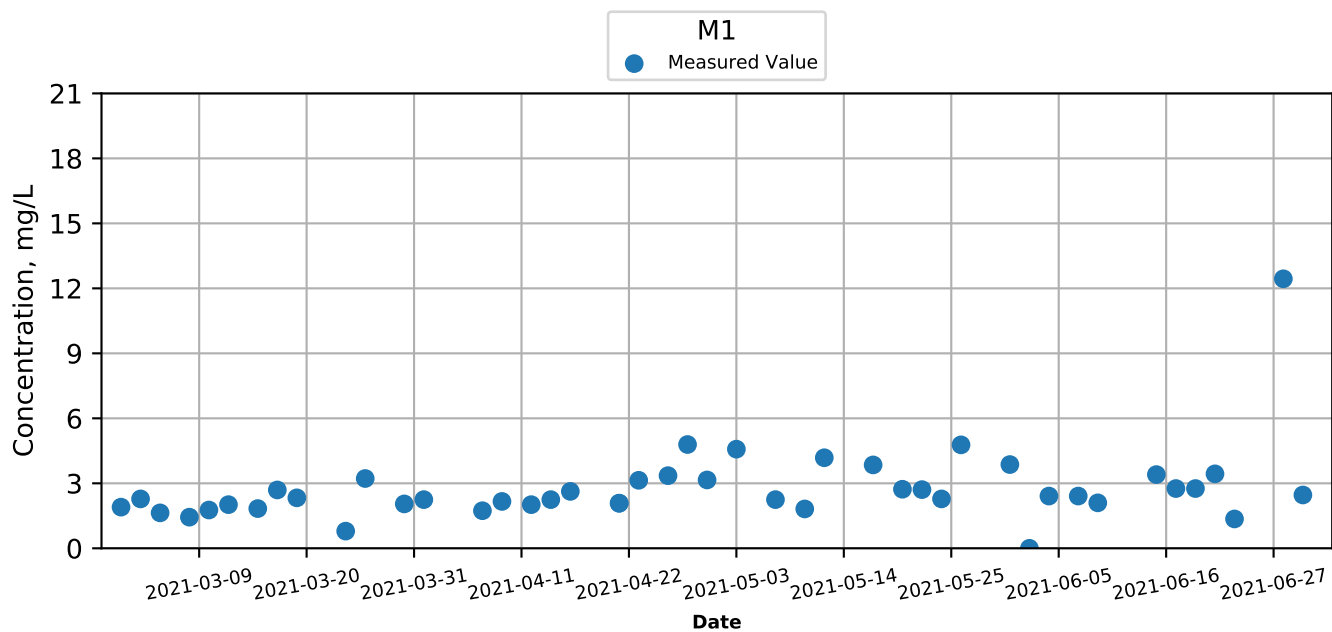
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Flood



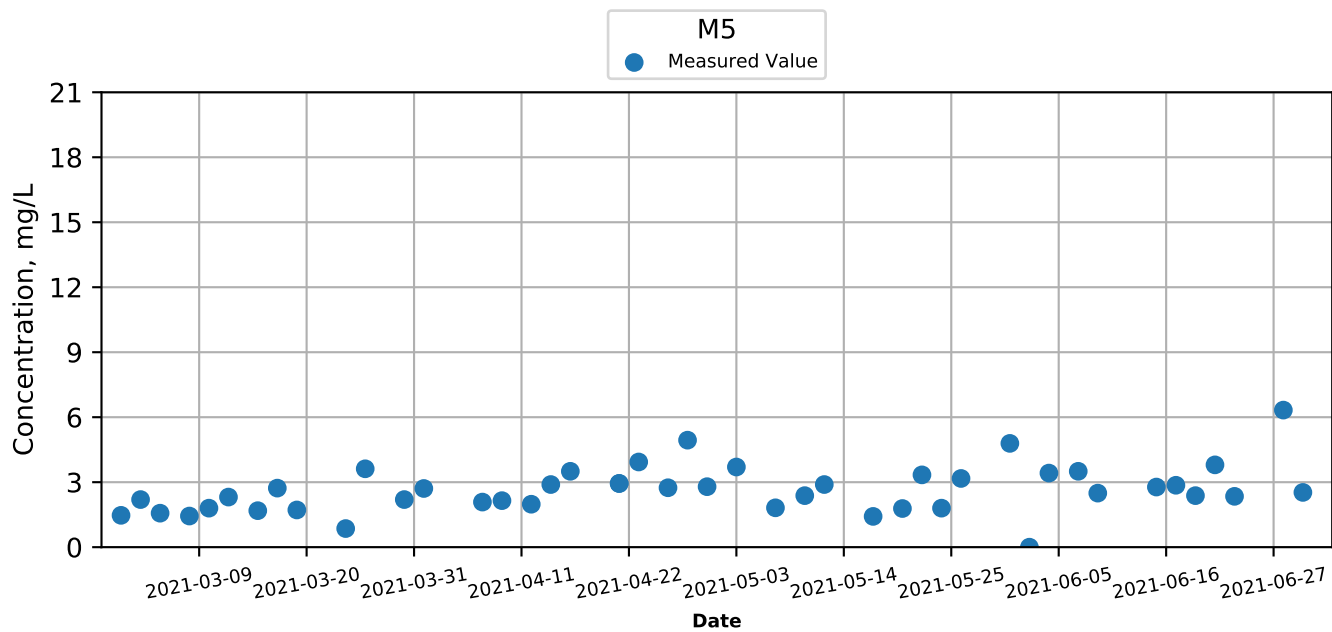
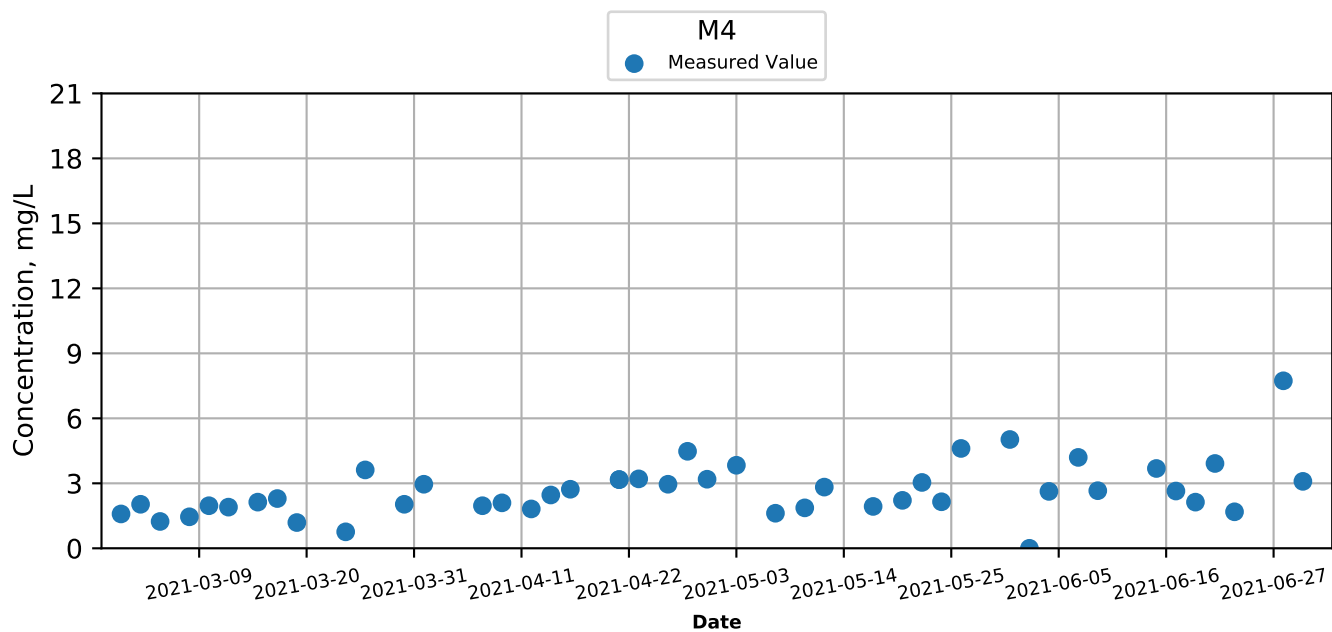
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Flood



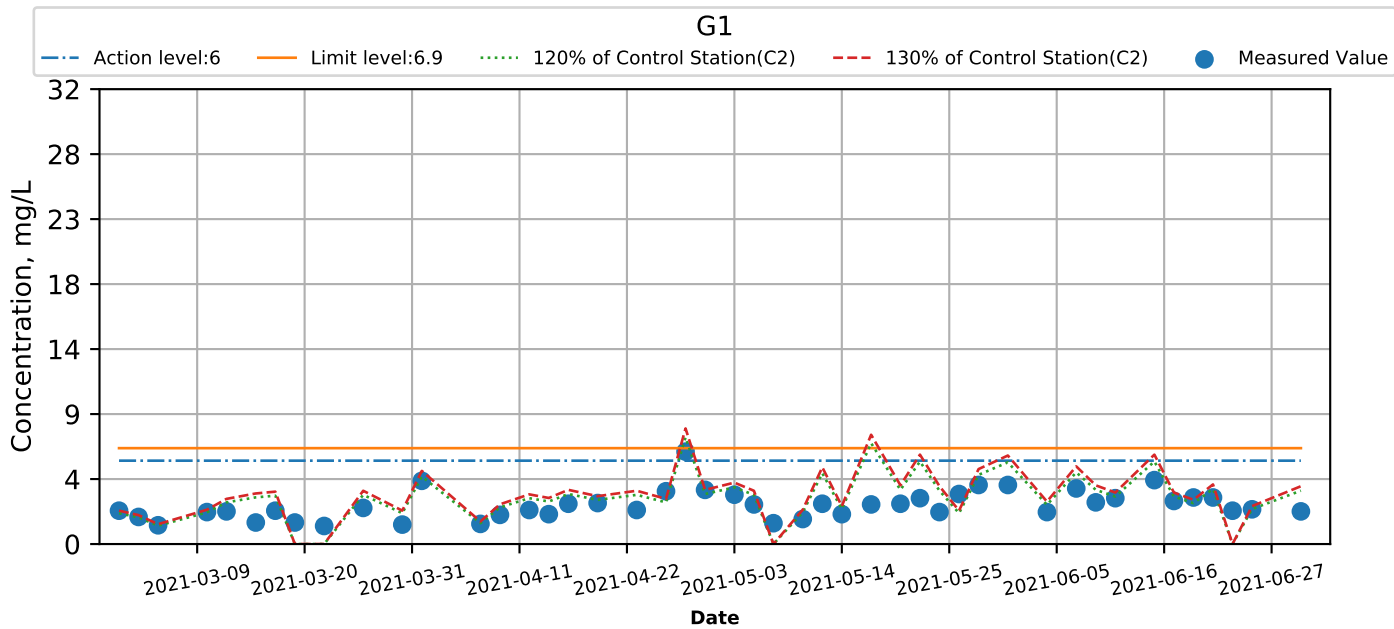
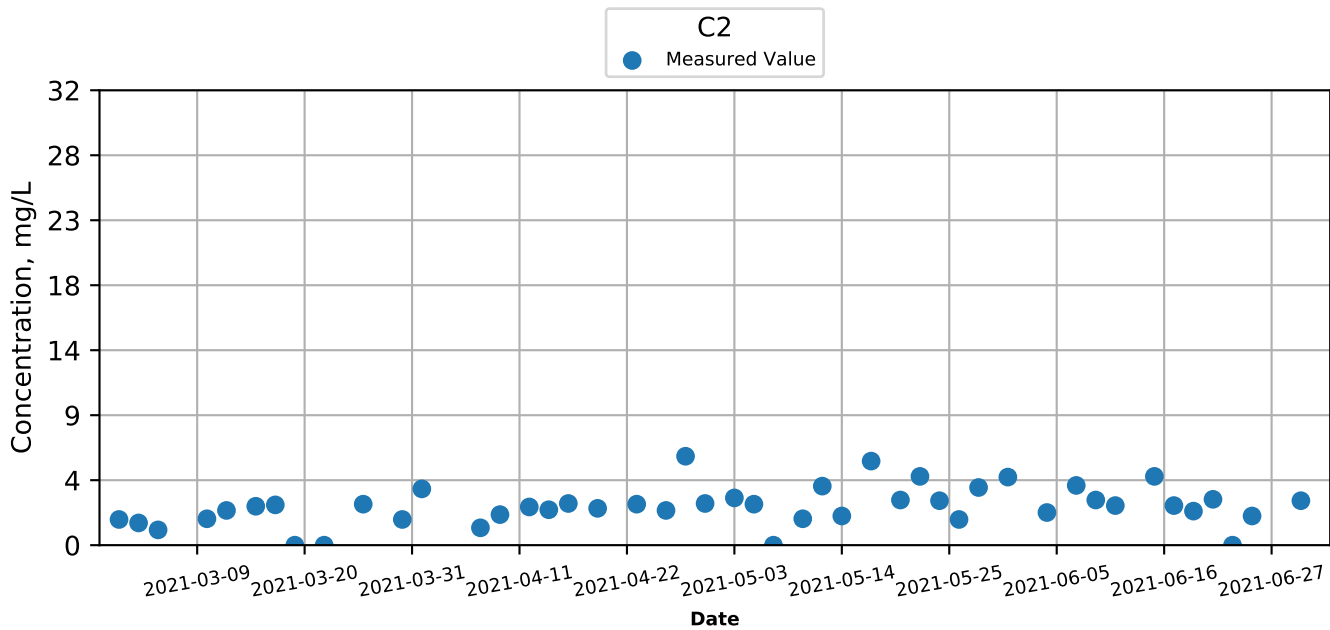
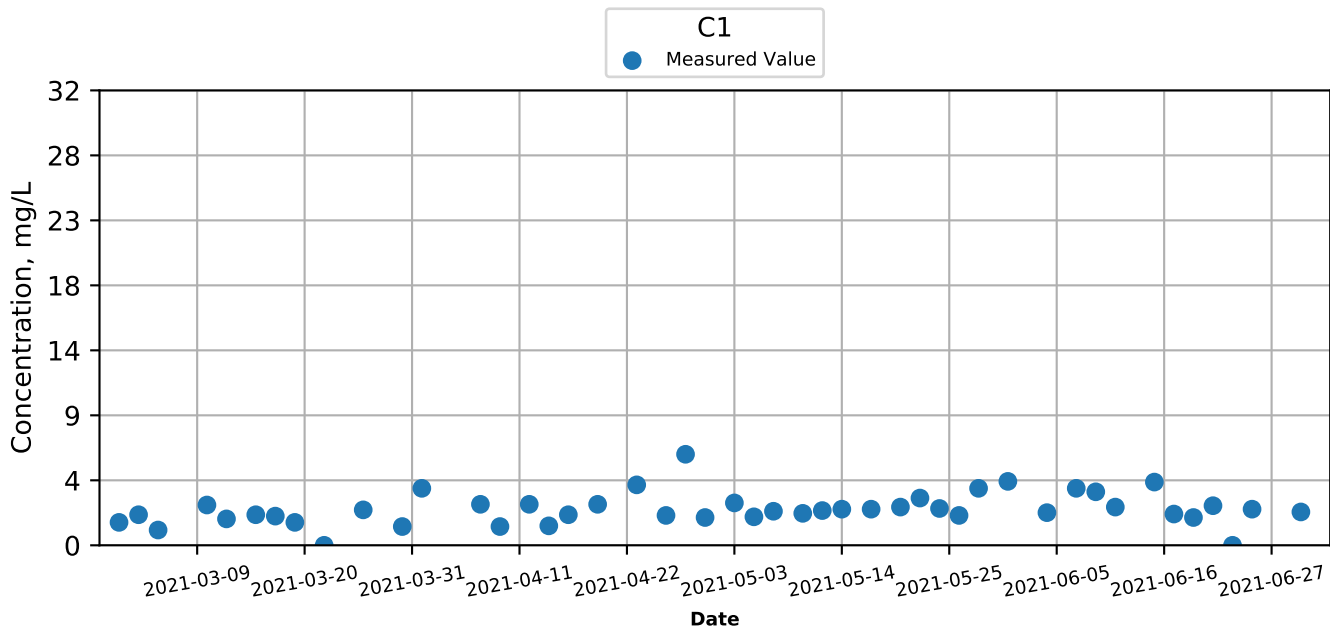
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Depth-Averaged) at Monitoring Stations during Mid-Flood



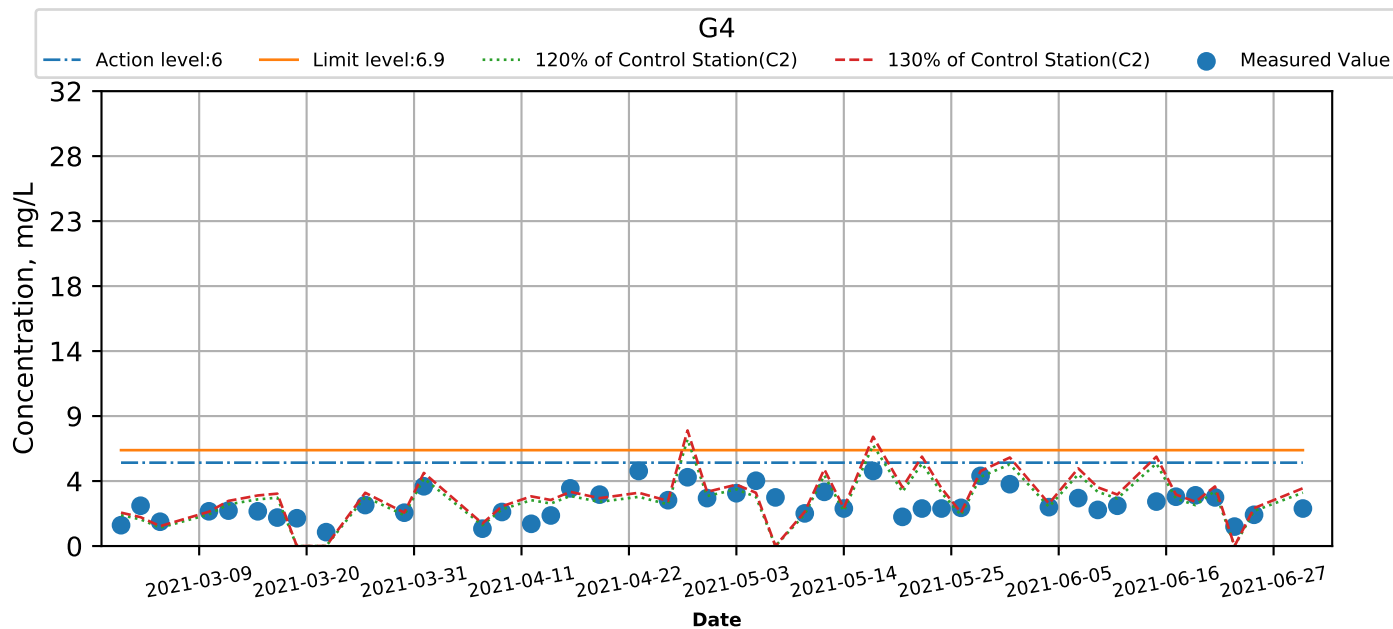
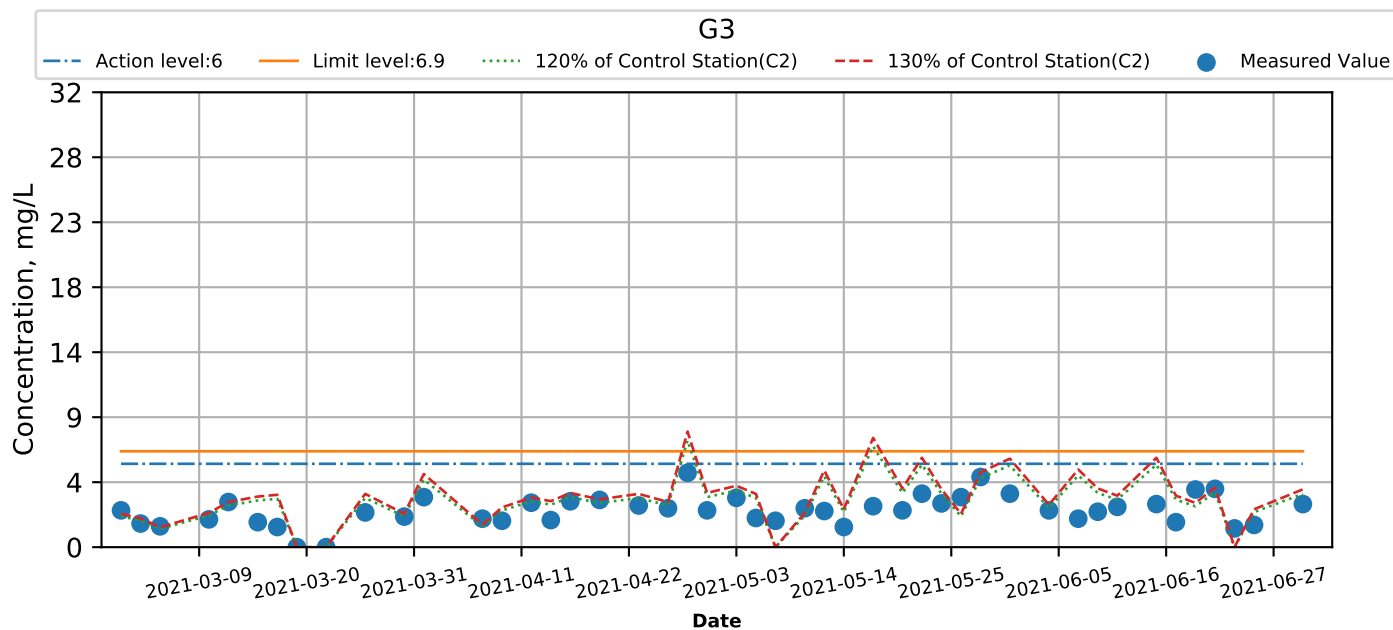
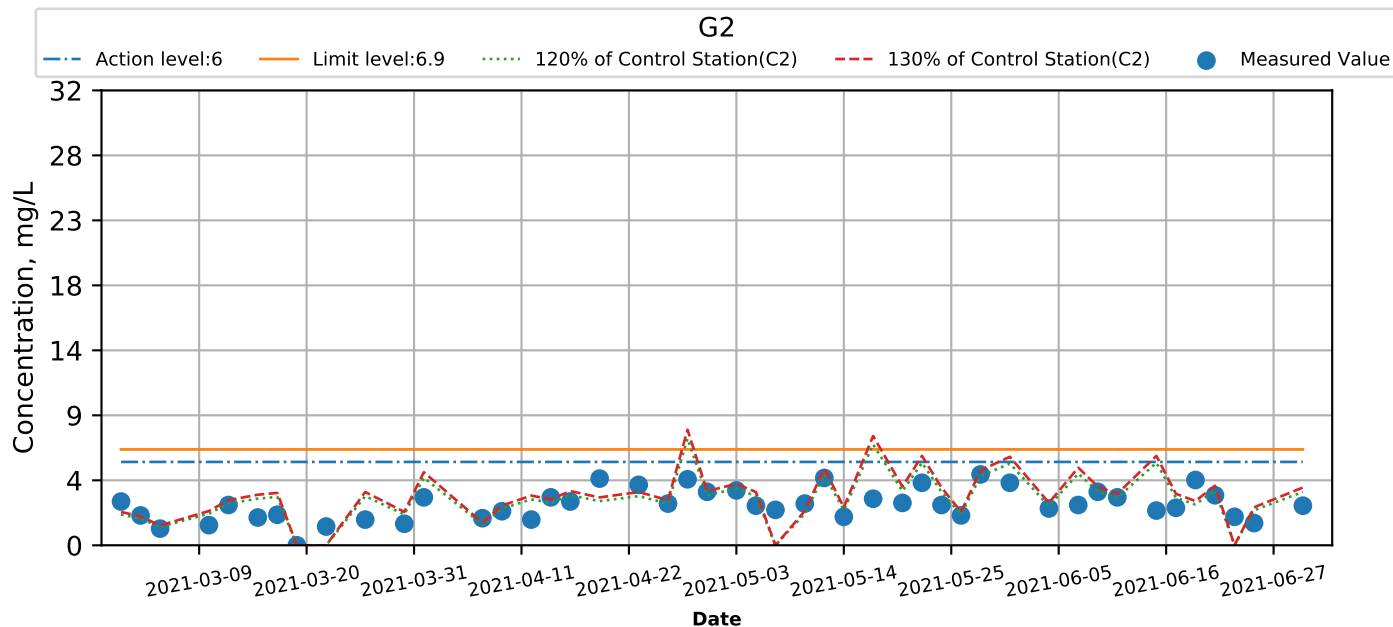
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Ebb



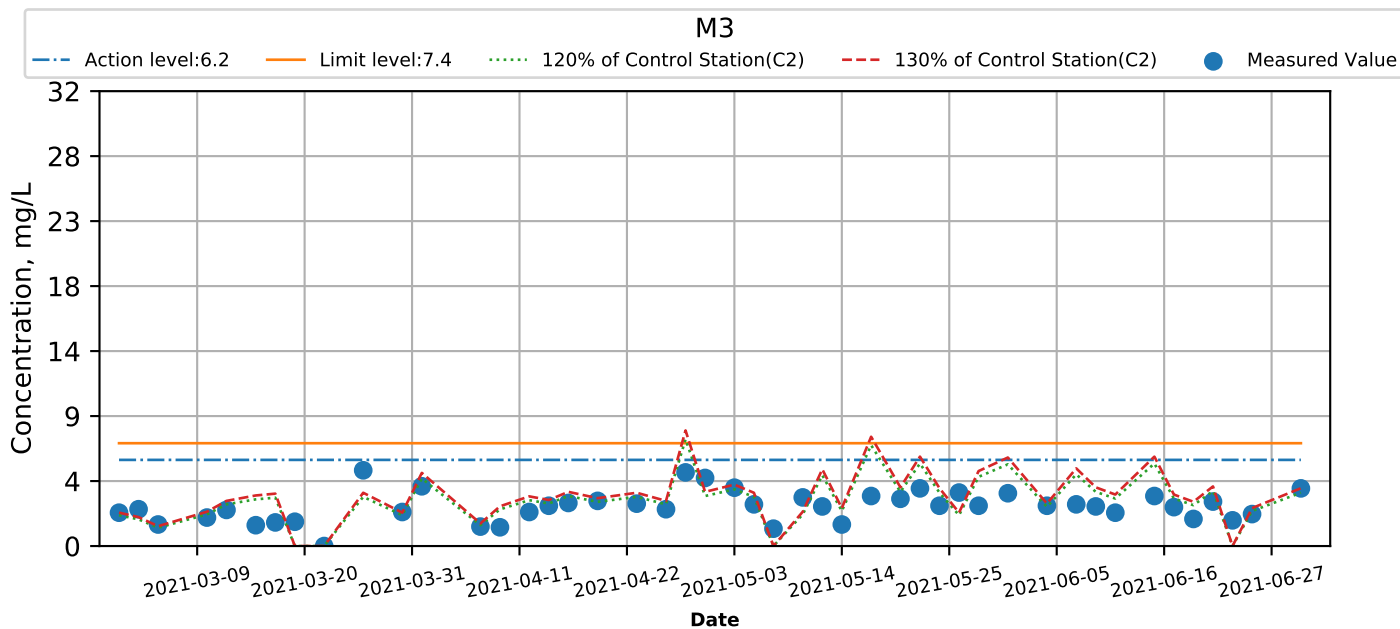
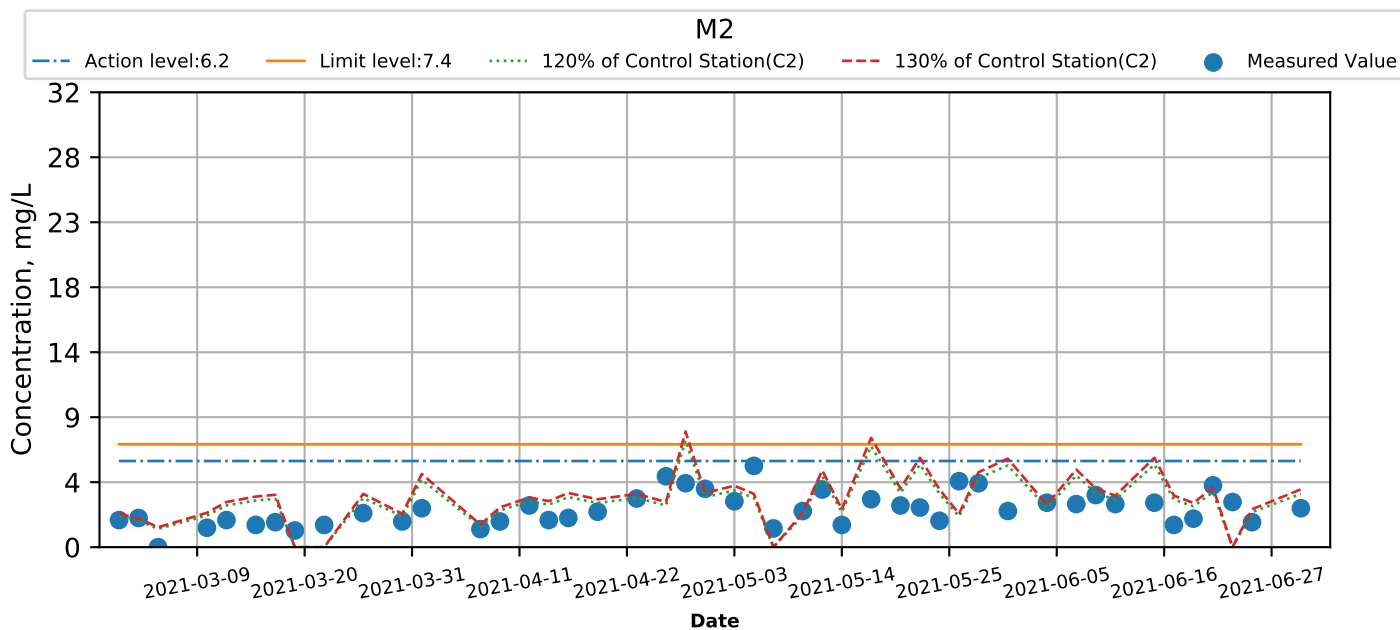
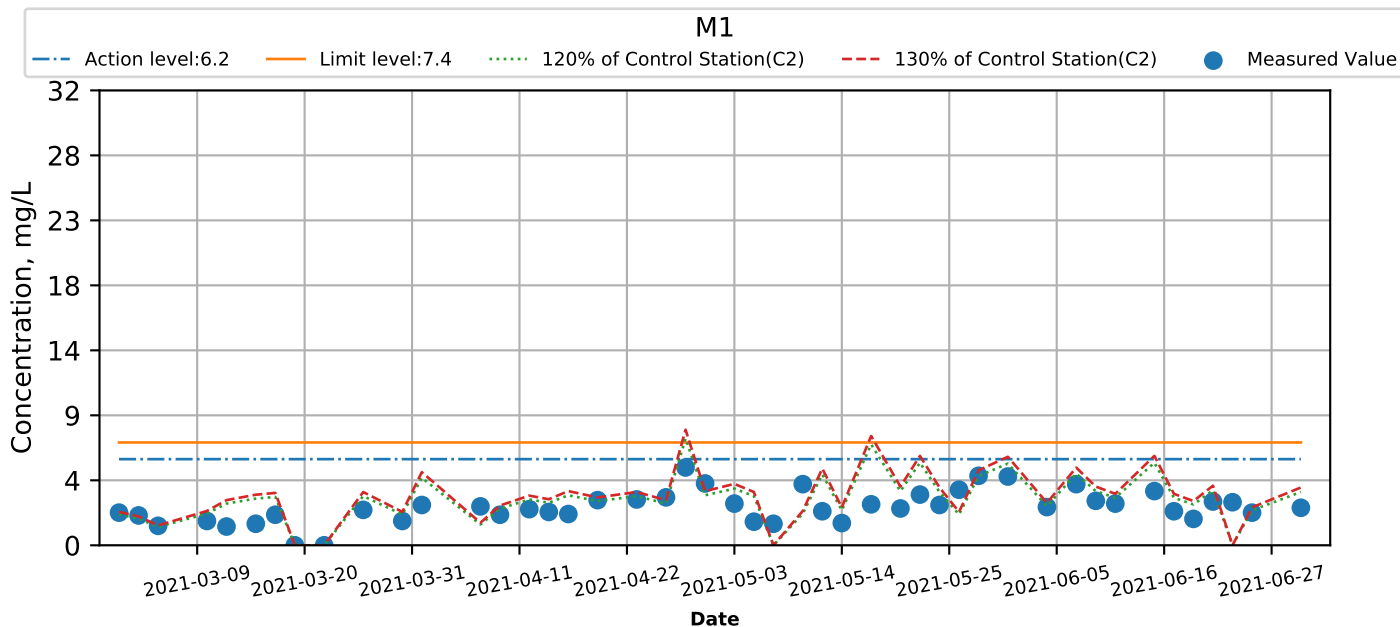
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Ebb



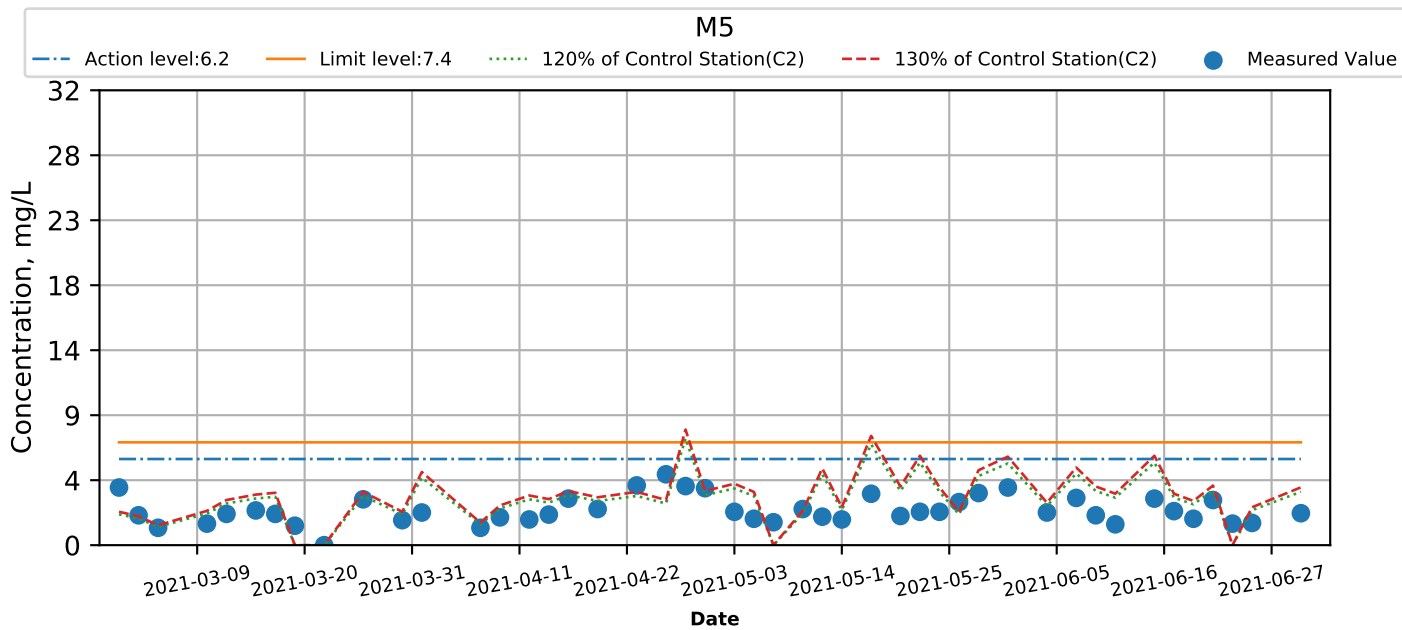
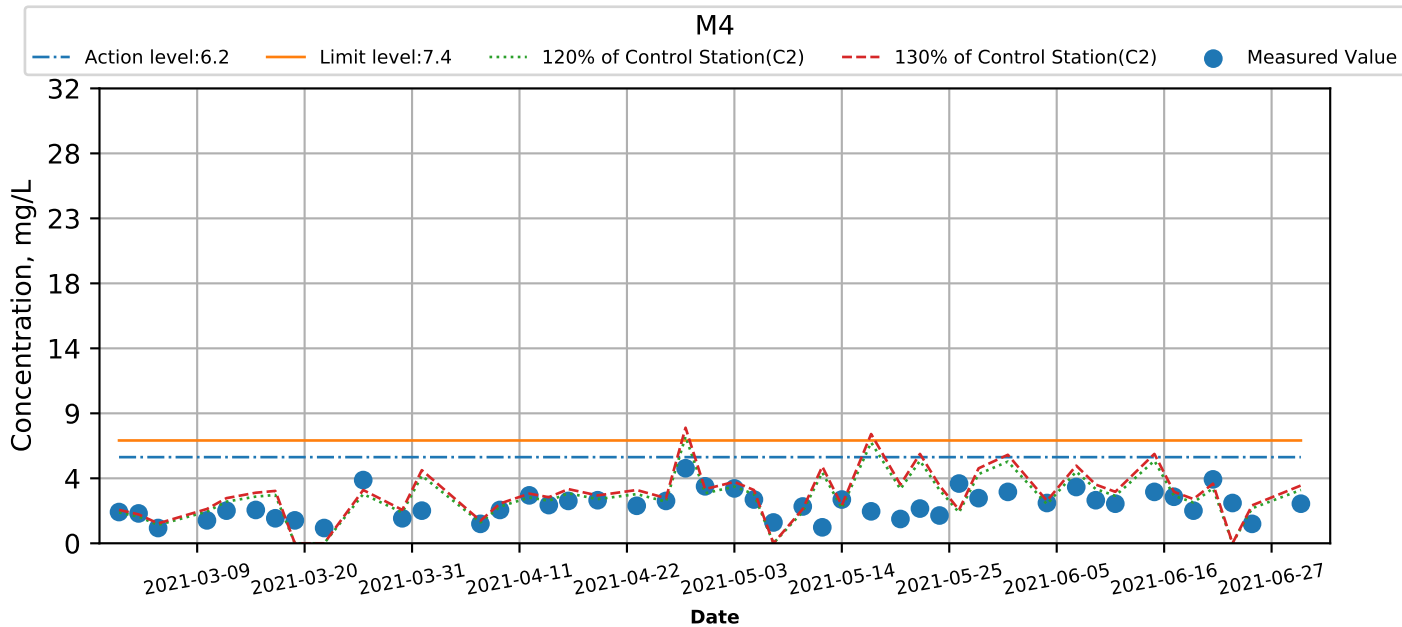
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Ebb



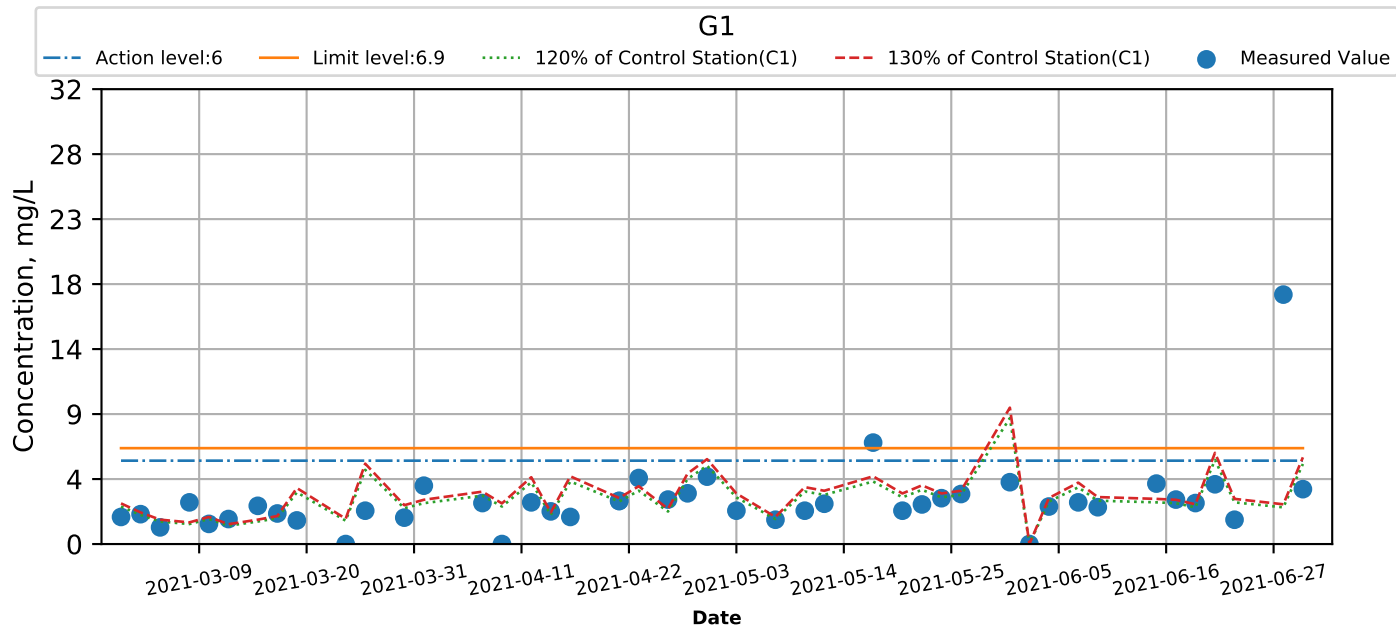
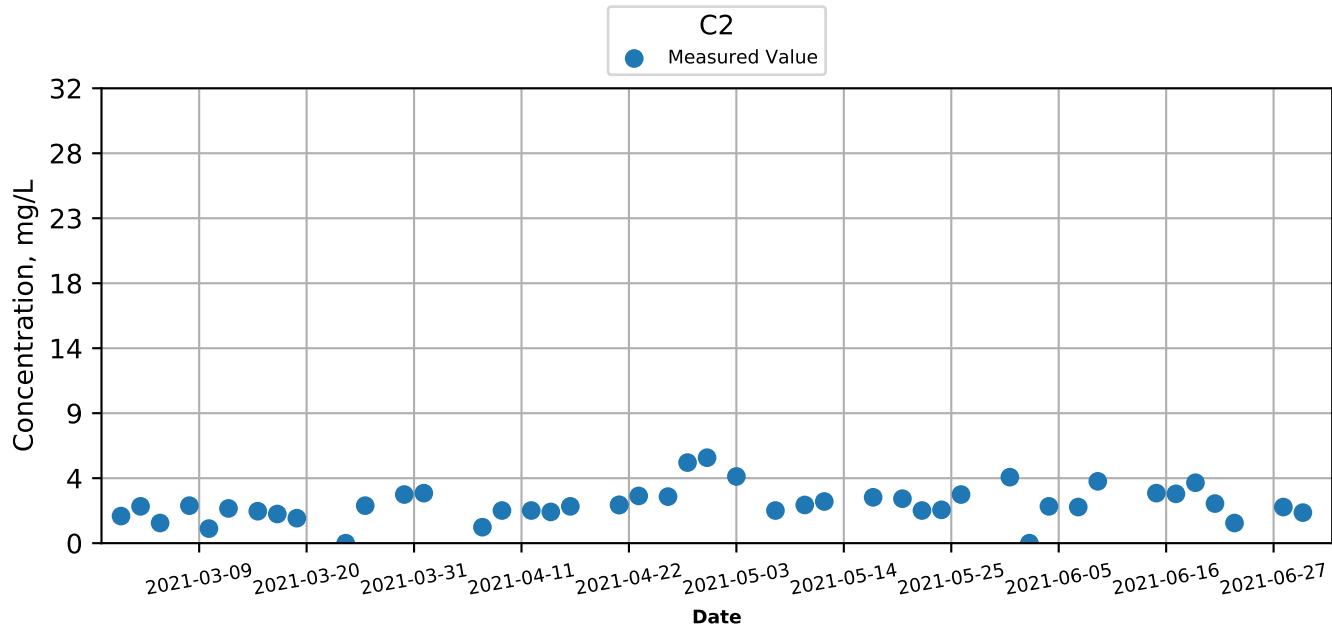
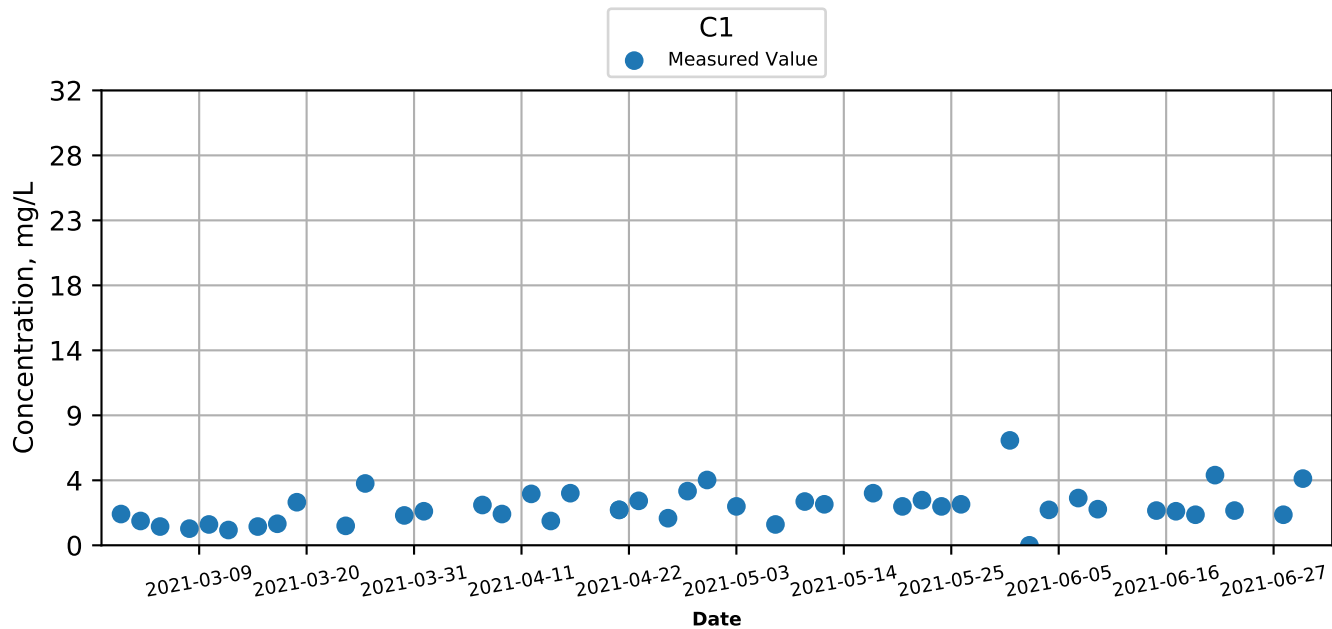
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Ebb



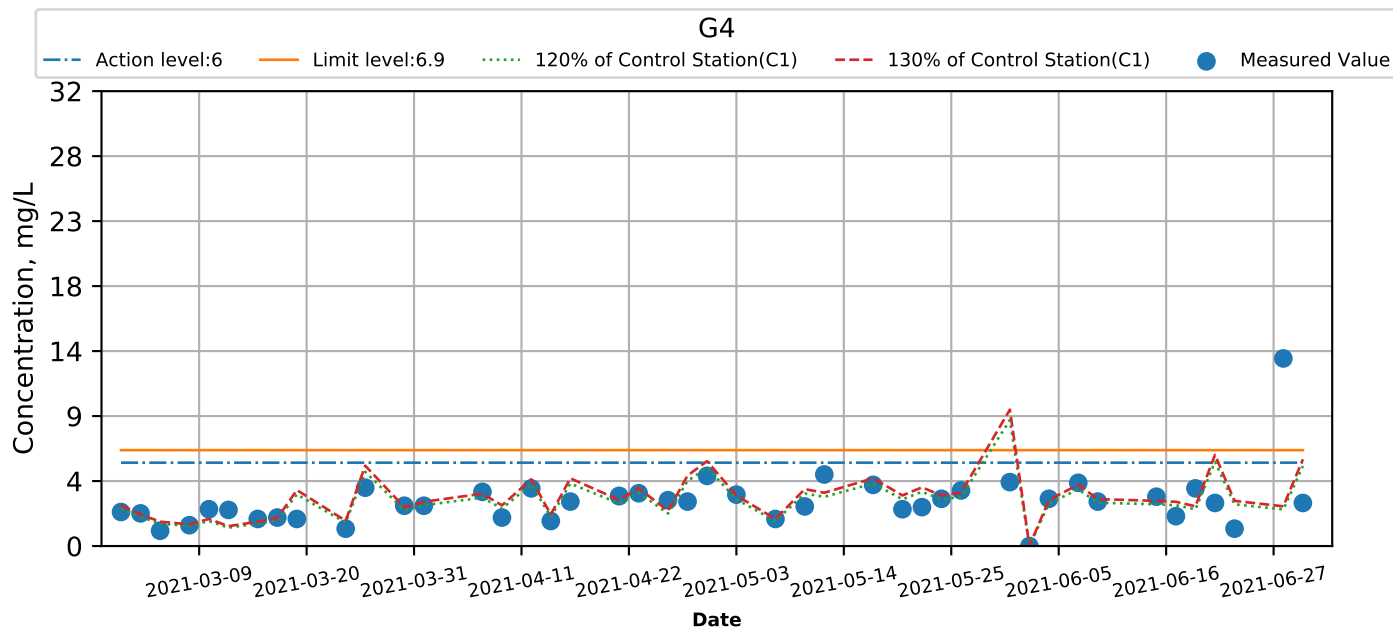
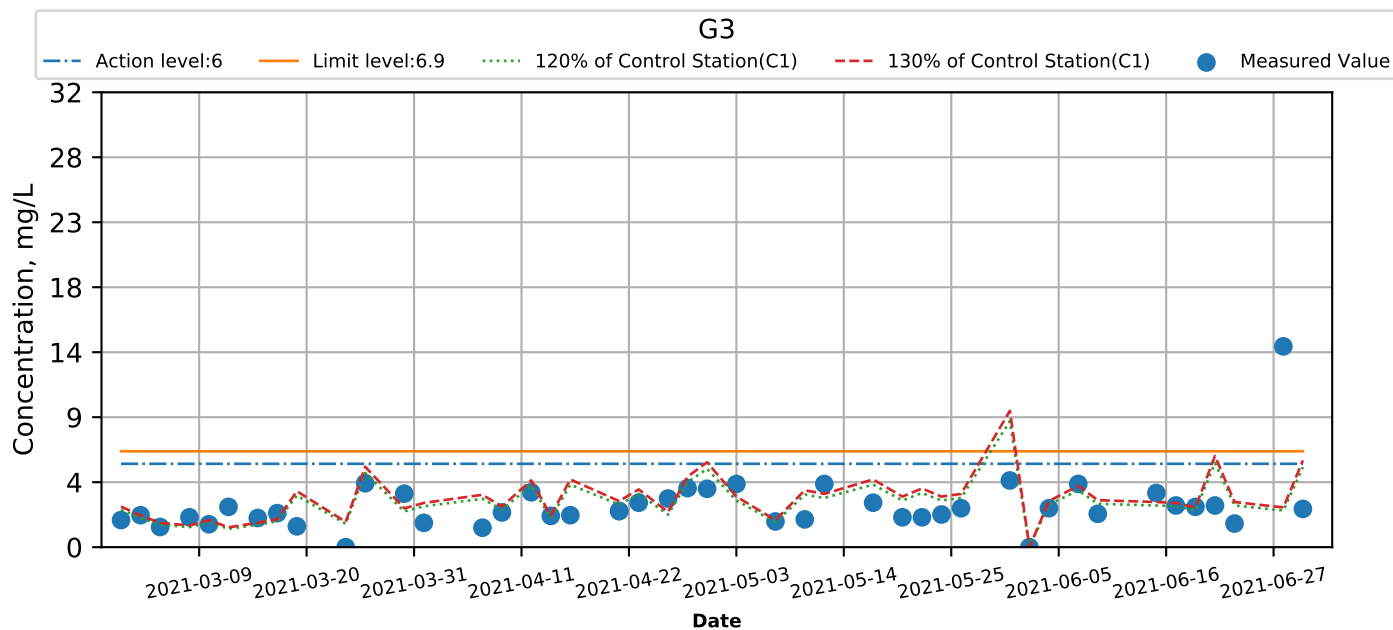
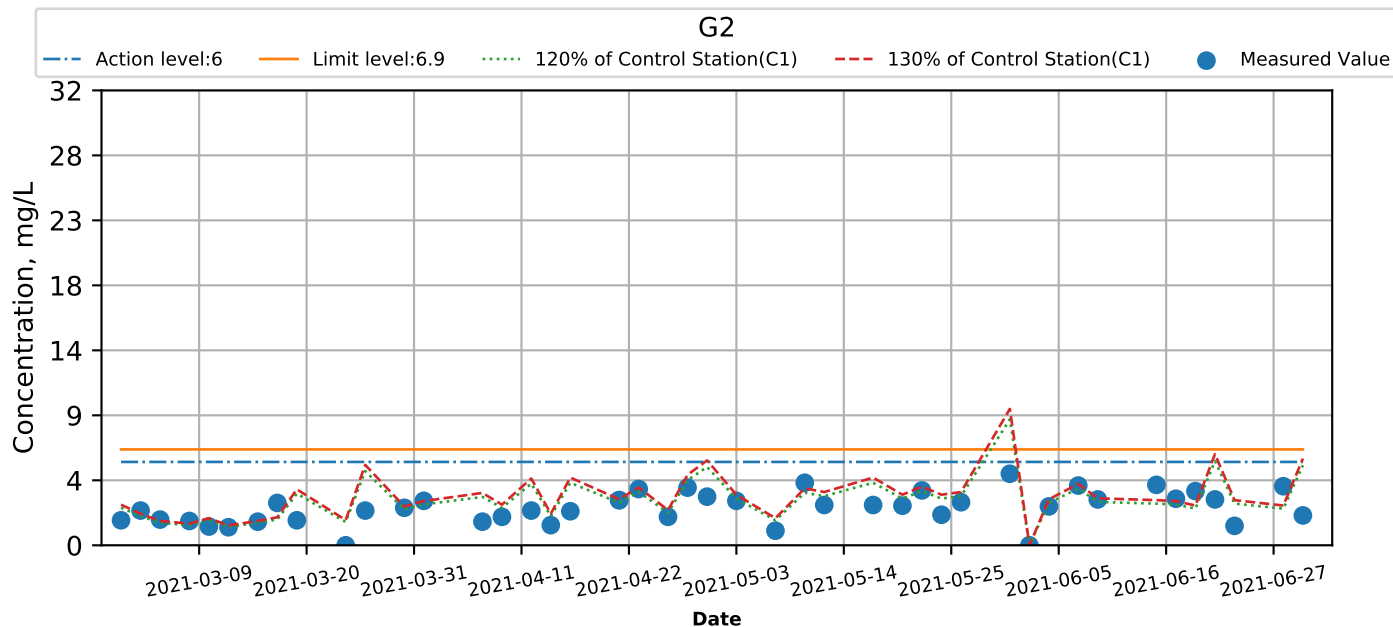
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Flood



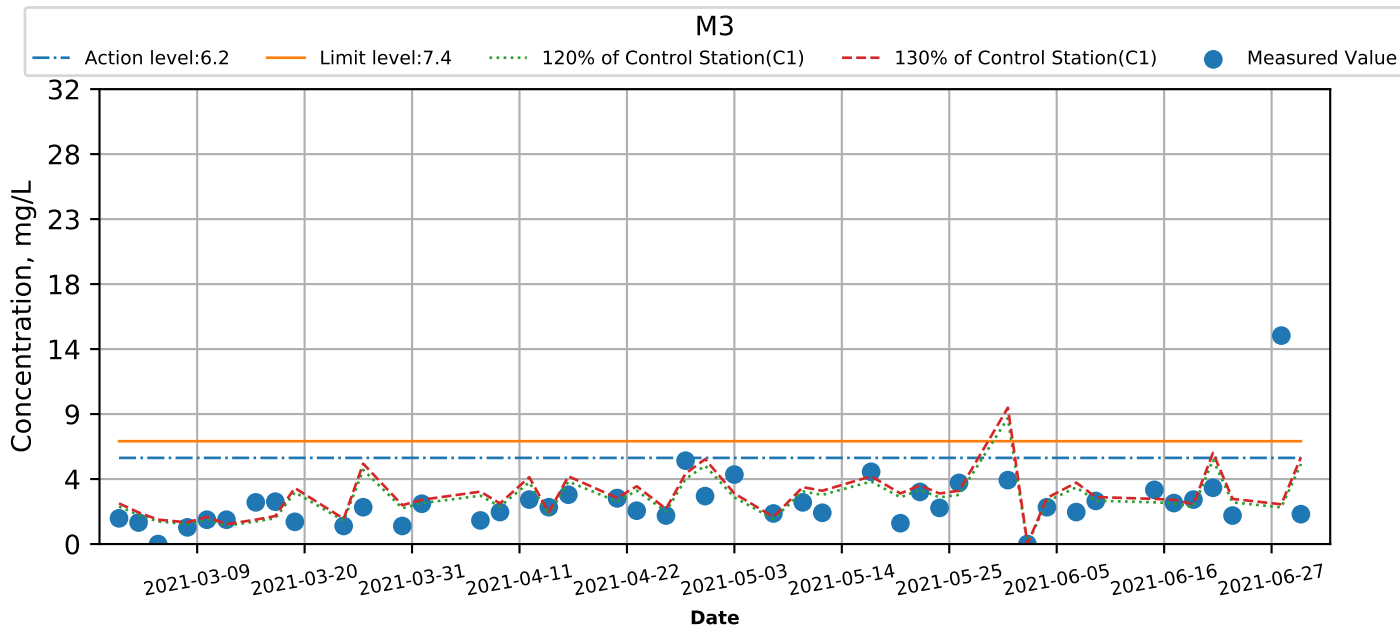
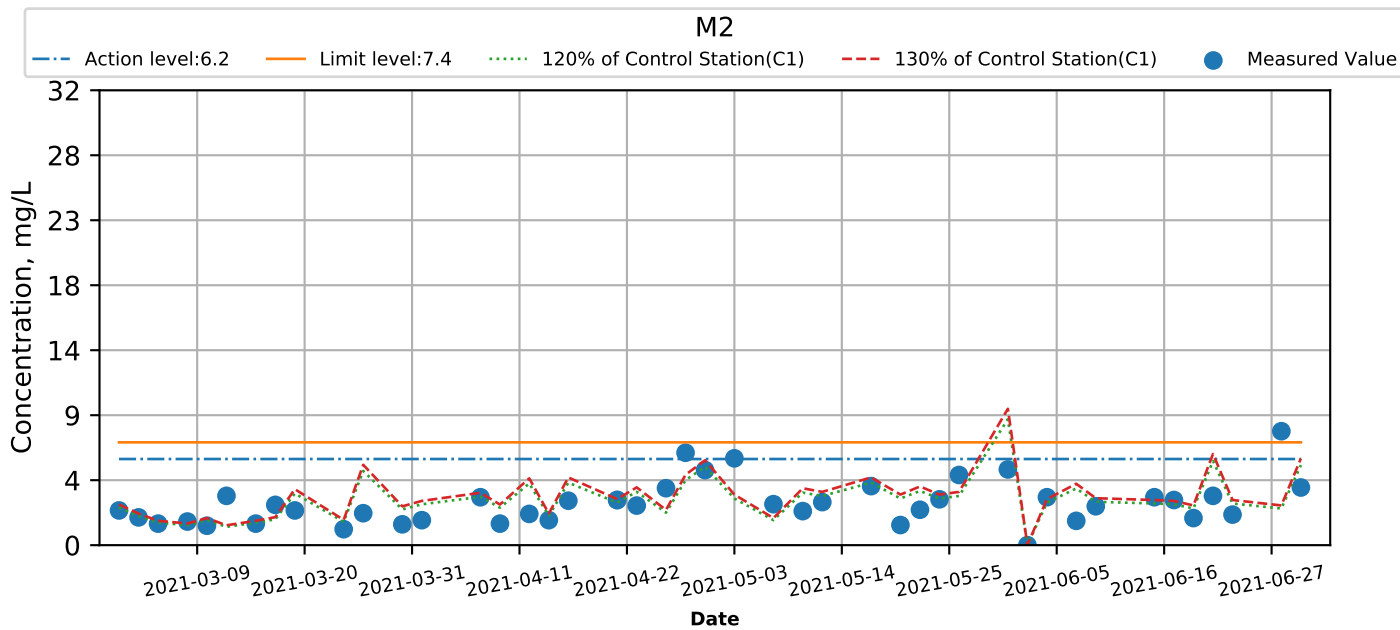
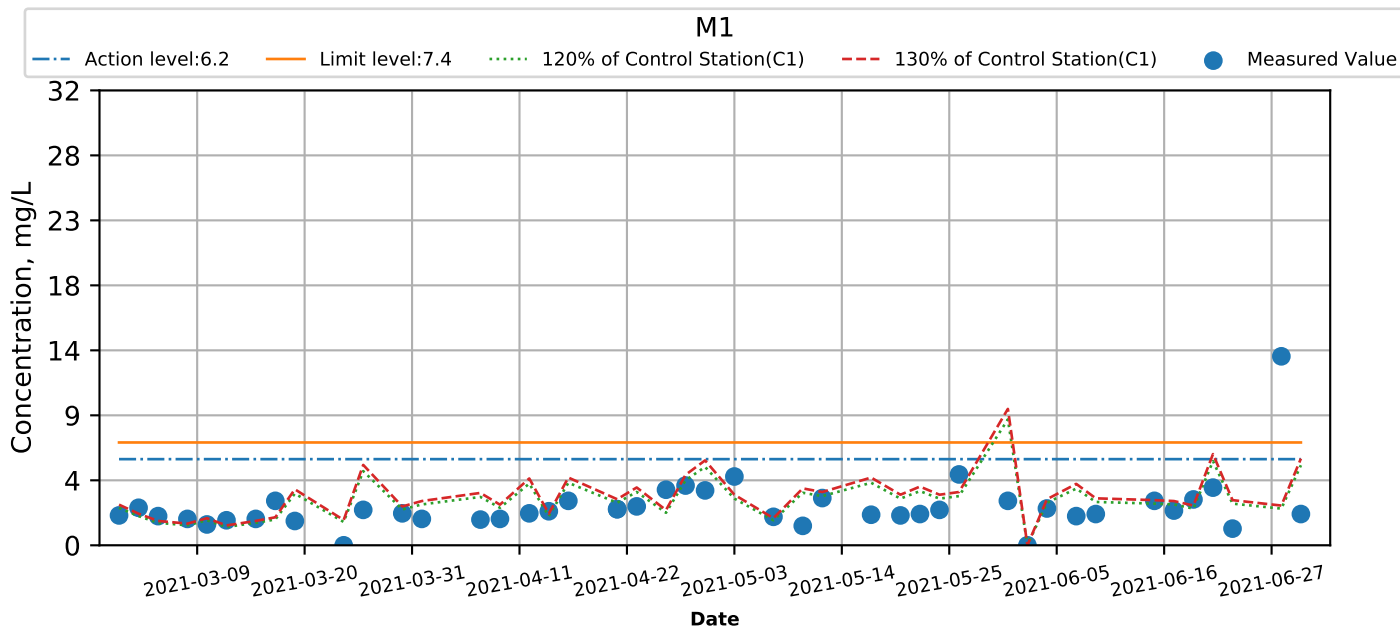
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Flood



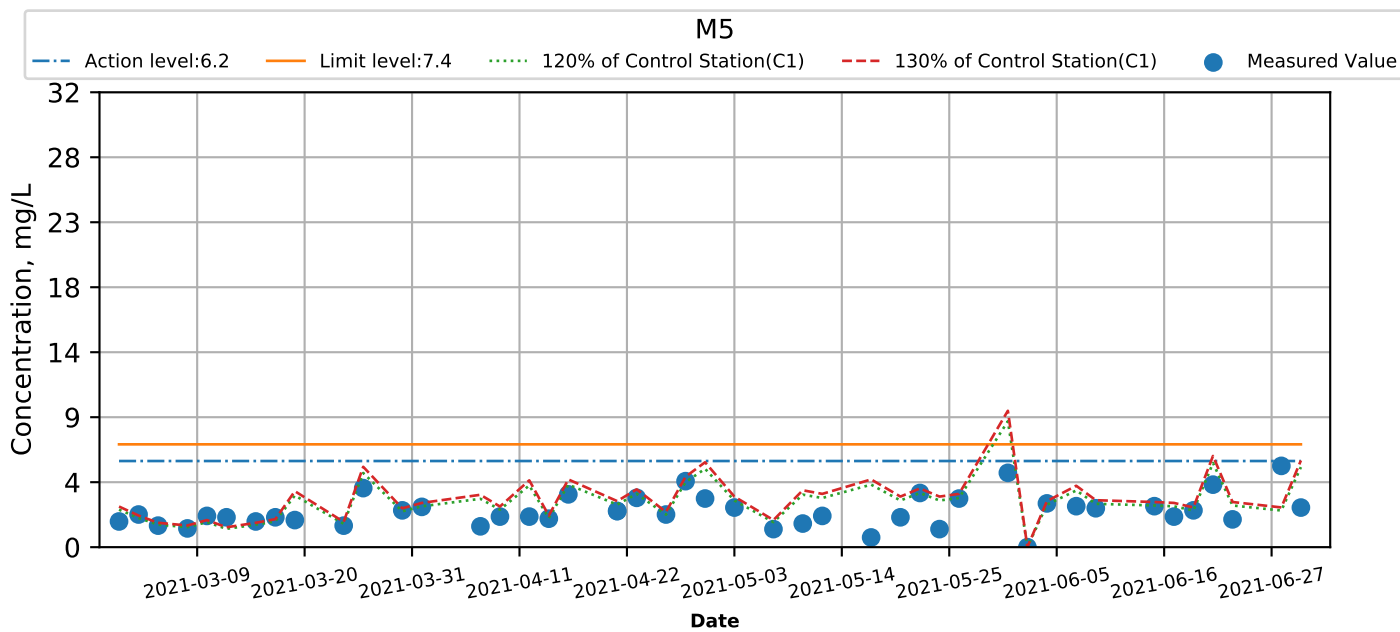
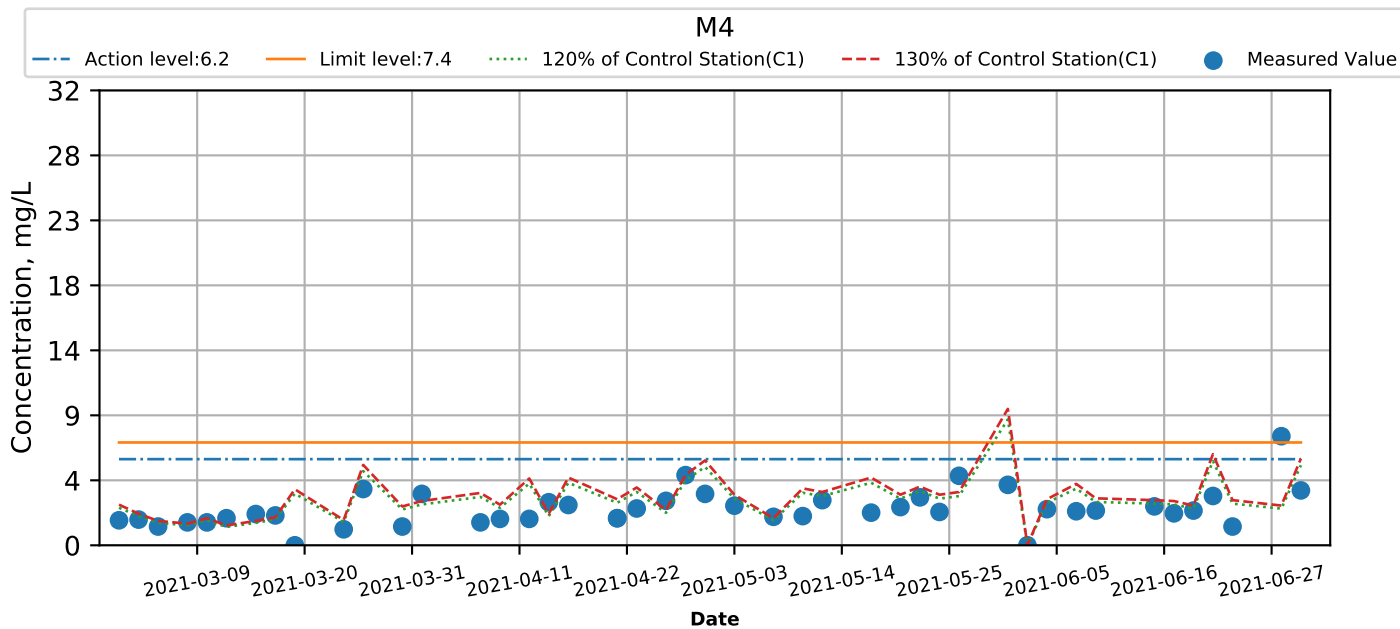
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Flood



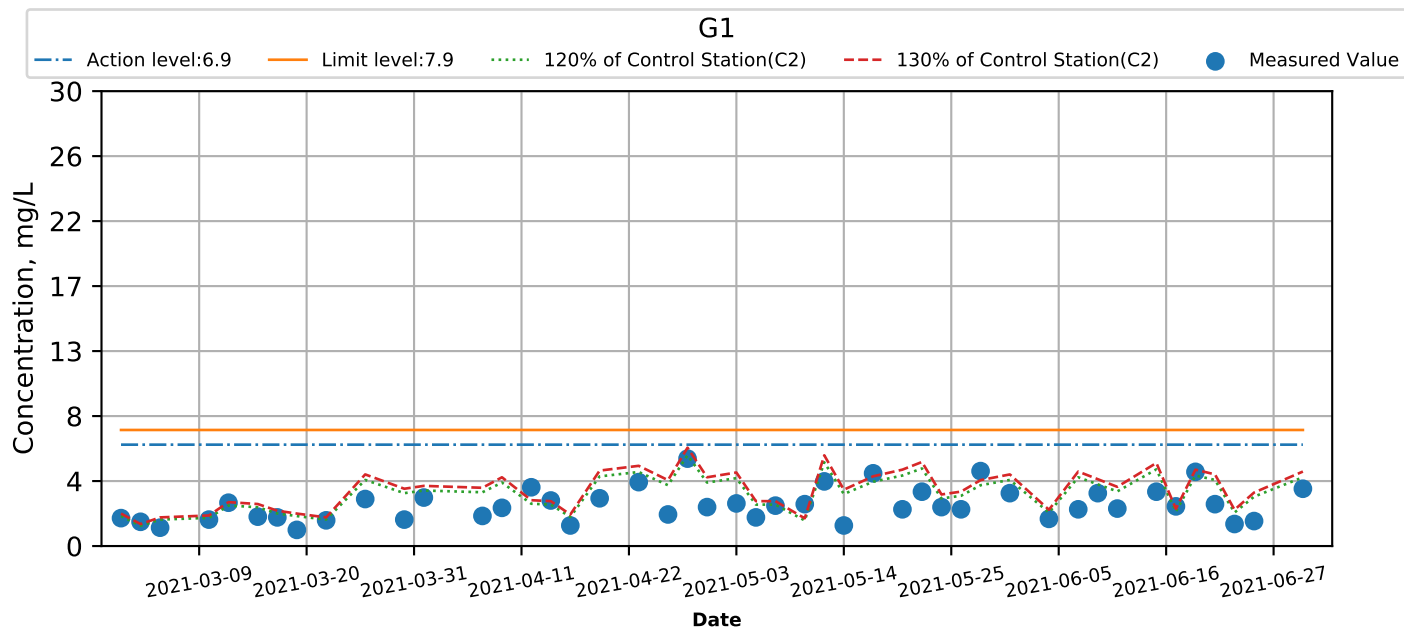
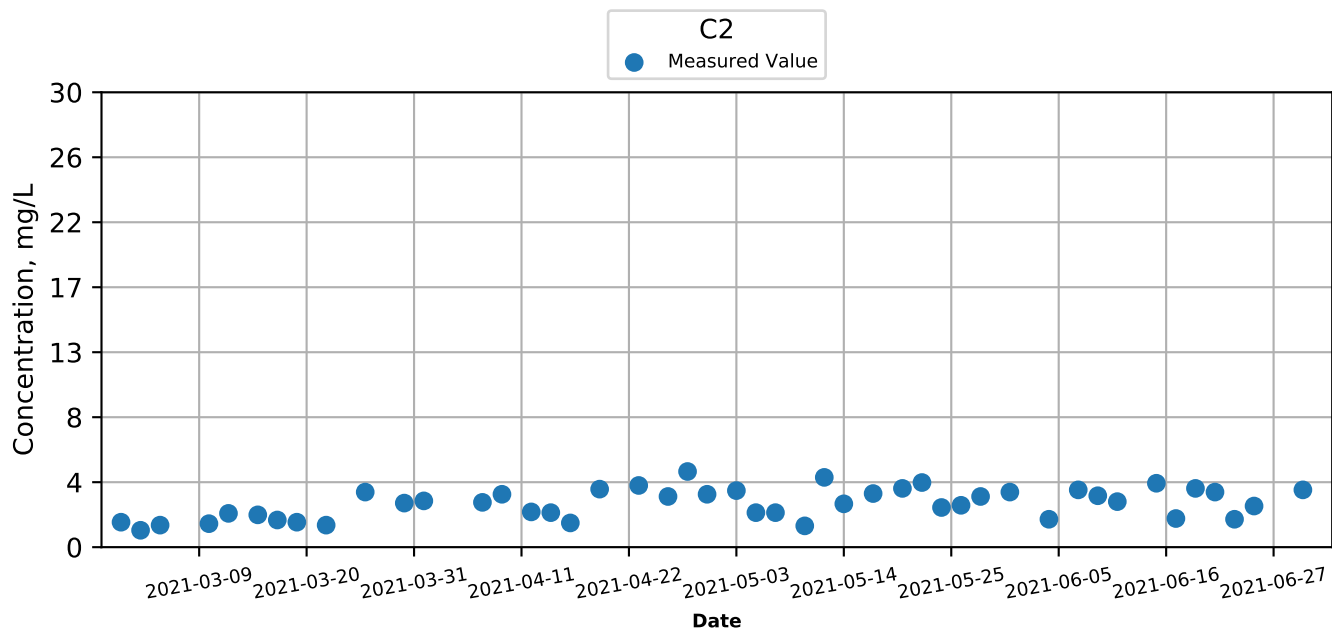
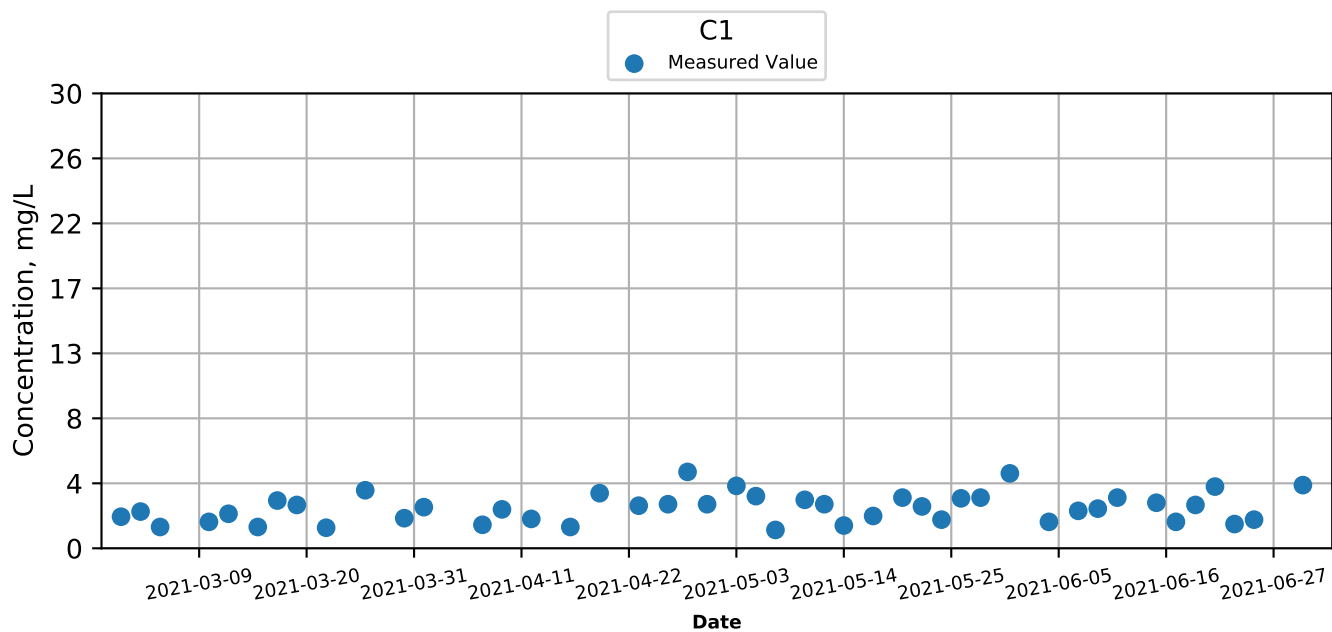
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Surface) at Monitoring Stations during Mid-Flood



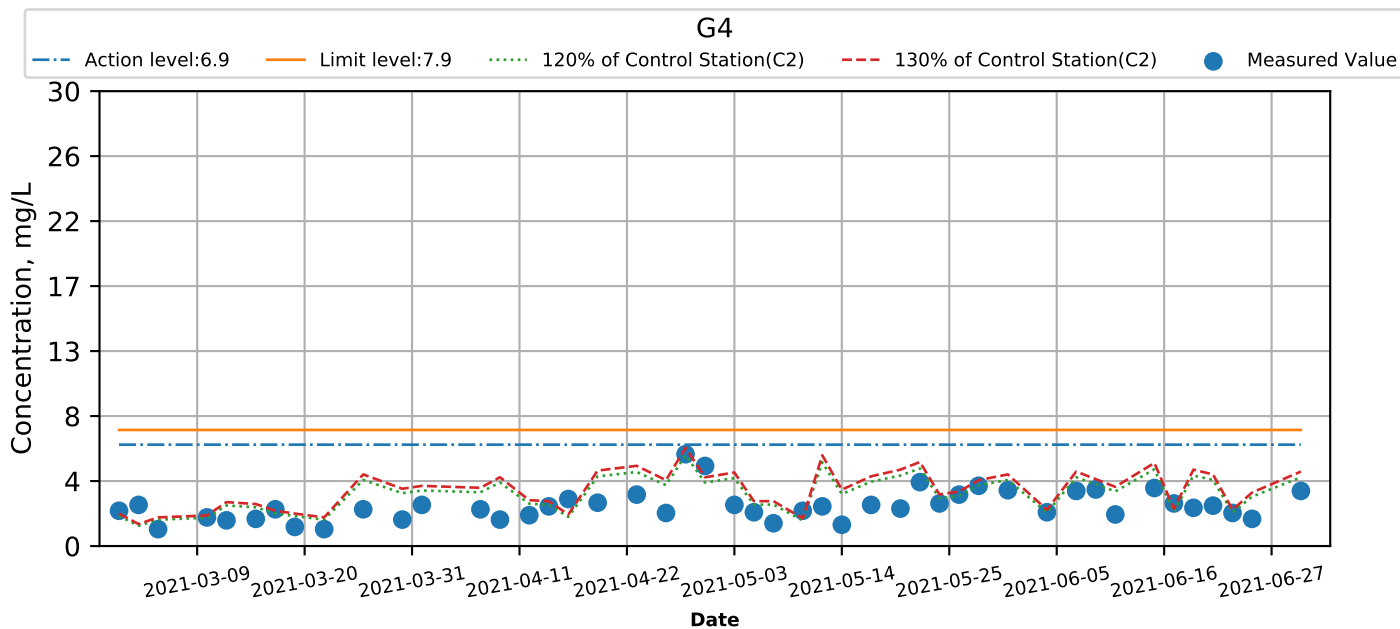
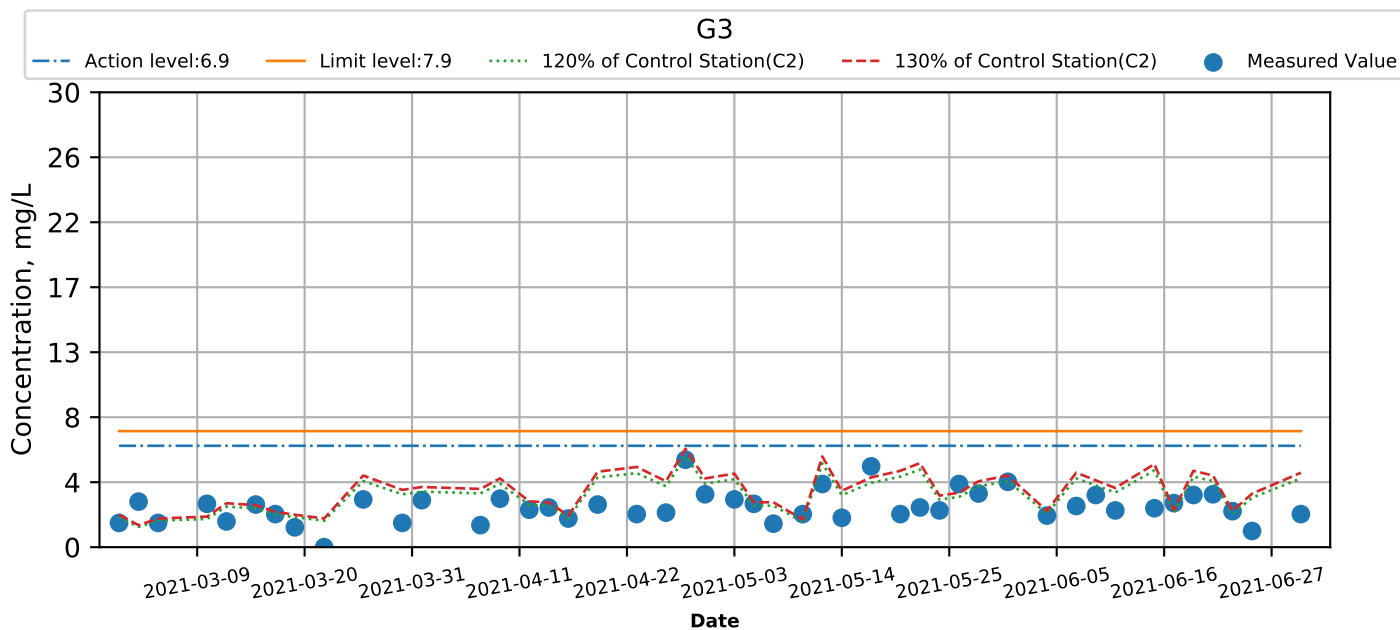
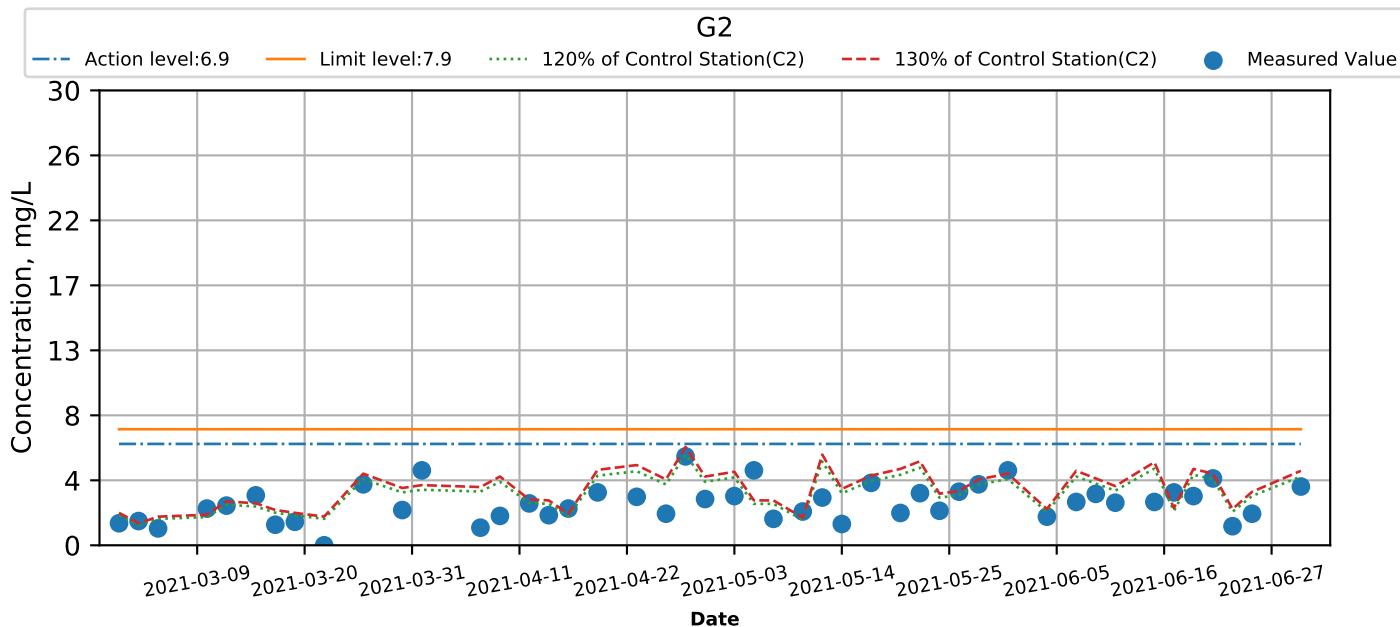
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Ebb



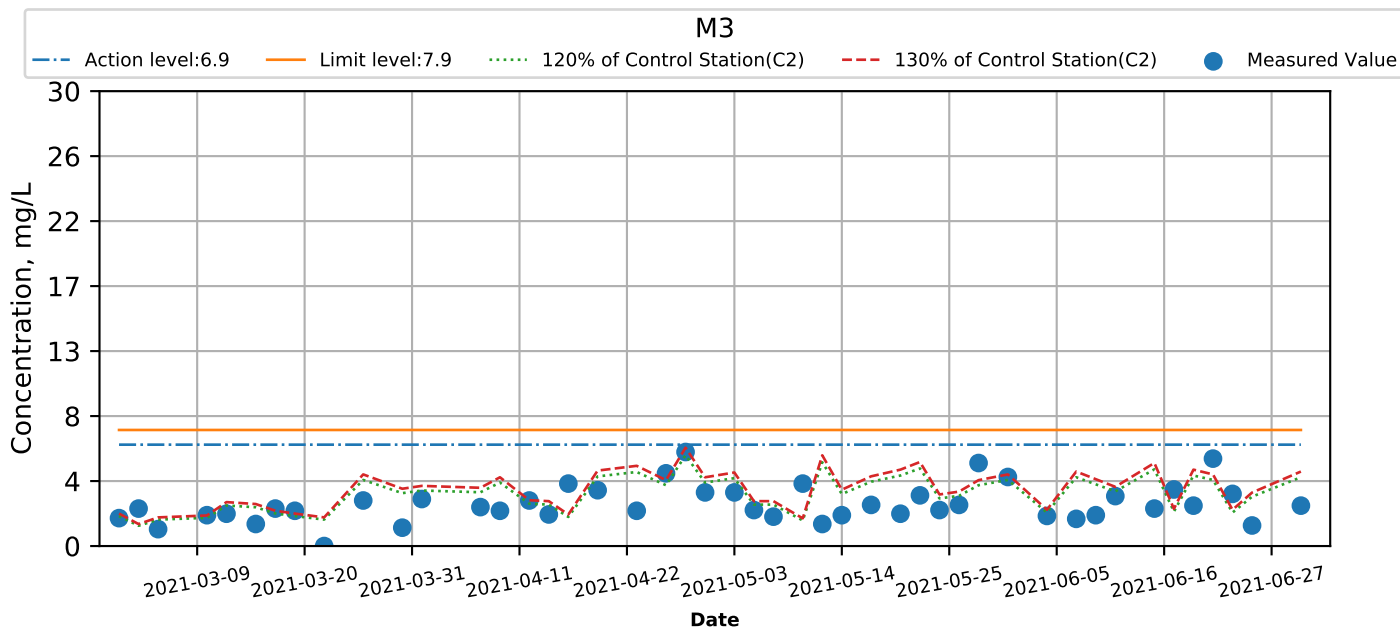
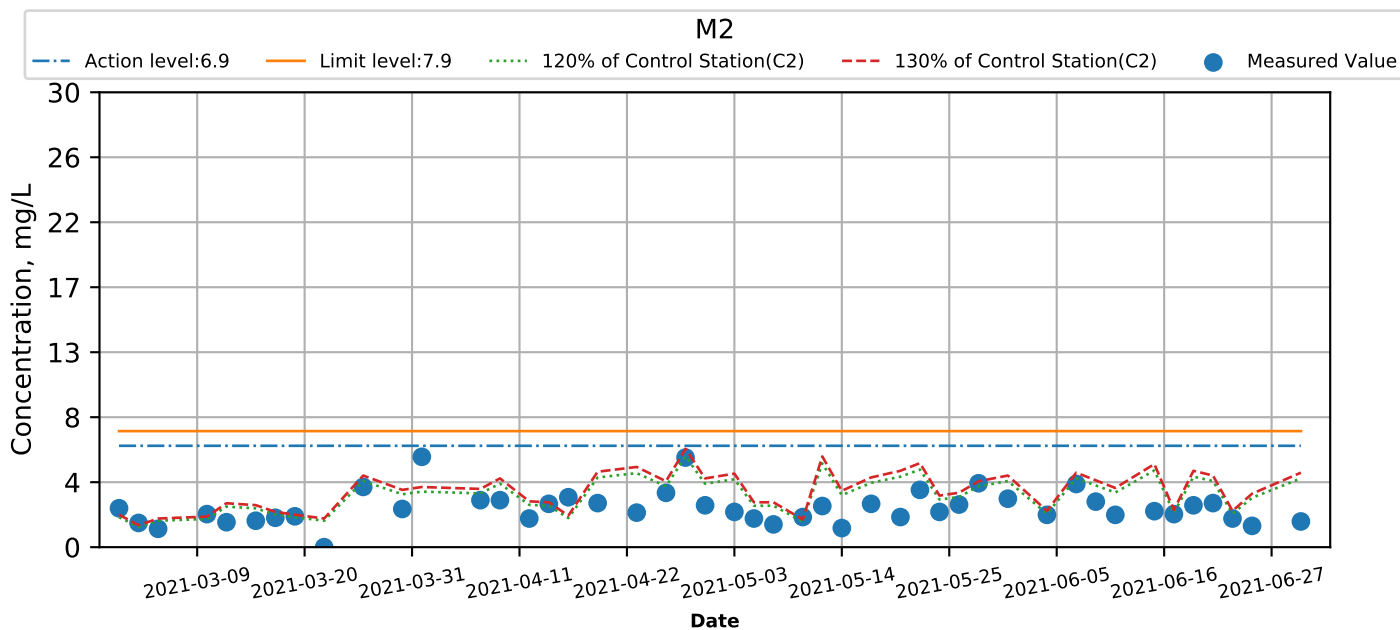
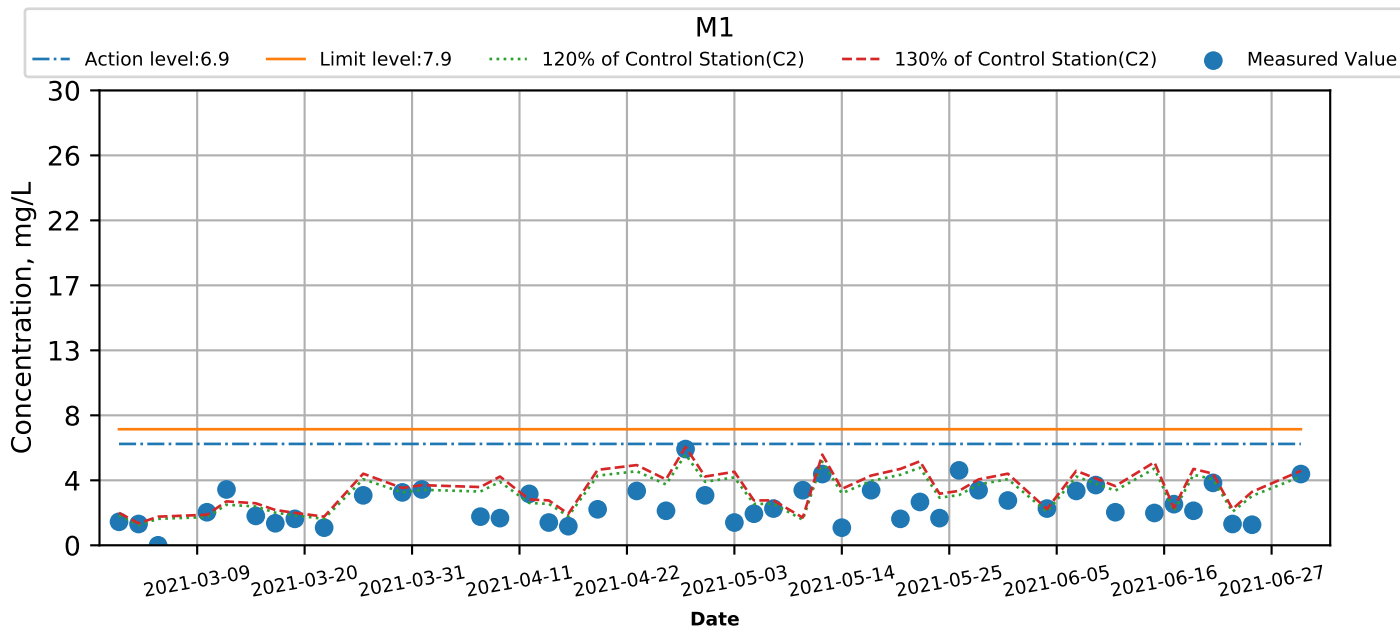
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Ebb



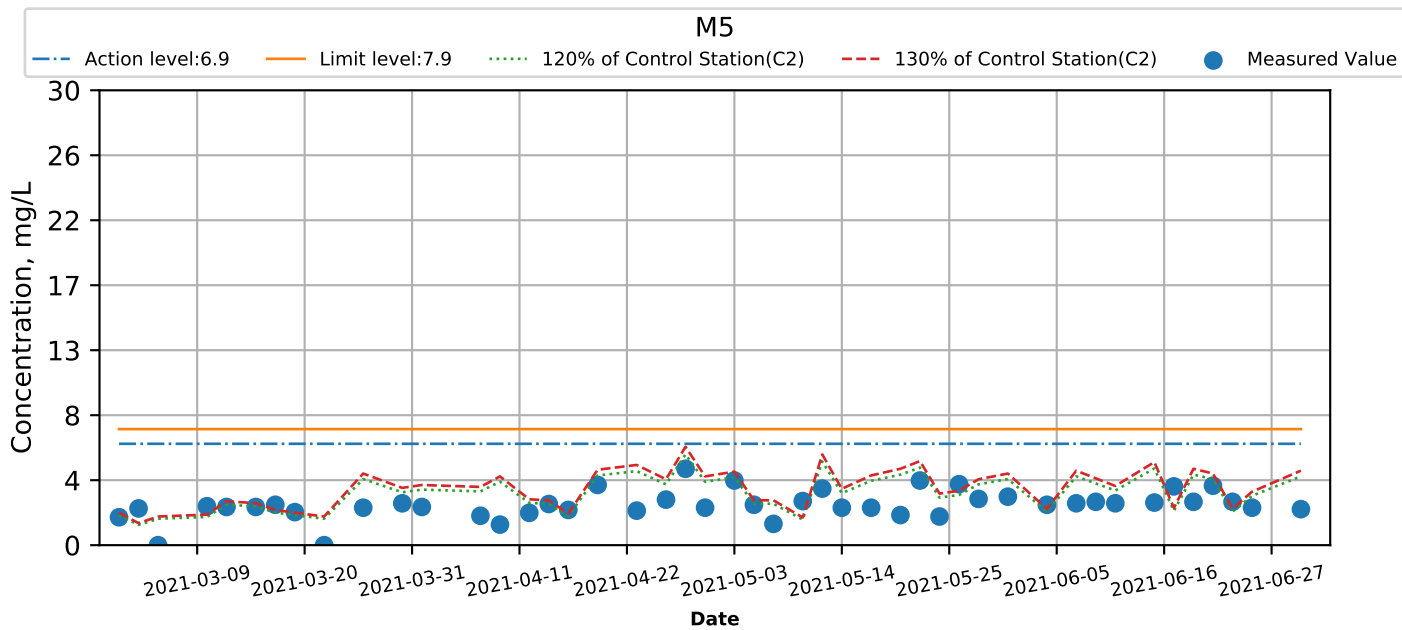
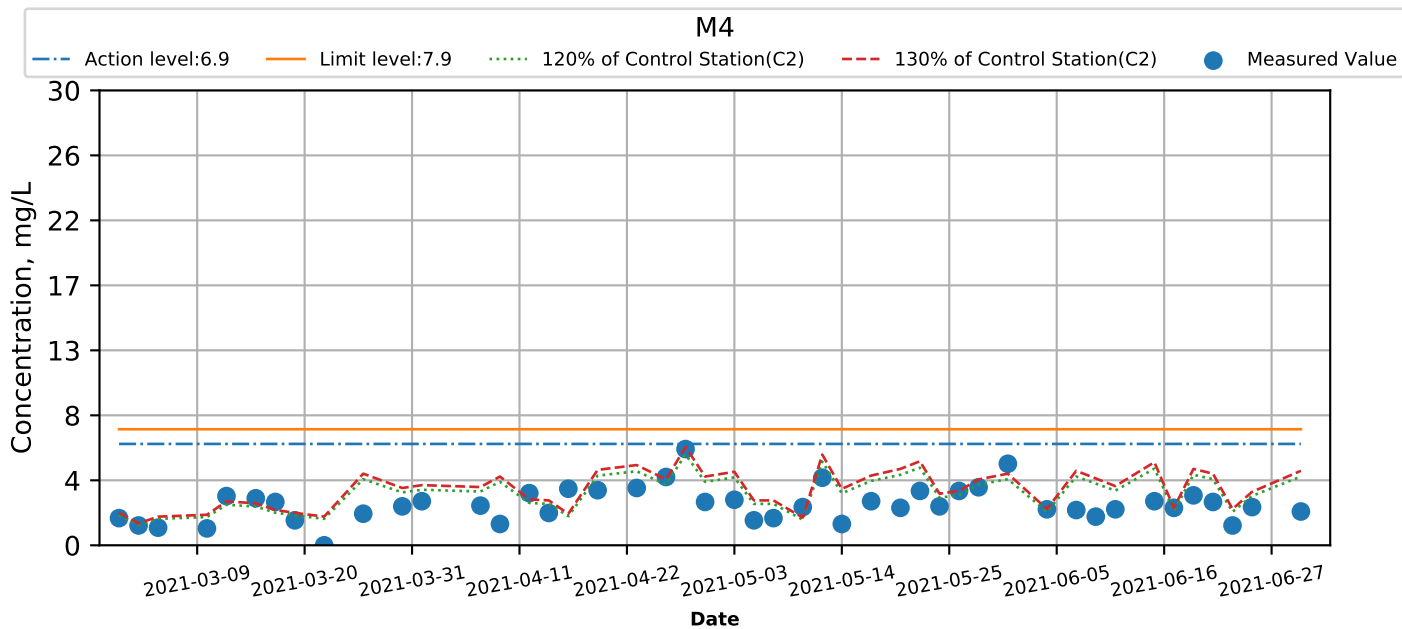
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Ebb



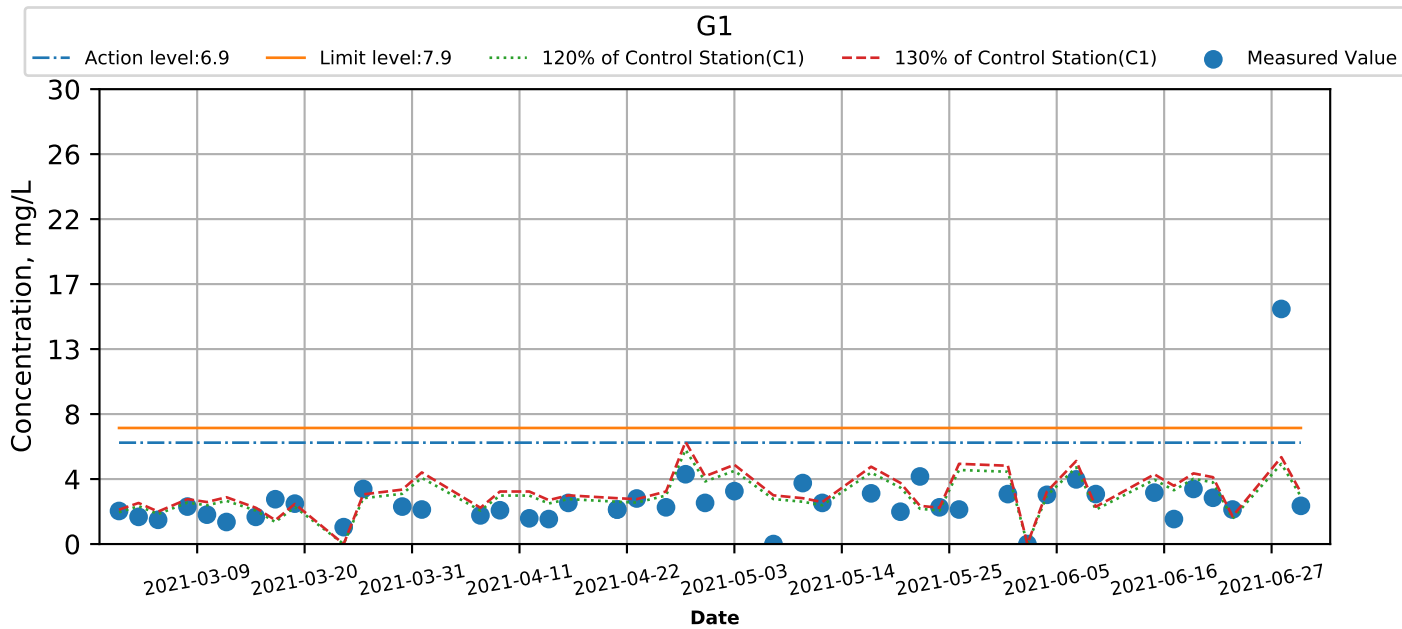
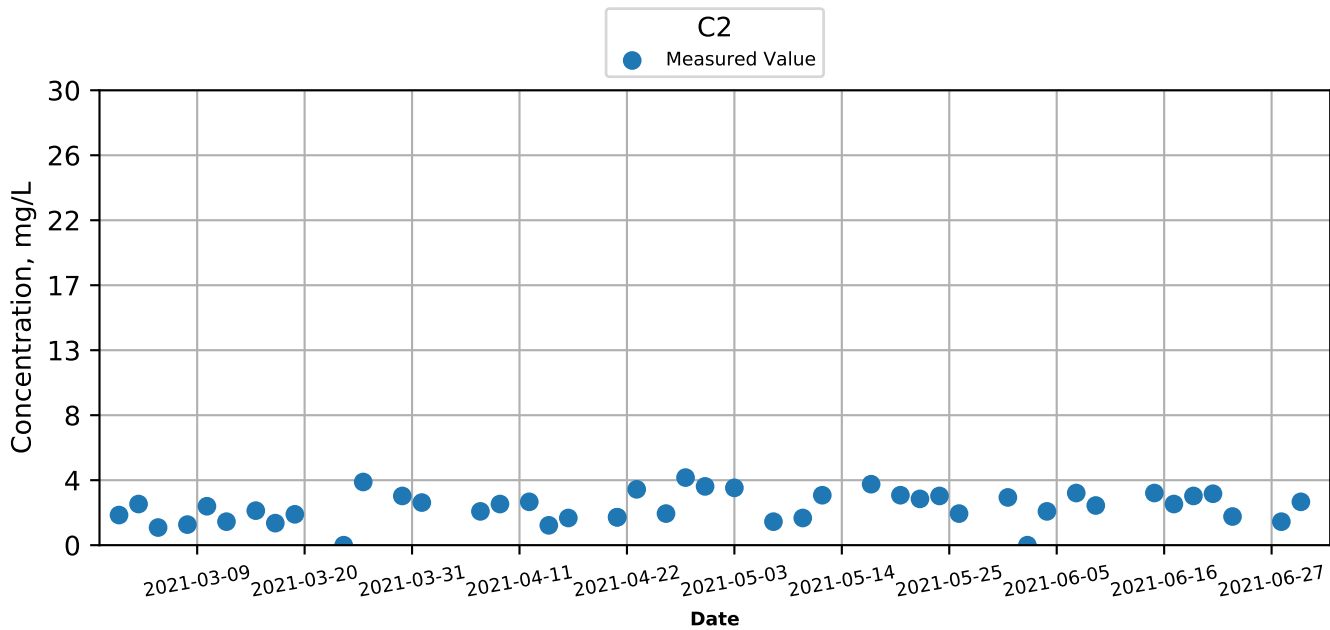
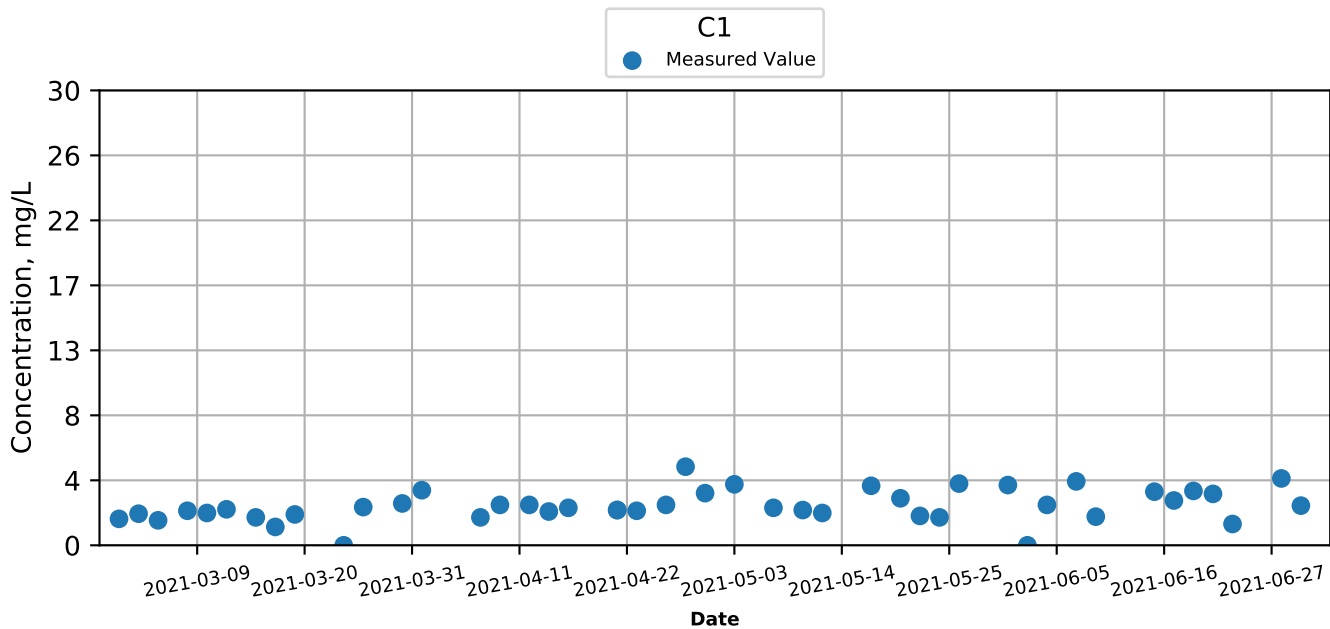
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Ebb



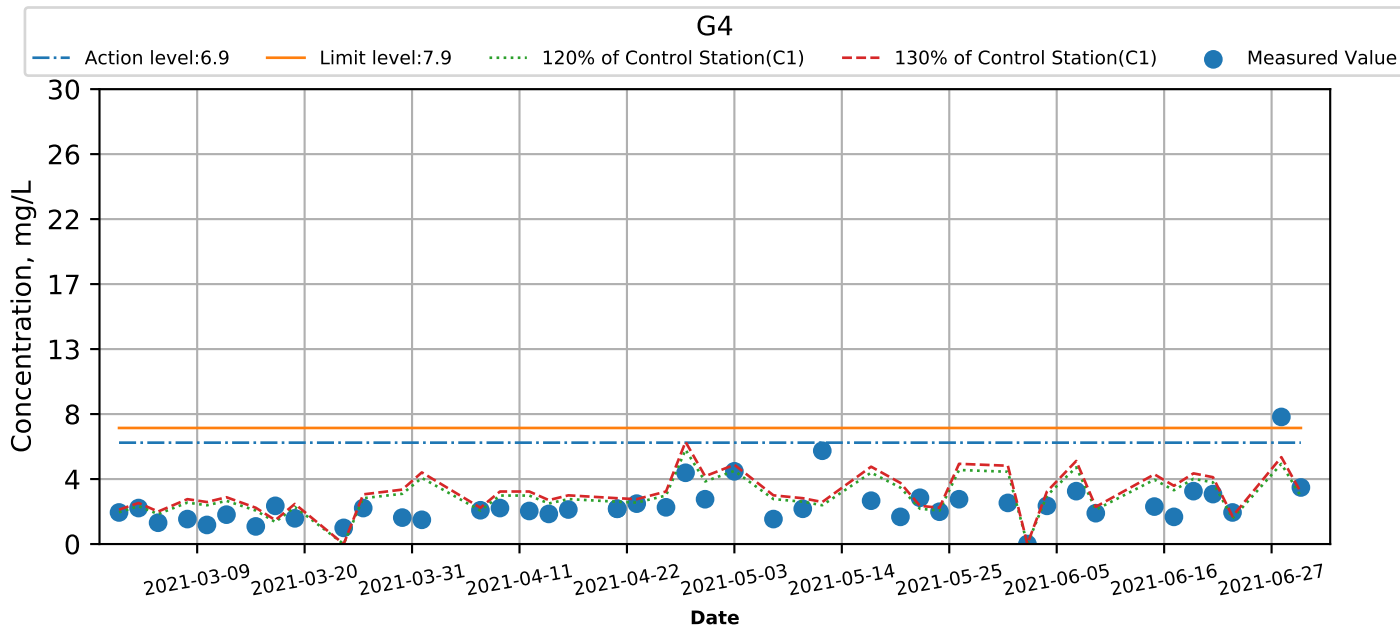
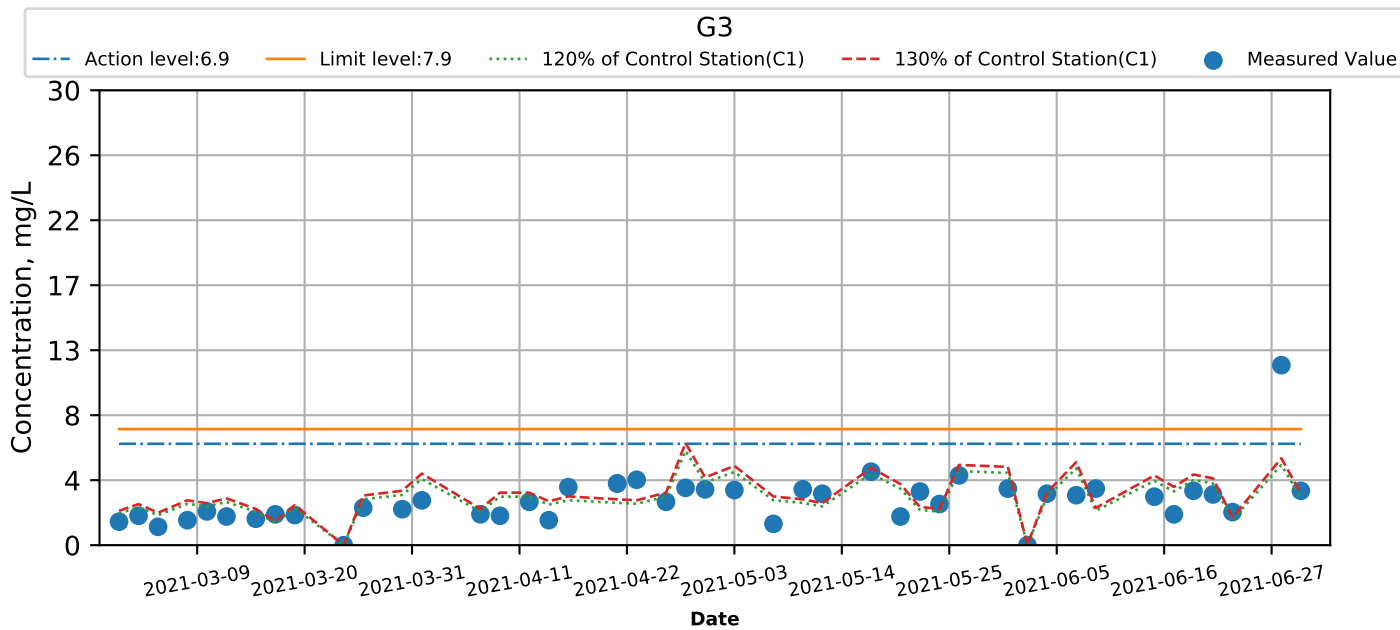
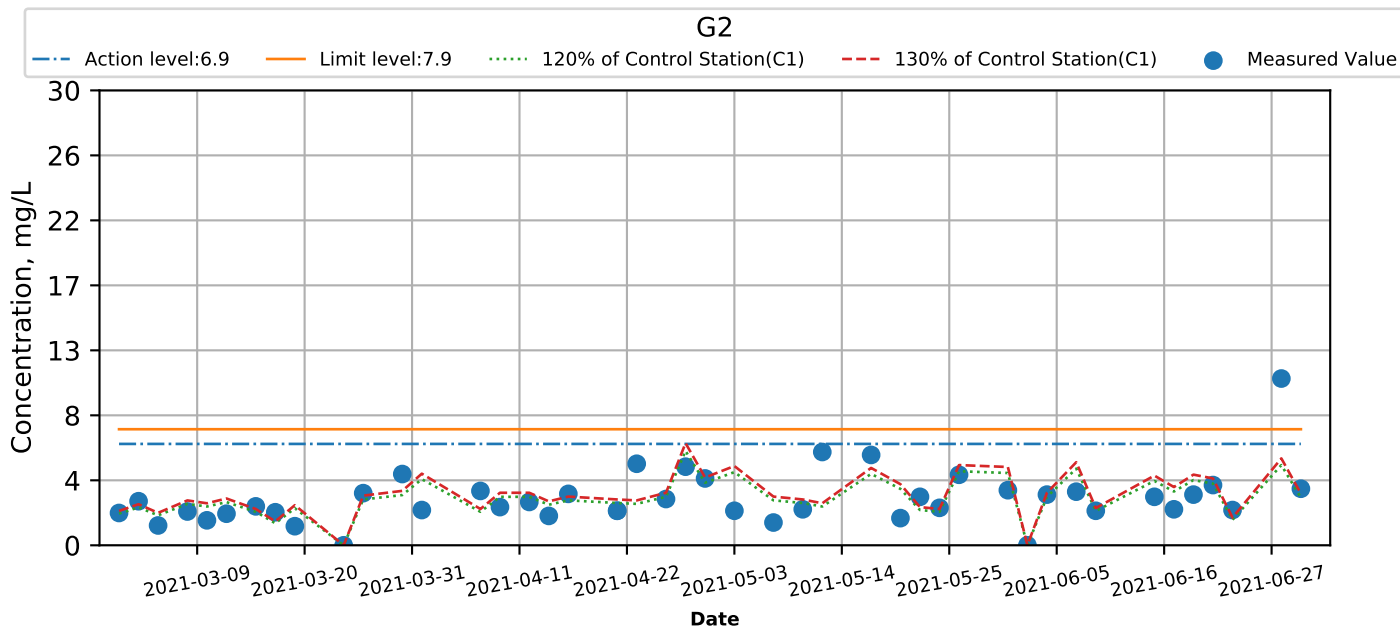
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Flood



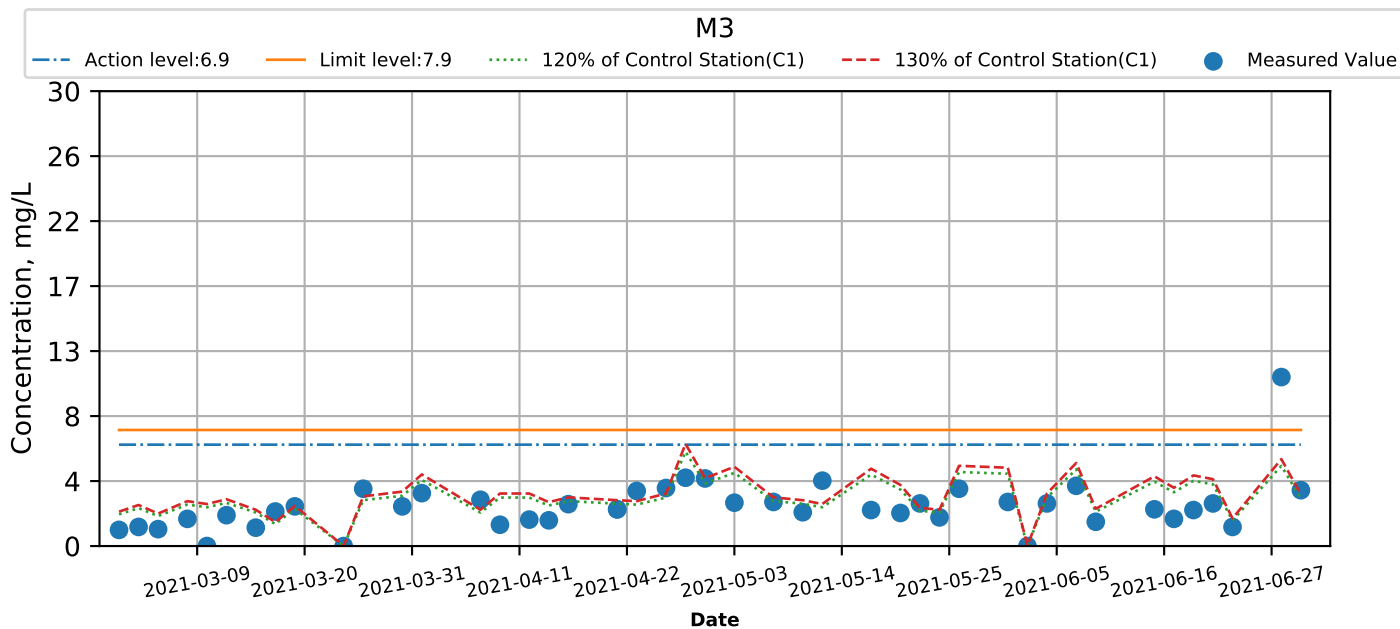
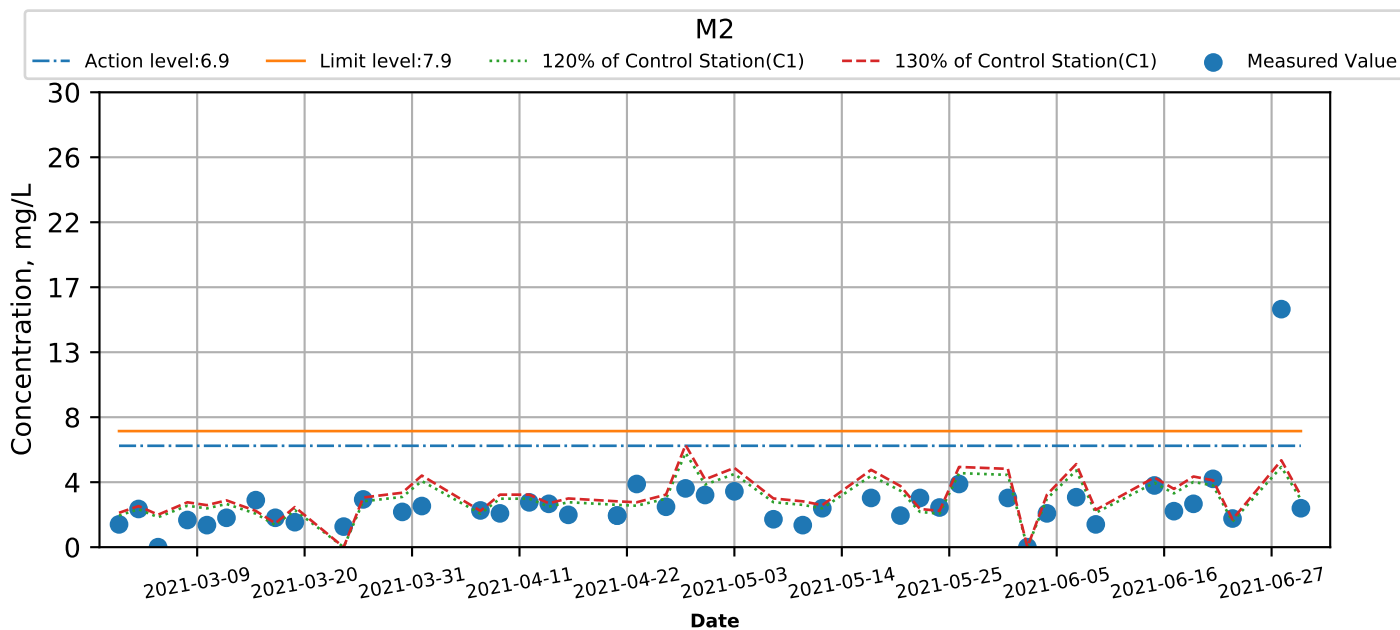
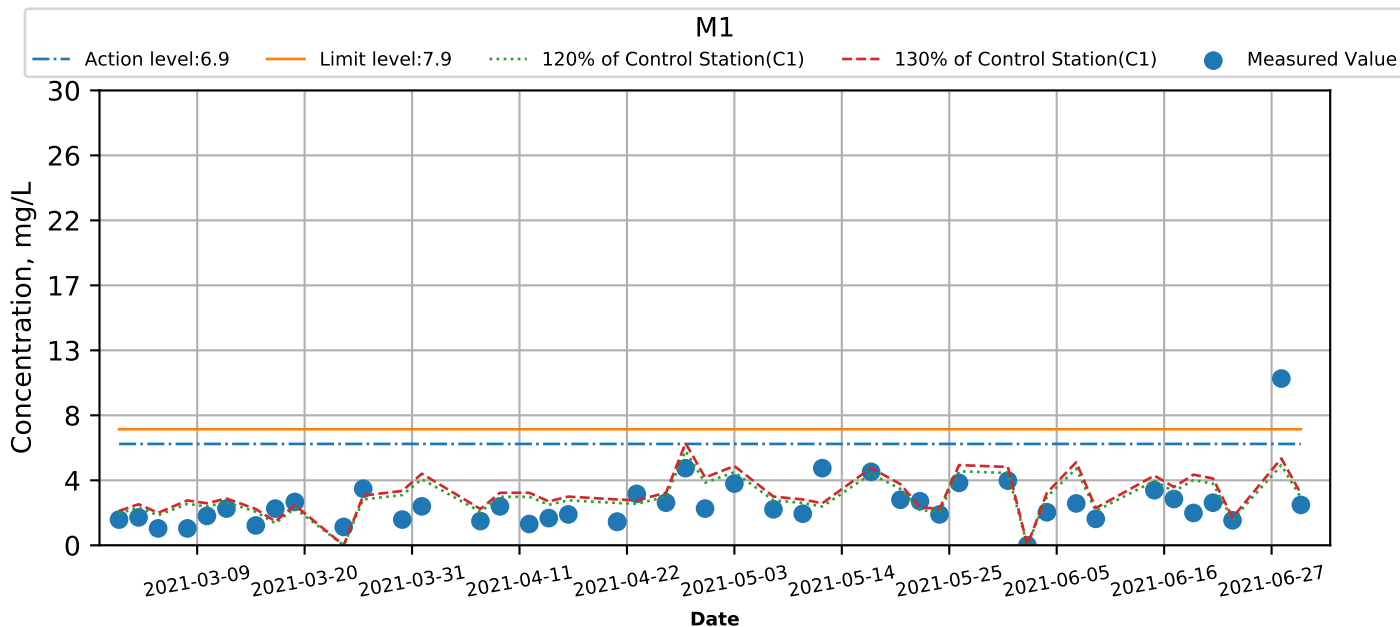
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Flood



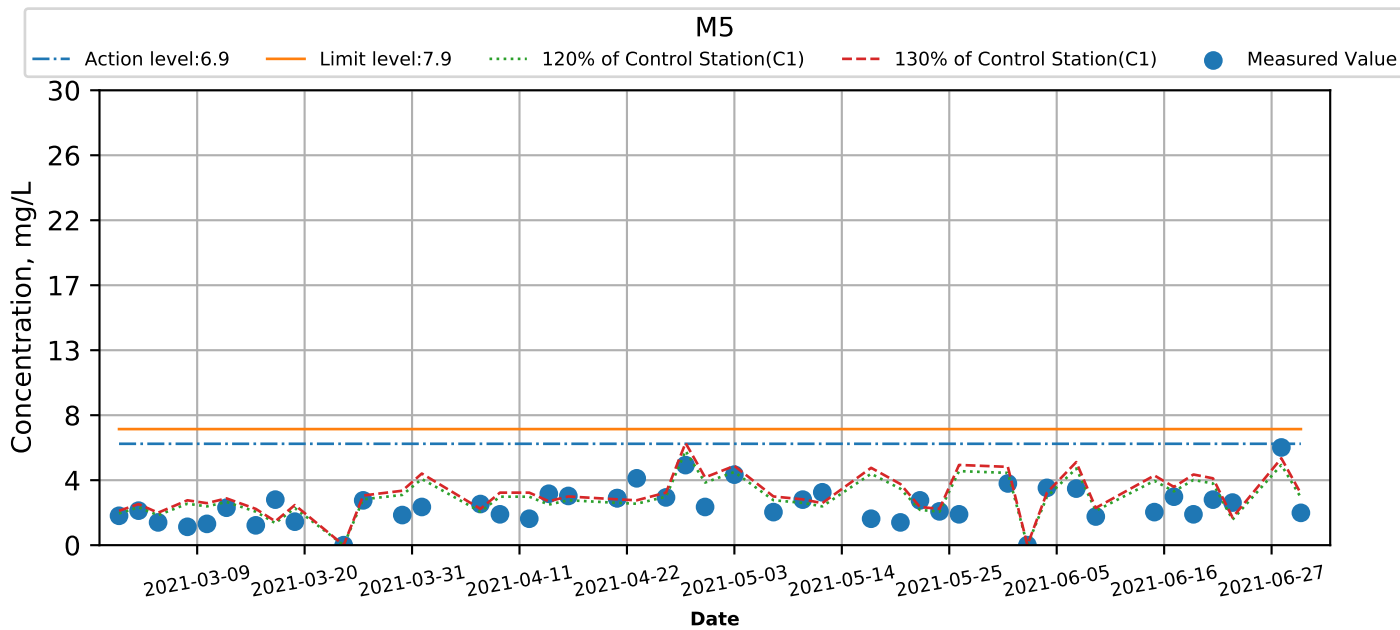
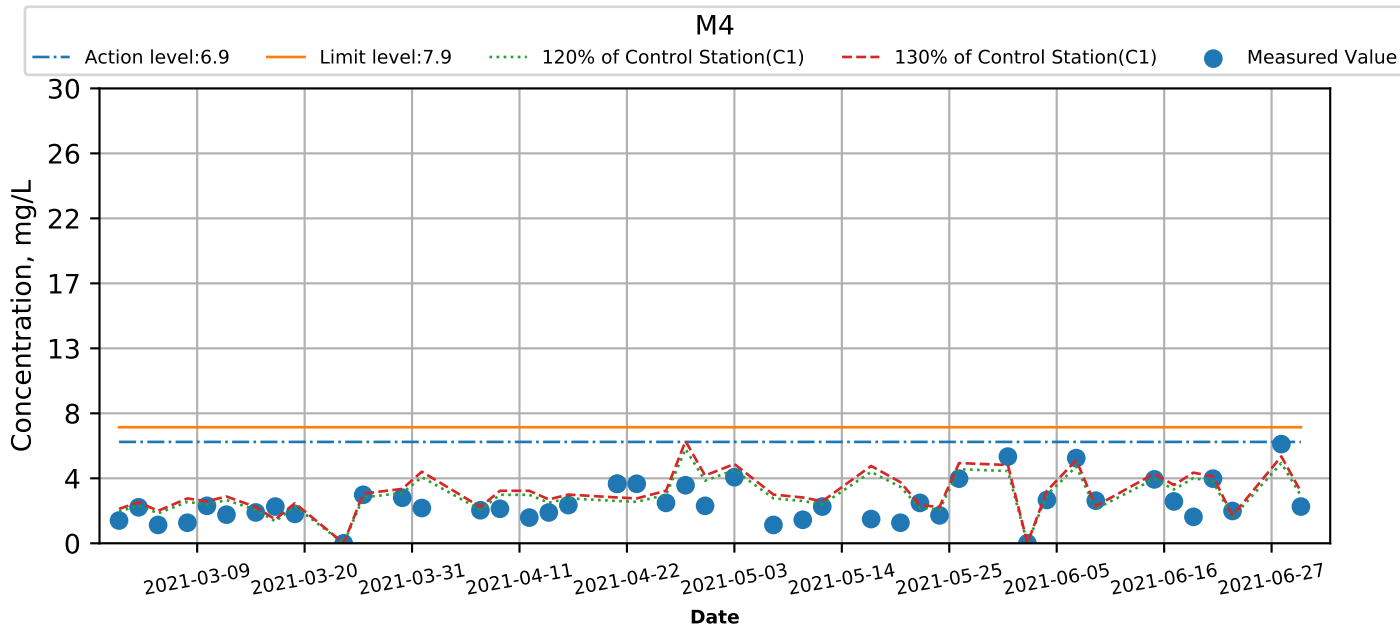
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Flood



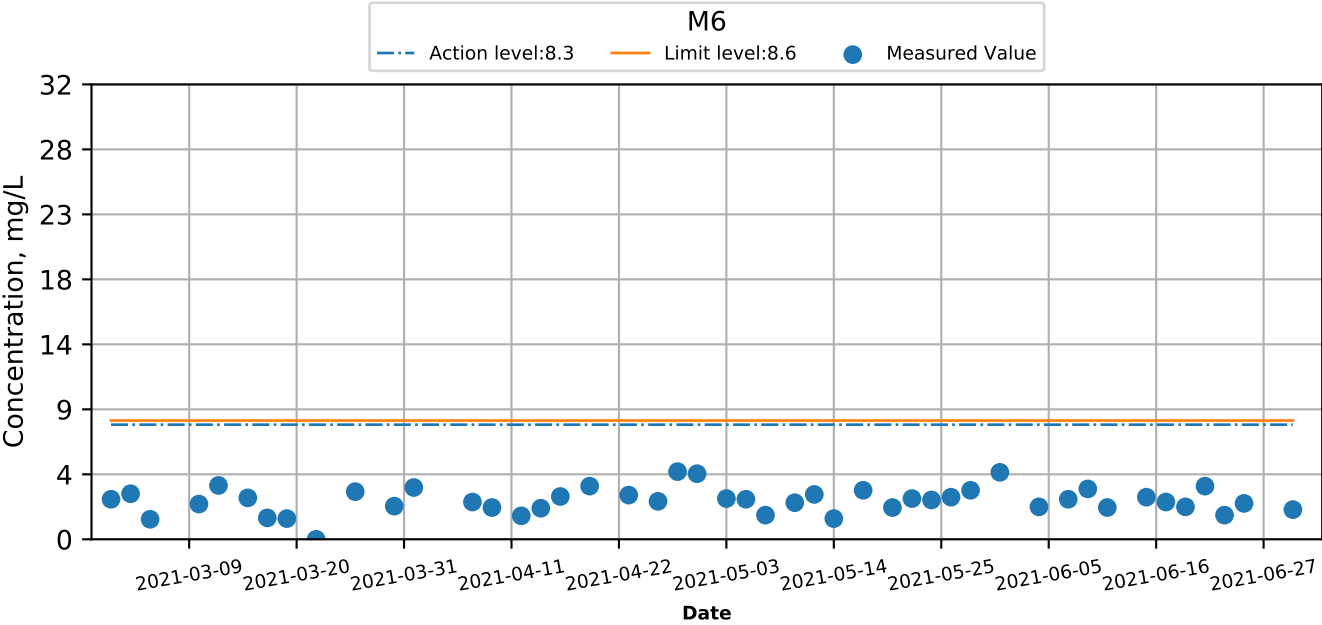
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Bottom) at Monitoring Stations during Mid-Flood



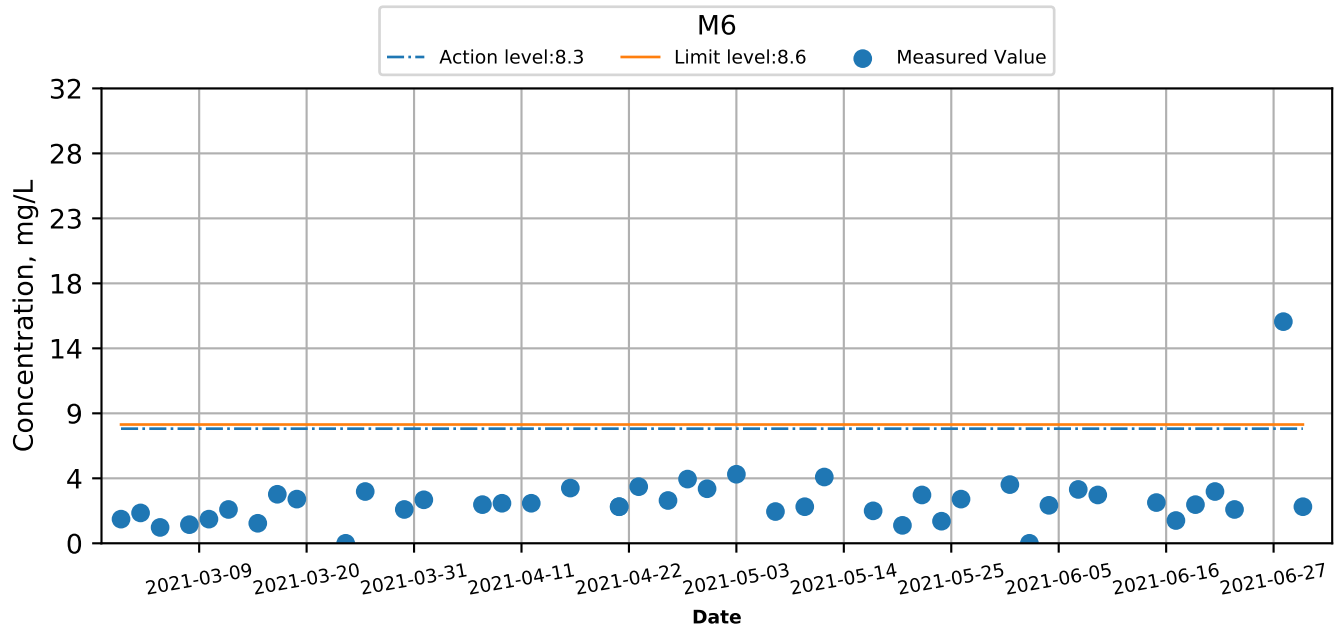
Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Intake level) at Monitoring Stations during Mid-Ebb



Graphical Presentation of Water Quality Monitoring Results (Mar-2021 to Jun-2021)

Suspended Solids (Intake level) at Monitoring Stations during Mid-Flood



**APPENDIX J
QUALITY CONTROL REPORTS FOR
LABORATORY ANALYSIS**



CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 6
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2120935
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: TKOLTT/MA16034			<i>Date received</i>	: 02-Jun-2021
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020	<i>Date of issue</i>	: 10-Jun-2021
<i>C-O-C number</i>	: —			<i>No. of samples</i>	- Received : 68
<i>Site</i>	:				- Analysed : 68

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 02-Jun-2021 to 10-Jun-2021.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2120935 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2120938
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 04-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 16-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

This report supersedes any previous report(s) with this reference. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. Testing period is from 04-Jun-2021 to 16-Jun-2021.

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2120938 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2121855
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 07-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 16-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2121855 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2121856
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 09-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 21-Jun-2021
<i>Project</i>	: TKOLTT/MA16034	<i>Quote number</i>	: HKE/2756/2020	<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008				- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2121856 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.



CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 6
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2121857
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 11-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 23-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 68
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 68
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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 Fung Lim Chee, Richard	Managing Director	Inorganics



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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2121857 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 4
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2122661
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 04-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 07-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 3
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 3
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2122661 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2122761
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 15-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 24-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2122761 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2122762
<i>Address</i>	: RM 1710, TECHNOLOGY PARK, 18 ON LAI STREET, SHATIN, N.T. HONG KONG HONG KONG	<i>Address</i>	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 17-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 28-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:</i>
 Fung Lim Chee, Richard	Managing Director	Inorganics



General Comments

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2122762 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2122763
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<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
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<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 29-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2122763 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2122914
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<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044		
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: TKOLTT/MA16034			<i>Date received</i>	: 07-Jun-2021
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020	<i>Date of issue</i>	: 09-Jun-2021
<i>C-O-C number</i>	: —			<i>No. of samples</i>	- Received : 9
<i>Site</i>	:				- Analysed : 9

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2122914 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2123478
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<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 30-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Specific Comments for Work Order HK2123478 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 9
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2123482
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<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 23-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 05-Jul-2021
<i>Project</i>	: TKOLTT/MA16034	<i>Quote number</i>	: HKE/2756/2020	<i>No. of samples</i>	- Received : 136
<i>Order number</i>	: PO20008				- Analysed : 136
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2123482 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




CERTIFICATE OF ANALYSIS

<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 6
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2123484
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<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 25-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 07-Jul-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 68
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 68
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Specific Comments for Work Order HK2123484 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2124020
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<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 17-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 6
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 6
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Specific Comments for Work Order HK2124020 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 17-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 18-Jun-2021
<i>Project</i>	: TKOLTT/MA16034	<i>Quote number</i>	: HKE/2756/2020	<i>No. of samples</i>	- Received : 2
<i>Order number</i>	: PO20008				- Analysed : 2
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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 Fung Lim Chee, Richard	Managing Director	Inorganics



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Specific Comments for Work Order HK2124399 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2124871
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<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 21-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 23-Jun-2021
<i>Project</i>	: TKOLTT/MA16034			<i>No. of samples</i>	- Received : 6
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020		- Analysed : 6
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Specific Comments for Work Order HK2124871 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.




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<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 6
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2124952
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<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021		
<i>Project</i>	: TKOLTT/MA16034			<i>Date received</i>	: 28-Jun-2021
<i>Order number</i>	: PO20008	<i>Quote number</i>	: HKE/2756/2020	<i>Date of issue</i>	: 08-Jul-2021
<i>C-O-C number</i>	: —			<i>No. of samples</i>	- Received : 68
<i>Site</i>	:				- Analysed : 68

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2124952 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.



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<i>Client</i>	: CINOTECH CONSULTANTS LIMITED	<i>Laboratory</i>	: ALS Technichem (HK) Pty Ltd	<i>Page</i>	: 1 of 4
<i>Contact</i>	: CCL	<i>Contact</i>	: Richard Fung	<i>Work Order</i>	: HK2125796
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<i>E-mail</i>	: data@cinotech.com.hk	<i>E-mail</i>	: richard.fung@alsglobal.com		
<i>Telephone</i>	: ----	<i>Telephone</i>	: +852 2610 1044	<i>Date received</i>	: 28-Jun-2021
<i>Facsimile</i>	: ----	<i>Facsimile</i>	: +852 2610 2021	<i>Date of issue</i>	: 30-Jun-2021
<i>Project</i>	: TKOLTT/MA16034	<i>Quote number</i>	: HKE/2756/2020	<i>No. of samples</i>	- Received : 6
<i>Order number</i>	: PO20008				- Analysed : 6
<i>C-O-C number</i>	: —				
<i>Site</i>	:				

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Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order HK2125796 :

Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.

Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.

**APPENDIX K
SUMMARY OF EXCEEDANCE**

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel –
Design and Construction

Appendix K – Summary of Exceedance

Reporting Period: June 2021

(A) Exceedance Report for Air Quality

One (1) limit level and Zero (0) action level exceedance for air quality monitoring of 24-hr TSP was recorded in the reporting month. Refer to the attached notifications and investigation report for details.

No exceedance for air quality monitoring of 1-hr TSP was recorded in the reporting month.

(B) Exceedance Report for Construction Noise

Action Level for Construction Noise

No action level exceedances were recorded due to the documented complaints received in this reporting month.

Limit Level for Construction Noise

One (1) limit level exceedance for daytime construction noise monitoring was recorded in the reporting month. Refer to the attached notifications and investigation report for details.

No exceedance for evening-time construction noise monitoring was recorded in the reporting month.

No exceedances for nighttime construction noise monitoring was recorded in the reporting month.

Exceedance recorded during daytime

(NIL in the reporting month)

Exceedance recorded during night-time

(NIL in the reporting month)

(C) Exceedance Report for Water Quality

Thirty-one (31) Action Level and one-hundred-and-sixteen (116) Limit Level exceedances were recorded in Monitoring Stations (M) during marine water quality monitoring. Refer to the attached notifications and investigation report for details.

Since October 2019, groundwater monitoring had been suspended.

(D) Exceedance Report for Ecology

(NIL in the reporting month)

(E) Exceedance Report for Cultural Heritage

(NIL in the reporting month)

(F) Exceedance Report for Landfill Gas

(NIL in the reporting month)

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel

- Notification of Exceedances

NOE No. 210630_Air (AM1) **Exceedance Level:** Limit

Time of Measurement: 0900 (30 June 2021) – 0900 (1 July 2021)

Date of Air Monitoring: 30 June 2021 - 1 July 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Air Quality (24hr-TSP)

Station	Location	Time	Filter Weight (g) Initial	Filter Weight (g) Final	Particulate Weight (g)	Particulate Concentration ($\mu\text{g}/\text{m}^3$)	Action Level: ($\mu\text{g}/\text{m}^3$)	Limit Level: ($\mu\text{g}/\text{m}^3$)	Level exceeded
AM1	Tin Hau Temple	0900 (30 June 2021) – 0900 (1 July 2021)	3.6911	4.8963	1.2052	<u>702.0</u>	173	<u>260</u>	Limit

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Air quality measured at AM1 exceeded the air quality limit level for 24-hour TSP monitoring.

(b) Cause of exceedance(s)


The exceedance was considered as non-project related:

- According to our field observation, renovation works of Tin Hau Temple was operating during the monitoring period (As shown in photo).



Part B – Conclusion: The exceedance of the air quality limit level for 24-hour TSP monitoring was not related to the Project.

Part C – Recommendation: N/A.

ETL Signature: 

Date: 12 July 2021

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O – Lam Tin Tunnel

- Notification of Exceedances

NOE No. 210622_noise (CM5) Exceedance Level: Limit

Time of Measurement: 16:30-17:00

Date of Noise Monitoring: 22 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Construction Noise

Station	Location	Time	Measured Level (L _{eq} dB(A))	Baseline Noise Level (L _{eq} dB(A))	Construction Noise Level (L _{eq} dB(A))	Action Level	Limit Level (L _{eq} dB(A))	Level exceeded
CM5	CCC Kei Faat Primary School, Yau Tong	16:32	77.7	68.2	<u>77</u>	When one documented complaint is received.	70	Limit
CM5	CCC Kei Faat Primary School, Yau Tong	17:04	78.5	68.2	<u>78</u>	When one documented complaint is received.	70	Limit

Field Observation(s) and Conclusion

(a) Statement of exceedance(s)

Construction noise measured at CM5 exceeded the construction noise (daytime) limit level.

(b) Cause of exceedance(s)

The exceedance was considered related to the Project works:

- According to our field observation, breaking noise was identified as the dominant noise source (as shown in photo).
- Apart from the breaker, road traffic and excavator were observed during the monitoring.



Part B – Conclusion: The exceedance of daytime noise limit levels was related to the Project.

Part C – Recommendation: Daytime noise exceedance was recorded despite noise barrier had been erected near the breaker. The contractor is reminded to strictly follow approved CNMP and show enhancement at Portion WA2a.

ETL Signature: 

Date: 22 June 2021

- Notification of Exceedance

Date of Water Quality Monitoring: **02 June 2021**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	1.8	G4	17:25	2.2	2.4	<u>3.6</u>
Intake	N/A	N/A	Mid-flood	C1	1.8	M6	17:30	2.2	2.4	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: **04 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.4	M2	8:07	6.2	7.4	2.8	3.1	<u>3.2</u>
Mid-Ebb	C2	surface	2.4	M3	8:32	6.2	7.4	2.8	3.1	2.9
Mid-Ebb	C2	surface	2.4	M4	7:58	6.2	7.4	2.8	3.1	2.9
Mid-Ebb	C2	bottom	1.9	M1	8:17	6.9	7.9	2.3	2.5	2.5
Mid-Ebb	C2	bottom	1.9	M4	7:58	6.9	7.9	2.3	2.5	2.5
Mid-Ebb	C2	bottom	1.9	M5	8:50	6.9	7.9	2.3	2.5	<u>2.8</u>
Mid-Flood	C1	surface	2.6	G4	14:25	6.0	6.9	3.1	3.3	<u>3.4</u>
Mid-Flood	C1	surface	2.6	M2	13:39	6.2	7.4	3.1	3.3	<u>3.5</u>
Mid-Flood	C1	surface	2.6	M5	14:40	6.2	7.4	3.1	3.3	3.2
Mid-Flood	C1	bottom	2.8	G1	14:02	6.9	7.9	3.3	3.6	3.4
Mid-Flood	C1	bottom	2.8	G3	14:08	6.9	7.9	3.3	3.6	3.5
Mid-Flood	C1	bottom	2.8	M5	14:40	6.9	7.9	3.3	3.6	<u>3.9</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 - Notification of Exceedance

Date of Water Quality Monitoring: 04 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	1.8	G4	14:25	2.2	2.4	<u>3.6</u>
Bottom	19.3	22.2	Mid-flood	C1	1.8	M3	14:18	2.2	2.4	<u>3.3</u>
Bottom	19.3	22.2	Mid-flood	C1	1.8	M4	13:31	2.2	2.4	<u>2.6</u>
Intake	N/A	N/A	Mid-flood	C1	1.8	M6	14:33	2.2	2.4	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: **07 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	surface	3.4	G2	16:22	6.0	6.9	4.1	4.4	4.3
Mid-Flood	C1	surface	3.4	G3	16:38	6.0	6.9	4.1	4.4	<u>4.6</u>
Mid-Flood	C1	surface	3.4	G4	16:50	6.0	6.9	4.1	4.4	<u>4.6</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: **07 June 2021**

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Intake	N/A	N/A	Mid-flood	C1	6.5	M6	16:55	7.8	8.5	8.0

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Date of Water Quality Monitoring: **09 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	surface	2.6	G2	17:27	6.0	6.9	3.1	3.4	3.3
Mid-Flood	C1	surface	2.6	G4	18:05	6.0	6.9	3.1	3.4	3.2
Mid-Flood	C1	bottom	2.0	G1	17:46	6.9	7.9	2.3	2.5	<u>3.4</u>
Mid-Flood	C1	bottom	2.0	G2	10:49	6.9	7.9	2.3	2.5	<u>3.5</u>
Mid-Flood	C1	bottom	2.0	G3	17:52	6.9	7.9	2.3	2.5	<u>3.9</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: 09 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Intake	N/A	N/A	Mid-flood	C1	3.3	M6	18:20	3.9	4.2	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 - Notification of Exceedance

Date of Water Quality Monitoring: 11 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.9	G2	12:24	6.0	6.9	3.4	3.7	3.5

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 - Notification of Exceedance

Date of Water Quality Monitoring: 11 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	1.4	G1	12:43	1.7	1.8	<u>2.8</u>
Bottom	19.3	22.2	Mid-Ebb	C2	1.4	G3	12:51	1.7	1.8	1.8
Bottom	19.3	22.2	Mid-Ebb	C2	1.4	M3	13:01	1.7	1.8	<u>2.0</u>
Bottom	19.3	22.2	Mid-Ebb	C2	1.4	M5	13:27	1.7	1.8	<u>3.6</u>
Intake	N/A	N/A	Mid-Ebb	C2	1.4	M6	13:17	1.7	1.8	<u>3.0</u>
Intake	N/A	N/A	Mid-flood	C1	0.0	M6	#N/A	0.0	0.0	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring:

15 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	surface	2.5	G1	7:47	6.0	6.9	3.0	3.3	<u>4.4</u>
Mid-Flood	C1	surface	2.5	G2	7:26	6.0	6.9	3.0	3.3	<u>4.4</u>
Mid-Flood	C1	surface	2.5	G3	7:53	6.0	6.9	3.0	3.3	<u>3.9</u>
Mid-Flood	C1	surface	2.5	G4	8:08	6.0	6.9	3.0	3.3	<u>3.6</u>
Mid-Flood	C1	surface	2.5	M1	7:34	6.2	7.4	3.0	3.3	<u>3.2</u>
Mid-Flood	C1	surface	2.5	M2	7:20	6.2	7.4	3.0	3.3	<u>3.5</u>
Mid-Flood	C1	surface	2.5	M3	8:02	6.2	7.4	3.0	3.3	<u>3.9</u>
Mid-Flood	C1	surface	2.5	M4	14:39	6.2	7.4	3.0	3.3	<u>3.7</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: 15 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	2.3	G1	7:47	2.8	3.0	<u>3.1</u>
Intake	N/A	N/A	Mid-flood	C1	2.3	M6	8:14	2.8	3.0	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring:

17 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.9	G4	10:41	6.0	6.9	3.4	3.7	3.6
Mid-Ebb	C2	bottom	2.0	G1	10:29	6.9	7.9	2.3	2.5	<u>2.7</u>
Mid-Ebb	C2	bottom	2.0	G2	10:16	6.9	7.9	2.3	2.5	3.6
Mid-Ebb	C2	bottom	2.0	G3	10:33	6.9	7.9	2.3	2.5	<u>3.0</u>
Mid-Ebb	C2	bottom	2.0	G4	10:41	6.9	7.9	2.3	2.5	<u>2.9</u>
Mid-Ebb	C2	bottom	2.0	M1	10:23	6.9	7.9	2.3	2.5	<u>2.8</u>
Mid-Ebb	C2	bottom	2.0	M3	10:36	6.9	7.9	2.3	2.5	<u>3.9</u>
Mid-Ebb	C2	bottom	2.0	M4	10:06	6.9	7.9	2.3	2.5	<u>2.6</u>
Mid-Ebb	C2	bottom	2.0	M5	10:48	6.9	7.9	2.3	2.5	<u>4.0</u>
Mid-Flood	C1	surface	2.5	G1	16:00	6.0	6.9	2.9	3.2	3.2
Mid-Flood	C1	surface	2.5	G2	15:51	6.0	6.9	2.9	3.2	<u>3.4</u>
Mid-Flood	C1	surface	2.5	G3	16:04	6.0	6.9	2.9	3.2	3.0
Mid-Flood	C1	surface	2.5	M2	15:48	6.2	7.4	2.9	3.2	<u>3.3</u>
Mid-Flood	C1	surface	2.5	M3	16:07	6.2	7.4	2.9	3.2	3.0
Mid-Flood	C1	surface	2.5	M4	10:06	6.2	7.4	2.9	3.2	<u>3.4</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: 17 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	G1	10:29	1.0	1.0	<u>1.9</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	G2	10:16	1.0	1.0	<u>1.2</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	G3	10:33	1.0	1.0	<u>1.1</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	G4	10:41	1.0	1.0	<u>2.4</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	M1	10:23	1.0	1.0	<u>3.5</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	M2	10:11	1.0	1.0	<u>1.1</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	M3	10:36	1.0	1.0	<u>3.3</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.8	M4	10:06	1.0	1.0	<u>3.4</u>
Bottom	19.3	22.2	Mid-flood	C1	1.5	G1	16:00	1.8	1.9	<u>2.8</u>
Bottom	19.3	22.2	Mid-flood	C1	1.5	M1	15:56	1.8	1.9	<u>2.2</u>
Bottom	19.3	22.2	Mid-flood	C1	1.5	M3	16:07	1.8	1.9	<u>2.6</u>
Bottom	19.3	22.2	Mid-flood	C1	1.5	M4	15:44	1.8	1.9	<u>3.5</u>
Intake	N/A	N/A	Mid-flood	C1	1.5	M6	16:14	1.8	1.9	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring:

19 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	2.5	G1	7:45	6.0	6.9	2.9	3.2	<u>3.4</u>
Mid-Ebb	C2	surface	2.5	G2	7:28	6.0	6.9	2.9	3.2	<u>4.7</u>
Mid-Ebb	C2	surface	2.5	G3	7:51	6.0	6.9	2.9	3.2	<u>4.2</u>
Mid-Ebb	C2	surface	2.5	G4	8:07	6.0	6.9	2.9	3.2	<u>3.7</u>
Mid-Ebb	C2	bottom	4.0	G1	7:45	6.9	7.9	4.8	5.2	<u>5.1</u>
Mid-Flood	C1	surface	2.2	G1	12:47	6.0	6.9	2.6	2.9	<u>3.0</u>
Mid-Flood	C1	surface	2.2	G2	12:28	6.0	6.9	2.6	2.9	<u>3.9</u>
Mid-Flood	C1	surface	2.2	G3	12:54	6.0	6.9	2.6	2.9	<u>2.9</u>
Mid-Flood	C1	surface	2.2	G4	13:08	6.0	6.9	2.6	2.9	<u>4.2</u>
Mid-Flood	C1	surface	2.2	M1	12:33	6.2	7.4	2.6	2.9	<u>3.3</u>
Mid-Flood	C1	surface	2.2	M3	13:02	6.2	7.4	2.6	2.9	<u>3.2</u>
Mid-Flood	C1	surface	2.2	M5	13:41	6.2	7.4	2.6	2.9	<u>2.7</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: 19 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	1.7	M1	12:33	2.0	2.2	2.1
Intake	N/A	N/A	Mid-flood	C1	1.7	M6	13:23	2.0	2.2	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Date of Water Quality Monitoring: 21 June 2021

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	3.3	G3	9:56	6.0	6.9	4.0	4.3	4.2
Mid-Ebb	C2	surface	3.3	M2	9:37	6.2	7.4	4.0	4.3	<u>4.5</u>
Mid-Ebb	C2	surface	3.3	M4	9:32	6.2	7.4	4.0	4.3	<u>4.6</u>
Mid-Ebb	C2	bottom	3.8	G2	9:42	6.9	7.9	4.5	4.9	4.6
Mid-Ebb	C2	bottom	3.8	M3	9:59	6.9	7.9	4.5	4.9	6.0
Mid-Flood	C1	bottom	3.5	G2	9:42	6.9	7.9	4.2	4.6	4.6
Mid-Flood	C1	bottom	3.5	M2	15:30	6.9	7.9	4.2	4.6	<u>4.7</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: 21 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Intake	N/A	N/A	Mid-flood	C1	3.3	M6	15:57	4.0	4.3	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: **23 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Dissolved Oxygen (DO) / Turbidity (TURB) / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	bottom	1.9	G3	11:03	6.9	7.9	2.3	2.5	2.5
Mid-Ebb	C2	bottom	1.9	M3	11:11	6.9	7.9	2.3	2.5	<u>3.6</u>
Mid-Ebb	C2	bottom	1.9	M5	11:37	6.9	7.9	2.3	2.5	<u>3.0</u>
Mid-Flood	C1	bottom	1.5	G1	17:25	6.9	7.9	1.7	1.9	<u>2.4</u>
Mid-Flood	C1	bottom	1.5	G3	17:32	6.9	7.9	1.7	1.9	<u>2.3</u>
Mid-Flood	C1	bottom	1.5	G4	17:46	6.9	7.9	1.7	1.9	<u>2.2</u>
Mid-Flood	C1	bottom	1.5	M2	17:00	6.9	7.9	1.7	1.9	<u>2.0</u>
Mid-Flood	C1	bottom	1.5	M5	18:19	6.9	7.9	1.7	1.9	<u>2.9</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (***Italic***)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (***Italic***)

- Notification of Exceedance

Date of Water Quality Monitoring: 23 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	1.7	M1	17:12	2.0	2.2	2.1
Intake	N/A	N/A	Mid-flood	C1	1.7	M6	18:01	2.0	2.2	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring:

25 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	G1	12:34	0.8	0.9	<u>1.1</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	G2	12:23	0.8	0.9	<u>2.3</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	G3	12:38	0.8	0.9	<u>1.6</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	G4	12:49	0.8	0.9	<u>2.0</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	M1	12:29	0.8	0.9	<u>1.8</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	M2	12:17	0.8	0.9	0.9
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	M3	12:43	0.8	0.9	<u>1.9</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	M4	12:11	0.8	0.9	<u>1.0</u>
Bottom	19.3	22.2	Mid-Ebb	C2	0.7	M5	12:59	0.8	0.9	<u>1.3</u>
Intake	N/A	N/A	Mid-Ebb	C2	0.7	M6	12:55	0.8	0.9	<u>1.3</u>
Intake	N/A	N/A	Mid-flood	C1	0.0	M6	#N/A	0.0	0.0	<u>8.0</u>

Note:

Bold means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

- Notification of Exceedance

Date of Water Quality Monitoring: **28 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – Dissolved Oxygen (DO) / Turbidity (TURB) / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Flood	C1	surface	2.2	G1	15:13	6.0	6.9	2.6	2.9	<u>18.0</u>
Mid-Flood	C1	surface	2.2	G2	15:03	6.0	6.9	2.6	2.9	<u>4.3</u>
Mid-Flood	C1	surface	2.2	G3	15:21	6.0	6.9	2.6	2.9	<u>14.5</u>
Mid-Flood	C1	surface	2.2	G4	15:33	6.0	6.9	2.6	2.9	<u>13.5</u>
Mid-Flood	C1	surface	2.2	M1	15:08	6.2	7.4	2.6	2.9	<u>13.6</u>
Mid-Flood	C1	surface	2.2	M2	14:58	6.2	7.4	2.6	2.9	<u>8.2</u>
Mid-Flood	C1	surface	2.2	M3	15:27	6.2	7.4	2.6	2.9	<u>15.0</u>
Mid-Flood	C1	surface	2.2	M5	15:45	6.2	7.4	2.6	2.9	<u>5.9</u>
Mid-Flood	C1	bottom	4.6	G1	15:13	6.9	7.9	5.5	5.9	<u>16.0</u>
Mid-Flood	C1	bottom	4.6	G3	15:21	6.9	7.9	5.5	5.9	<u>12.3</u>
Mid-Flood	C1	bottom	4.6	G4	15:33	6.9	7.9	5.5	5.9	<u>8.7</u>
Mid-Flood	C1	bottom	4.6	M1	15:08	6.9	7.9	5.5	5.9	<u>11.4</u>
Mid-Flood	C1	bottom	4.6	M2	14:58	6.9	7.9	5.5	5.9	<u>16.2</u>
Mid-Flood	C1	bottom	4.6	M3	15:27	6.9	7.9	5.5	5.9	<u>11.5</u>
Mid-Flood	C1	bottom	4.6	M5	15:45	6.9	7.9	5.5	5.9	<u>6.7</u>
Mid-Flood	C1	intake	n.a.	M6	15:38	8.3	8.6	n.a.	n.a.	16.1

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (***Italic***)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (***Italic***)

- Notification of Exceedance

Date of Water Quality Monitoring: 28 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-flood	C1	2.9	M2	14:58	3.5	3.8	<u>4.1</u>
Intake	N/A	N/A	Mid-flood	C1	2.9	M6	15:38	3.5	3.8	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Date of Water Quality Monitoring: **30 June 2021**

Part A – Exceedance Summary Tables

Table I: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / ~~Turbidity (TURB)~~ / Suspended Solids (SS)

Tide	Control Station(s)	Depth	Measured Value at Control Station (mg/L)	Station(s)	Time (hrs)	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	120% of Control Station Action Level (mg/L)	130% of Control Station Limit Level (mg/L)	Measured Value (mg/L)
Mid-Ebb	C2	surface	3.2	M3	9:22	6.2	7.4	3.8	4.2	4.2
Mid-Ebb	C2	bottom	3.9	M1	8:54	6.9	7.9	4.7	5.1	4.9
Mid-Flood	C1	bottom	2.7	G2	8:46	6.9	7.9	3.2	3.5	<u>4.0</u>
Mid-Flood	C1	bottom	2.7	G3	16:36	6.9	7.9	3.2	3.5	<u>3.7</u>
Mid-Flood	C1	bottom	2.7	G4	16:48	6.9	7.9	3.2	3.5	<u>3.9</u>
Mid-Flood	C1	bottom	2.7	M3	16:42	6.9	7.9	3.2	3.5	<u>3.8</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Agreement No. CE 59/2015(EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel Design and Construction
 - Notification of Exceedance

Date of Water Quality Monitoring: 30 June 2021

Part A – Exceedance Summary Tables

Table II: Parameter(s) – ~~Dissolved Oxygen (DO)~~ / Turbidity (TURB) / ~~Suspended Solids (SS)~~

Depth	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Tide	Control Station(s)	Measured Value at Control Station (NTU)	Station(s)	Time (hrs)	120% of Control Station Action Level (NTU)	130% of Control Station Limit Level (NTU)	Measured Value (NTU)
Bottom	19.3	22.2	Mid-Ebb	C2	2.2	G1	9:05	2.6	2.8	2.7
Bottom	19.3	22.2	Mid-Ebb	C2	2.2	G4	9:29	2.6	2.8	<u>4.1</u>
Bottom	19.3	22.2	Mid-Ebb	C2	2.2	M1	8:54	2.6	2.8	<u>3.4</u>
Bottom	19.3	22.2	Mid-Ebb	C2	2.2	M3	9:22	2.6	2.8	<u>3.0</u>
Bottom	19.3	22.2	Mid-Ebb	C2	2.2	M5	9:49	2.6	2.8	<u>6.6</u>
Bottom	19.3	22.2	Mid-flood	C1	4.7	M5	17:16	5.6	6.1	<u>6.7</u>
Intake	N/A	N/A	Mid-flood	C1	4.7	M6	16:59	5.6	6.1	<u>8.0</u>

Note: ***Bold*** means Action Level exceedance of Control (**Regular**) & Baseline (*Italic*)
Bold with underline means Limit Level exceedance of Control (**Regular**) & Baseline (*Italic*)

Contract No. CE 59/2015 (EP)

**Environmental Team for Tseung Kwan O – Lam Tin Tunnel
Design and Construction**

- Investigation Report of Environmental Quality Limit Exceedances

Part A Details of Investigation

For the reporting month, exceedances for suspended solids and turbidity have been recorded continuously at various monitoring stations. During water quality monitoring, the water outside the site boundary seemed to be clear and clean (Photo 1 to 4)

During site inspections, the sea appears to be clear (Photo 5 and 6). The sediment tank was free from silt and sediments and the drainage system remained well-maintained. No sand plumes were observed during the site inspection.

The exceedance is particularly high at the last week of June 2021. It is suspected downpours at the end of June had overloaded the DSD desilting compound which released muddy water to the sea under high rainfall occasions (Photo 7 and 8).

No direct evidence that the recent exceedances were due to the ongoing reclamation activities of the Project. Therefore, no additional marine water quality monitoring is required.

Contract No. CE 59/2015 (EP)

Environmental Team for Tseung Kwan O – Lam Tin Tunnel
Design and Construction

- Investigation Report of Environmental Quality Limit Exceedances

Part B Photo Record



Photo 1 (Recorded on 2nd March 2020)



Photo 2 (Recorded on 16th March 2020)



Photo 3 (Recorded on 18th Mar 2020)

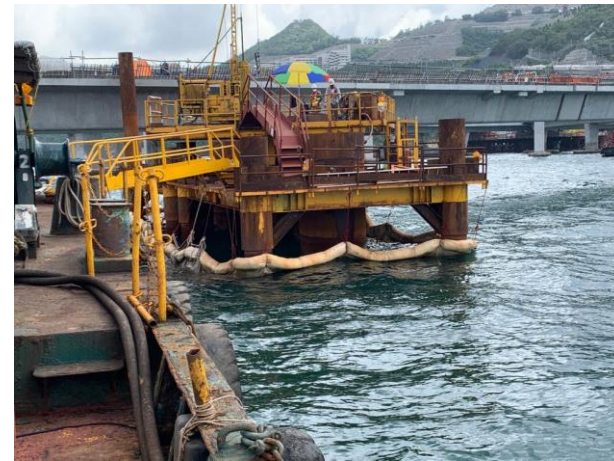


Photo 4 (Recorded on 25th Mar 2020)

Contract No. CE 59/2015 (EP)

**Environmental Team for Tseung Kwan O – Lam Tin Tunnel
Design and Construction**

- Investigation Report of Environmental Quality Limit Exceedances



Photo 5 (Recorded on 24th June 2021)



Photo 6 (Recorded on 30th June 2021)

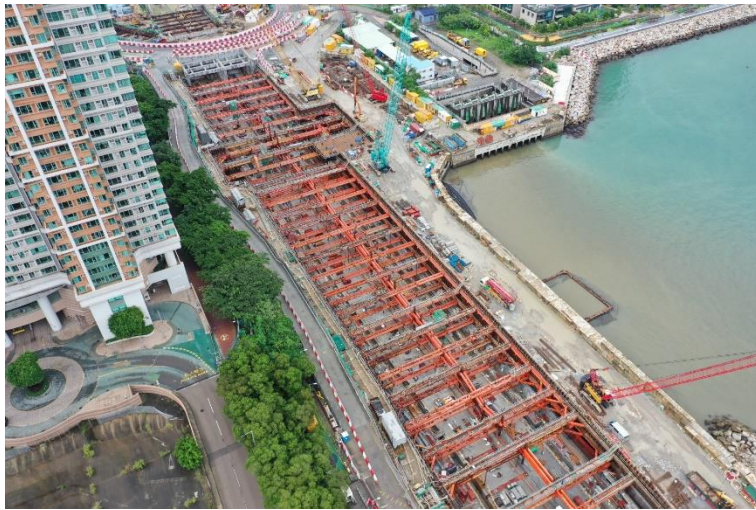


Photo 7 (Recorded on 28th June 2021)



Photo 8 (Recorded on 28th June 2021)

Contract No. CE 59/2015 (EP)

**Environmental Team for Tseung Kwan O – Lam Tin Tunnel
Design and Construction**

- Investigation Report of Environmental Quality Limit Exceedances

Part C – Recommendations

Since the wind season is approaching, all Contractors are reminded to maintain the drainage system and get prepare for any rainfall. Diversions and channels should be cleared to prevent spilling muddy water into the sea due to overflow or flooding.

Appropriate diversion of received rainwater to the wastewater treatment system within the site should be provided to minimise the chance of accidental runoff. Cofferdam and silt curtain should be checked and maintained regularly; diver inspection for checking damage and leakage should be conducted weekly to ensure the functionality of cofferdam and silt curtains.



Reviewed by: (Environmental Team Leader:(Dr. HF Chan)

Date: 5th April 2020

**APPENDIX L
SITE AUDIT SUMMARY**

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report

Appendix L - Site Audit Summary

Contract No. — NE2015/01

Tseung Kwan O - Lam Tin Tunnel — Main Tunnel and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
The contractor is reminded to avoid ponding of water.	9-Jun-21 16-Jun-21 30-Jun-21	✓	9, 16 & 30-June-21: The Contractor has removed the ponding water.
<i>Ecology</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste/Chemical Management</i>			
The Contractor is reminded to provide and weel maintain drip tray for chemicals.	2-Jun-21 30-Jun-21	✓	2 & 30-June-21: A drip tray is provided to the chemical later on that day.
The Contractor is reminded to avoid waste accummulation.	2-Jun-21 9-Jun-21 30-Jun-21	✓	2, 9 & 30-June-21; The accumulated waste is removed.
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permit/Licenses</i>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- * Non-compliance of mitigation measure
- Non-compliance but improved by the contractor

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report

Appendix L - Site Audit Summary

Contract No. — NE2015/02

Tseung Kwan O - Lam Tin Tunnel — Road P2 and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
The Contractor is reminded to regularly maintain the drainage system to prevent overflow of stormwater	24-Jun-21	✓	24-Jun-2021: The Contractor had repair the drainage system immediately.
<i>Ecology</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste/Chemical Management</i>			
The Contractor is reminded to provide drip tray for chemical.	24-Jun-21	✓	30-Jun-2021: The chemical had been removed
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permit/Licenses</i>			
--	--	--	--

✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit

✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit

Follow up action will be reported in next reporting month

* Non-compliance of mitigation measure

• Non-compliance but improved by the contractor

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report

Appendix L - Site Audit Summary

Contract No. — NE2017/02
Tseung Kwan O - Lam Tin Tunnel — Road P2/D4 and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
--	--	--	--
<i>Ecology</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste/Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permit/Licenses</i>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- * Non-compliance of mitigation measure
- Non-compliance but improved by the contractor

Agreement No. CE 59/2015 (EP)
Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report

Appendix L - Site Audit Summary

Contract No. — NE2017/06

Tseung Kwan O - Lam Tin Tunnel — Traffic Control and Surveillance System (TCSS) and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
--	--	--	--
<i>Ecology</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste/Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permit/Licenses</i>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- * Non-compliance of mitigation measure
- Non-compliance but improved by the contractor

Agreement No. CE 59/2015 (EP)

**Environmental Team for Tseung Kwan O - Lam Tin Tunnel - Design and Construction
Monthly EM&A Report**

Appendix L - Site Audit Summary

Contract No. — NE2017/01

Tseung Kwan O - Lam Tin Tunnel — Tseung Kwan O Interchange and Associated Works

Items	Date	Status*	Follow up Action
<i>Water Quality</i>			
--	--	--	--
<i>Ecology</i>			
--	--	--	--
<i>Noise</i>			
--	--	--	--
<i>Landscape and Visual</i>			
--	--	--	--
<i>Air Quality</i>			
--	--	--	--
<i>Waste/Chemical Management</i>			
--	--	--	--
<i>Impact on Cultural Heritage</i>			
--	--	--	--
<i>Permit/Licenses</i>			
--	--	--	--

- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
- ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
- # Follow up action will be reported in next reporting month
- * Non-compliance of mitigation measure
- Non-compliance but improved by the contractor

**APPENDIX M
EVENT AND ACTION PLANS**

Event and Action Plan for Air Quality (Dust)

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of complaint and propose remedial measures; 2. Inform IEC and ER; 3. Repeat measurement to confirm finding; 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. 	<ol style="list-style-type: none"> 1. Notify Contractor. 	<ol style="list-style-type: none"> 1. Rectify any unacceptable practice; 2. Amend working methods if appropriate.
Action level being exceeded by two or more consecutive sampling	<ol style="list-style-type: none"> 1. Identify source; 2. Inform IEC and ER; 3. Advise the ER on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; 	<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 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 exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Submit proposals for remedial actions to IEC within three working days of notification; 2. Implement the agreed proposals; 3. Amend proposal if appropriate.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	8. If exceedance stops, cease additional monitoring.			
Limit level being exceeded by one sampling	<ol style="list-style-type: none"> 1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform Contractor ,IEC, ER, 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 and Contractor on possible remedial measures; 4. Advise the ER 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 exceedance in writing; 2. Notify Contractor; 3. Ensure remedial measures properly implemented. 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal if appropriate.
Limit level being exceeded by two or more consecutive sampling	<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; 	<ol style="list-style-type: none"> 1. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 2. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Notify Contractor; 3. In consolidation with the IEC, agree with the Contractor on the remedial measures to be implemented; 	<ol style="list-style-type: none"> 1. Take immediate action to avoid further exceedance; 2. Submit proposals for remedial actions to IEC within three working days of notification; 3. Implement the agreed proposals;

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	5. Carry out analysis of Contractor’s working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor’s remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	3. Supervise the implementation of remedial measures.	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.	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 Construction Noise

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

Event and Action Plan for Marine Water Quality

Event	Action			
	ET	IEC	ER	CONTRACTOR
Action level being exceeded by one sampling day at water sensitive receiver(s)	<ul style="list-style-type: none"> Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; If exceedance is found to be caused by the reclamation activities, repeat <i>in-situ</i> measurement to confirm findings; Inform IEC and contractor; Check monitoring data, all plant, equipment and Contractor's working methods; If exceedance occurs at WSD salt water intake, inform WSD; Discuss mitigation measures with IEC and Contractor; Repeat measurement on next day of exceedance. 	<ul style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal. 	<ul style="list-style-type: none"> Inform the ER and confirm notification of the non-compliance in writing; Rectify unacceptable practice; Check all plant and equipment; Amend working methods if appropriate; Discuss with ET and IEC and propose mitigation measures to IEC and ER; Implement the agree mitigation measures.
Action level being exceeded by two or more consecutive	<ul style="list-style-type: none"> Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> Discuss with ET and Contractor on the mitigation measures; 	<ul style="list-style-type: none"> Discuss with IEC on the proposed mitigation measures; Make agreement on the mitigation proposal; 	<ul style="list-style-type: none"> Inform the Engineer and confirm notification of the non-compliance in writing; Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
sampling days at water sensitive receiver(s)	<ul style="list-style-type: none"> • If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IEC and contractor; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC and Contractor; • Ensure mitigation measures are implemented; • Prepare to increase the monitoring frequency to daily; • If exceedance occurs at WSD salt water intake, inform WSD; • Repeat measurement on next day of exceedance. 	<ul style="list-style-type: none"> • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and propose mitigation measures to IEC and ER within 3 working days; • Implement the agreed mitigation measures.
Limit level being exceeded by one sampling day at water sensitive receiver(s)	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IEC, ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
	<ul style="list-style-type: none"> • If exceedance is found to be caused by the reclamation activities, repeat <i>in-situ</i> measurement to confirm findings; • Inform IEC, contractor, AFCD and EPD • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IEC, ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level; • If exceedance occurs at WSD salt water intake, inform WSD. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Check all plant and equipment and consider changes of working methods; • Discuss with ET, IEC and ER and submit proposal of mitigation measures to IEC and ER within 3 working days of notification; • Implement the agreed mitigation measures.
Limit level being exceeded by two or more consecutive sampling days at	<ul style="list-style-type: none"> • Identify the source(s) of impact by comparing the results with those collected at the control stations as appropriate; 	<ul style="list-style-type: none"> • Discuss with ET and Contractor on the mitigation measures; • Review proposal on mitigation measures submitted by Contractor and advise the ER accordingly; 	<ul style="list-style-type: none"> • Discuss with IC(E), ET and Contractor on the proposed mitigation measures; • Request Contractor to critically review the working methods; 	<ul style="list-style-type: none"> • Inform the ER and confirm notification of the non-compliance in writing; • Rectify unacceptable practice;

Event	Action			
	ET	IEC	ER	CONTRACTOR
water sensitive receiver(s)	<ul style="list-style-type: none"> • If exceedance is found to be caused by the reclamation activities, repeat in-situ measurement to confirm findings; • Inform IC(E), AFCD, contractor and EPD; • Check monitoring data, all plant, equipment and Contractor's working methods; • Discuss mitigation measures with IC(E), ER and Contractor; • Ensure mitigation measures are implemented; • Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days; • If exceedance occurs at WSD salt water intake, inform WSD. 	<ul style="list-style-type: none"> • Assess the effectiveness of the implemented mitigation measures. 	<ul style="list-style-type: none"> • Make agreement on the mitigation measures to be implemented; • Assess the effectiveness of the implemented mitigation measures; • Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until no exceedance of Limit level. 	<ul style="list-style-type: none"> • Check all plant and equipment and consider changes of working methods; • Discuss with ET, IC(E) and ER and submit proposal of mitigation measures to IC(E) and ER within 3 working days of notification; • Implement the agreed mitigation measures; • As directed by the Engineer, to slow down or to stop all or part of the construction activities.

Limit Levels and Action Plan for Landfill Gas

Parameter	Limit Level	Action
Oxygen	<19%	<ul style="list-style-type: none"> • Ventilate to restore oxygen to >19%
	<18%	<ul style="list-style-type: none"> • Stop works • Evacuate personnel/prohibit entry • Increase ventilation to restore oxygen to >19%
Methane	>10% LEL (i.e. > 0.5% by volume)	<ul style="list-style-type: none"> • Prohibit hot works • Ventilate to restore methane to <10% LEL
	>20% LEL (i.e. > 1% by volume)	<ul style="list-style-type: none"> • Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore methane to <10% LEL
Carbon Dioxide	>0.5%	<ul style="list-style-type: none"> • Ventilate to restore carbon dioxide to < 0.5%
	>1.5%	<ul style="list-style-type: none"> • Stop works • Evacuate personnel / prohibit entry • Increase ventilation to restore carbon dioxide to < 0.5%

Event and Action Plan for Coral Post-Translocation Monitoring

Event	Action			
	ET Leader	IEC	ER	Contractor
Action Level Exceedance	1. Check monitoring data; 2. Inform the IEC, ER and Contractor of the findings; 3. Increase the monitoring to at least once a month to confirm findings; 4. Propose mitigation measures for consideration	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.
Limit Level Exceedance	Undertake Steps 1-4 as in the Action Level Exceedance. If further exceedance of Limit Level, suspend construction works until an effective solution is identified.	1. Discuss monitoring with the ET and the Contractor; 2. Review proposals for additional Monitoring and any other measures submitted by the Contractor and advise the ER accordingly.	1. Discuss with the IEC additional monitoring requirements and any other measures proposed by the ET; 2. Make agreement on the measures to be implemented.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Discuss with the ET and the IEC and propose measures to the IEC and the ER; 3. Implement the agreed measures.

Mitigation Measures for Vibration Monitoring

Level	Contingency Action
Alert Level	<ul style="list-style-type: none"> ● The Engineer shall be informed immediately. ● The Contractor shall submit an investigation report to describe works being undertaken. To review the instrument responses and to study the cause of undue response. ● The Contractor shall review and increase the instrumentation monitoring and reporting frequency, if applicable. ● The Contractor shall submit a detailed plan of action describing the measures to be taken should the concerned instrument reach the action level to the Engineer for approval.
Alarm Level	<ul style="list-style-type: none"> ● The Engineer shall be informed immediately. ● The active construction works may require to be suspended subject to the Engineer's review of monitoring data. ● The Contractor shall immediately implement the measures as defined in the detailed plan of action to prevent further ground movement and groundwater drawdown etc. ● The Contractor shall prepare a detailed investigation report to study the cause of the exceedance ● The Contractor shall propose a contingency plan for the Engineer's approval in the event that alarm value is reached or exceeded ● The Contractor shall develop an emergency plan for the Engineer's approval in the event the applied contingency measures cannot control the situation. ● The Contractor shall meet the Engineer to discuss the instrument response and review the effectiveness of the implemented measures. ● The Contractor shall carry out design review of the works

Action Level	<ul style="list-style-type: none">● Consideration shall be given to suspend all active construction works and the Engineer shall be informed immediately● The Contractor shall immediately implement the measures defined in the contingency plan● The Contractor shall implement the measures defined in the emergency plan in the event that the applied contingency measures are found inadequate● The Contractor shall provide a complete report to examine the construction method and review the response of the instruments with full history of the monitoring data and construction activities and necessary design update● To resume the suspended activities, the Contractor shall demonstrate to the Engineer's satisfaction that it is safe to do so with approval from the Engineer.
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**APPENDIX N
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)**

App N1 - IMPLEMENTATION SCHEDULE AND RECOMMENDED MITIGATION MEASURES

Table I - Recommended Mitigation Measures stipulated in EM&A Manual for the Project

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
Air Quality						
S3.8.1	Watering eight times a day on active works areas, exposed areas and paved haul roads	To minimize the dust impact	Contractor	All Active Work Sites	Construction phase	APCO
S3.8.1	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall / mixing area in Work Area A, provision of water spraying and flexible dust curtains	To minimize the dust impact	Contractor	Barging Points	Construction phase	APCO
S3.8.7	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.	To minimize the dust impact	Contractor	All Construction Work Sites	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation
S3.8.7	<ul style="list-style-type: none"> Use of frequent watering for particularly dusty construction areas and areas close to ASRs.. 					
S3.8.7	<ul style="list-style-type: none"> Side enclosure and covering of any aggregate or dusty material storage piles to reduce emissions. Where this is not practicable owing to frequent usage, watering shall be applied to aggregate fines. 					
S3.8.7	<ul style="list-style-type: none"> Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. 					
S3.8.7	<ul style="list-style-type: none"> Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. 					
S3.8.7	<ul style="list-style-type: none"> Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. 					
S3.8.7	<ul style="list-style-type: none"> Provision of wind shield and dust extraction units or similar dust mitigation measures at the loading area of barging point, and use of water sprinklers at the loading area where dust generation is likely during the loading process of loose material, particularly in dry seasons/ periods. 					
S3.8.7	<ul style="list-style-type: none"> Provision of not less than 2.4m high hoarding from ground level along site boundary where adjoins a road, streets or other accessible to the public except for a site entrance or exit. 					
S3.8.7	<ul style="list-style-type: none"> Imposition of speed controls for vehicles on site haul roads. 					
S3.8.7	<ul style="list-style-type: none"> Where possible, routing of vehicles and positioning of construction plant should be at the maximum possible distance from ASRs 					
S3.8.7	<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. 					
S3.8.7	<ul style="list-style-type: none"> Instigation of an environmental monitoring and auditing program to monitor the construction process in order to enforce controls and modify method of work if dusty conditions arise. 					
/	<p>Emission from Vehicles and Plants</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 and plant should be serviced regularly to avoid emission of black smoke. All diesel fuelled construction plant within the works areas shall be powered by ultra low sulphur diesel fuel (ULSD) 	Reduce air pollution emission from construction vehicles and plants	Contractor	All construction sites	Construction stage	APCO

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
/	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	APCO
Noise Impact (Construction Phase)						
S4.8	<ul style="list-style-type: none"> Use of quiet PME. Use of movable noise barriers for Excavator, Lorry, Dump Truck, Mobile Crane, Compactor, Concrete Mixer Truck, Concrete Lorry Mixer, Breaker, Mobile Crusher, Backhoe, Vibratory Poker, Saw, Asphalt Paver, Vibratory Roller, Vibrolance, Hydraulic Vibratory Lance and Piling (Vibration Hammer). Use of full enclosure for Air Compressor, Compressor, Bar Bender, Generator, Drilling Rig, Chisel, Large Diameter Bore Piling, Grout Mixer & Pump and Concrete Pump. 	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO
Noise Mitigation Plan	Use of Temporary Noise Barriers (i.e Acoustic box, SilentUp and etc.) or Full Enclosure for PME according to the approved Noise Mitigation Plan	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work Sites	Construction phase	EIAO-TM, NCO
S4.9	<p>Good Site Practice</p> <ul style="list-style-type: none"> Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program Silencers or mufflers on construction equipment should be utilized and should be properly maintained during the construction program. Mobile plant, if any, should be sited as far away from NSRs as possible. Machines and plant (such as trucks) that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby NSRs. Material stockpiles and other structures should be effectively utilized, wherever practicable, in screening noise from on-site construction activities. 	To minimize construction noise impact arising from the Project at the affected NSRs	Project Proponent	Work sites	Construction Period	EIAO-TM, NCO
S4.9	Scheduling of Construction Works during School Examination Period	To minimize construction noise impact arising from the Project at the affected NSRs	Contractor	Work site near school	Construction phase	EIAO-TM, NCO
Water Quality Impact (Construction Phase)						
S5.6.24	The dry density of filling material for the TKO-LT Tunnel reclamation should be 1,900kg/m ³ , with fine content of 25% or less	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.1	Non-dredged method by constructing steel cellular caisson structure with stone column shall be adopted for construction of seawall foundation. During the stone column installation (also including the installation of steel cellular caisson), silt curtain shall be employed around the active stone column installation points.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.2	Formation of seawall enclosing the reclamation for Road P2 (notwithstanding an opening of about 50m for marine access) shall be completed prior to the filling activities. The seawall opening of about 50m wide for marine access shall be selected at a location as indicatively shown in Appendix 5.10. No more than 3 filling barge trips per day shall be made with a maximum daily rate of 3,000m ³ (i.e. 1,000 m ³ per trip) for the filling operation at the reclamation area for Road P2. All filling works shall be carried out behind the seawall with the use of single silt curtain at the marine access.	Control potential impacts from filling activities	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
Silt Curtain Deployment Plan	<ul style="list-style-type: none"> Silt curtains should be deployed properly to surround the works area. Maintenance of silt curtain should be provided. Sufficient stock of silt curtain should be provided on site. 	Control potential impacts from marine works	Contractor	NE/2015/01	Construction stage	EIAO

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
S5.8.3	<p>Other good site practices should be undertaken during filling operations include:</p> <ul style="list-style-type: none"> • all marine works should adopt the environmental friendly construction methods as far as practically possible including the use of cofferdams to cover the construction area to separate the construction works from the sea; • floating single silt curtain shall be employed for all marine works; • all vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash; • all hopper barges should be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • excess material shall be cleaned from the decks and exposed fittings of barges before the vessel is moved; • adequate freeboard shall be maintained on barges to reduce the likelihood of decks being washed by wave action; • loading of barges and hoppers should be controlled to prevent splashing of filling material into the surrounding water. Barges or hoppers should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; • any pipe leakages shall be repaired quickly. Plant should not be operated with leaking pipes; • construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; and • before commencement of the reclamation works, the holder of Environmental Permit has to submit plans showing the phased construction of the reclamation, design and operation of the silt curtain. 	Control potential impacts from filling activities and marine-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, Waste Disposal Ordinance (WDO)
S5.8.4	Site specific mitigation plan for reclamation areas using public fill materials should be submitted for EPD agreement before commencement of construction phase with due consideration of good site practices.	Control potential impacts from filling activities and marine based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
ERR S5.6.1	<p>To minimize water quality impact arising from the dredging and filling works for Reclamation for Road P2, the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> - Before carrying out any dredging and underwater filling works, a temporary barrier shall first be constructed to a height above the high water mark to completely enclose the works site (without any opening at the barrier wall) - The temporary barrier fully enclosing the dredging and underwater filling works site shall not be removed before completion of all dredging and underwater filling works. - Water quality sampling and testing shall be carried out to demonstrate that the water quality inside the enclosed barrier is comparable to the ambient or baseline levels prior to the removal of the fully enclosed barrier. - Silt curtains shall be deployed for the installation and removal of the temporary barrier and at the double water gates marine access opening during its operation. 	Control potential impacts from dredging and filling works for Reclamation for Road P2	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
S5.8.5	It is important that appropriate measures are implemented to control runoff and drainage and prevent high loading of SS from entering the marine environment. Proper site management is essential to minimise surface water runoff, soil erosion and sewage effluents.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.6	Any practical options for the diversion and realignment of drainage should comply with both engineering and environmental requirements in order to ensure adequate hydraulic capacity of all drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS
S5.8.7	Construction site runoff and drainage should be prevented or minimised in accordance with the guidelines stipulated in the EPD's Practice Note for Professional Persons, Construction Site Drainage (ProPECC PN 1/94). Good housekeeping and stormwater best management practices, as detailed in below, should be implemented to ensure that all construction runoff complies with WPCO standards and no unacceptable impact on the WSRs arises due to construction of the TKO-LT Tunnel. All discharges from the construction site should be controlled to comply with the standards for effluents discharged into the corresponding WCZ under the TM-DSS.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, TM-DSS
S5.8.8	Exposed soil areas should be minimised to reduce the potential for increased siltation, contamination of runoff, and erosion. Construction runoff related impacts associated with the above ground construction activities can be readily controlled through the use of appropriate mitigation measures which include:	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.8	<ul style="list-style-type: none"> • use of sediment traps; and 					
S5.8.8	<ul style="list-style-type: none"> • adequate maintenance of drainage systems to prevent flooding and overflow. 					
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.10	Ideally, construction works should be programmed to minimise surface excavation works during the rainy season (April to September). All exposed earth areas should be completed as soon as possible after earthworks have been completed, or alternatively, within 14 days of the cessation of earthworks where practicable. If excavation of soil cannot be avoided during the rainy season, or at any time of year when rainstorms are likely, exposed slope surfaces should be covered by tarpaulin or other means.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.11	Sedimentation tanks of sufficient capacity, constructed from pre-formed individual cells of approximately 6 to 8m ³ capacity, are recommended as a general mitigation measure which can be used for settling surface runoff prior to disposal. The system capacity is flexible and able to handle multiple inputs from a variety of sources and particularly suited to applications where the influent is pumped.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.12	Earthworks final surfaces should be well compacted and the subsequent permanent work or surface protection should be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels should be provided where necessary.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

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S5.8.13	Measures should be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they should be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.14	Open stockpiles of construction materials (for examples, aggregates, sand and fill material) of more than 50m ³ 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.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.15	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. Discharge of surface run-off into foul sewers must always be prevented in order not to unduly overload the foul sewerage system.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.16	Precautions to be taken at any time of year when rainstorms are likely, actions to be taken when a rainstorm is imminent or forecast, and actions to be taken during or after rainstorms are summarised in Appendix A2 of ProPECC PN 1/94. Particular attention should be paid to the control of silty surface runoff during storm events, especially for areas located near steep slopes.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.17	Oil interceptors should be provided in the drainage system and regularly cleaned to prevent the release of oils and grease into the storm water drainage system after accidental spillages. The interceptor should have a bypass to prevent flushing during periods of heavy rain.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.18	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 located wheel washing bay should be provided at every site exit, and washwater 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 wheelwash bay to the public road should be paved with sufficient backfall toward the wheel-wash bay to prevent vehicle tracking of soil and silty water to public roads and drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.19	Silt removal facilities, channels and manholes should be maintained and the deposited silt and grit should be removed regularly, at the onset of and after each rainstorm to ensure that these facilities are functioning properly at all times.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.20	It is recommended that on-site drainage system should be installed prior to the commencement of other construction activities. Sediment traps should be installed in order to minimise the sediment loading of the effluent prior to discharge into foul sewers. There shall be no direct discharge of effluent from the site into the sea.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.21	All temporary and permanent drainage pipes and culverts provided to facilitate runoff discharge should be adequately designed for the controlled release of storm flows. All sediment control measures should be regularly inspected and maintained to ensure proper and efficient operation at all times and particularly following rain storms. The temporarily diverted drainage should be reinstated to its original condition when the construction work has finished or the temporary diversion is no longer required.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

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S5.8.22	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.23	Minimum distances of 100m shall be maintained between the existing or planned stormwater discharges and the existing or planned seawater intakes during construction and operational phases	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, TMDSS
S5.8.24	Under normal circumstances, groundwater pumped out of wells, etc. for the lowering of ground water level in basement or foundation construction, and groundwater seepage pumped out of tunnels or caverns under construction should be discharged into storm drains after the removal of silt in silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.25 - S5.8.27 & Table 5.18	Grouting would be adopted as measure to reduce the groundwater inflow into the tunnel. During the tunnel excavation, the inflow rate of groundwater into the tunnel will be measured during the excavation. The groundwater levels above the tunnel will also be monitored by piezometers. If the inflow rate exceeds the pre-determined groundwater control criteria or the groundwater drawdown exceeds the required limit, pre-excavation grouting will be required to reduce the groundwater inflow. No significant change of groundwater levels would therefore be expected. Any chemicals/foaming agents which would be entrained to the groundwater should be biodegradable and non-toxic throughout the tunnel construction. Potential groundwater quality impact would be minimal as the used material is non-toxic and biodegradable. No adverse groundwater quality would therefore be expected. Prescriptive measures in the form of an Action Plan with pre-emptive and reactive to preserve the groundwater levels at all times during the tunnel construction are set out in Table 5.18.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO, Buildings Ordinance
S5.8.28	Water used in ground boring and drilling for site investigation or rock / soil anchoring should as far as practicable be recirculated after sedimentation. When there is a need for final disposal, the wastewater should be discharged into storm drains via silt removal facilities.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phas	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.29 - S5.8.31	Wastewater generated from the washing down of mixing trucks and drum mixers and similar equipment should whenever practicable be recycled. The discharge of wastewater should be kept to a minimum. To prevent pollution from wastewater overflow, the pump sump of any water recycling system should be provided with an online standby pump of adequate capacity and with automatic alternating devices. Under normal circumstances, surplus wastewater may be discharged into foul sewers after treatment in silt removal and pH adjustment facilities (to within the pH range of 6 to 10). Disposal of wastewater into storm drains will require more elaborate treatment.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.32	All vehicles and plant should be cleaned before they leave a construction site to ensure no earth, mud, debris and the like is deposited by them on roads. A wheel washing bay should be provided at every site exit if practicable and wash-water should have sand and silt settled out or removed before discharging into storm drains. The section of construction road between the wheel washing bay and the public road should be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

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S5.8.33	Bentonite slurries used in diaphragm wall and borepile construction should be reconditioned and reused wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the used slurry may be disposed of at the marine spoil grounds subject to obtaining a marine dumping licence from EPD on a case-by-case basis.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.34	If the used bentonite slurry is intended to be disposed of through the public drainage system, it should be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the WPCO Technical Memorandum on Effluent Standards.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.35	Water used in water testing to check leakage of structures and pipes should be reused for other purposes as far as practicable. Surplus unpolluted water could be discharged into storm drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.36	Sterilization is commonly accomplished by chlorination. Specific advice from EPD should be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water should be reused wherever practicable.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Design Stage and Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.37	Before commencing any demolition works, all sewer and drainage connections should be sealed to prevent building debris, soil, sand etc. from entering public sewers/drains.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.38	Wastewater generated from building construction activities including concreting, plastering, internal decoration, cleaning of works and similar activities should not be discharged into the stormwater drainage system. If the wastewater is to be discharged into foul sewers, it should undergo the removal of settleable solids in a silt removal facility, and pH adjustment as necessary	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.39	Acidic wastewater generated from acid cleaning, etching, pickling and similar activities should be neutralized to within the pH range of 6 to 10 before discharging into foul sewers. If there is no public foul sewer in the vicinity, the neutralized wastewater should be tinkered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.40	Wastewater collected from canteen kitchens, including that from basins, sinks and floor drains, should be discharged into foul sewer via grease traps capable of providing at least 20 minutes retention during peak flow.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.41	Drainage serving an open oil filling point should be connected to storm drains via a petrol interceptor with peak storm bypass.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.42	Vehicle and plant servicing areas, vehicle wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these covered areas should be connected to foul sewers via a petrol interceptor. Oil leakage or spillage should be contained and cleaned up immediately. Waste oil should be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO
S5.8.43	Construction work force sewage discharges on site are expected to be connected to the existing trunk sewer or sewage treatment facilities. The construction sewage may need to be handled by portable chemical toilets prior to the commission of the on-site sewer system. Appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the large number of construction workers over the construction site. The Contractor shall also be responsible for waste disposal and maintenance practices.	Control potential impacts from construction site runoff and land-based construction	CEDD's Contractors	Work site	Construction Phase	ProPECC PN 1/94, EIAOTM, WPCO

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S5.8.44	Contractor must register as a chemical waste producer if chemical wastes would be produced from the construction activities. The Waste Disposal Ordinance (Cap 354) and its subsidiary regulations in particular the Waste Disposal (Chemical Waste) (General) Regulation should be observed and complied with for control of chemical wastes.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.45	Any service shop and maintenance facilities should be located on hard standings within a bunded area, and sumps and oil interceptors should be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage should only be undertaken within the areas appropriately equipped to control these discharges.	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO
S5.8.46	Disposal of chemical wastes should be carried out in compliance with the Waste Disposal Ordinance. The "Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes" published under the Waste Disposal Ordinance details the requirements to deal with chemical wastes. General requirements are given as follows:	Control potential impacts from accidental spillage of chemicals	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO, WDO
S5.8.46	<ul style="list-style-type: none"> suitable containers should be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport; 					
S5.8.46	<ul style="list-style-type: none"> chemical waste containers should be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents; and 					
S5.8.46	<ul style="list-style-type: none"> storage area should be selected at a safe location on site and adequate space should be allocated to the storage area. 					
S5.8.47	Collection and removal of floating refuse should be performed at regular intervals on a daily basis. The contractor should be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish.	Control potential impacts from floating refuse and debris	CEDD's Contractors	Work site	Construction Phase	EIAO-TM, WPCO,
Ecological Impact						
S6.8.4	Measures to Minimize Disturbance <ul style="list-style-type: none"> Use of Quiet Mechanical Plant during the construction phase should be adopted wherever possible. Hoarding or fencing should be erected around the works area boundaries during the construction phase. The hoarding would screen adjacent habitats from construction phase activities, reduce noise disturbance to these habitats and also to restrict access to habitats adjacent to works areas by site workers; Regular spraying of haul roads to minimize impacts of dust deposition on adjacent vegetation and habitats during the construction activities 	Minimize noise, human and traffic disturbance to terrestrial habitat and wildlife; and reduce dust generation	Design Team / Contractor	Land-based works are	Construction Phase	N/A
S6.8.4						
S6.8.4						
S6.8.4						
S6.8.5	Standard Good Site Practice <ul style="list-style-type: none"> Placement of equipment or stockpile in designated works areas and access routes selected on existing disturbed land to minimise disturbance to natural habitats. Construction activities should be restricted to works areas that should be clearly demarcated. The works areas should be reinstated after completion of the works. Waste skips should be provided to collect general refuse and construction wastes. The wastes should be properly disposed off-site in a timely manner. General drainage arrangements should include sediment and oil traps to collect and control construction site run-off. Open burning on works sites is illegal, and should be strictly prohibited. 	Reduce disturbance to surrounding habitats	Contractor	Land-based works are	Construction Phase	N/A
S6.8.5						
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S6.8.5	<ul style="list-style-type: none"> Measures should also be put into place so that litter, fuel and solvents do not enter the nearby watercourses. 					
S6.8.6	<p>Measure to Minimize Groundwater Inflow</p> <ul style="list-style-type: none"> The drained tunnel construction method with groundwater inflow control measures would generally be adopted. During the tunnel excavation, pre-excavation grouting could be adopted to reduce the groundwater inflow and ensure that the tunnel would meet the long term water tightness requirements. 	Minimize groundwater inflow	Contractor	Tunnel	Construction Phase	N/A
S6.8.6						
S6.8.6						
S6.8.8	<p>Measure to Minimize Impact on Corals</p> <p><u>Coral translocation</u></p> <ul style="list-style-type: none"> It is recommended to translocate the affected coral colonies, except the locally common <i>Oulastrea crispata</i>, within the reclamation area and bridge footprint to the other suitable locations as far as practicable. The coral translocation should be conducted during the winter months (November-March) in order to avoid disturbance during their spawning period (i.e. July to October). A detailed coral translocation plan with a description on the methodology for pretranslocation coral survey, translocation methodology, identification/proposal of coral recipient site, monitoring methodology for posttranslocation should be prepared during the detailed design stage. The coral translocation plan should be subject to approval by relevant authorities (e.g. EPD and AFCD) before commencement of the coral translocation. All the translocation exercises should be conducted by experienced marine ecologist(s) who is/are approved by AFCD prior to commencement of coral translocation. <p><u>Post translocation Monitoring</u></p> <ul style="list-style-type: none"> A coral monitoring programme is recommended to assess any adverse and unacceptable impacts to the translocated coral communities Information gathered during each posttranslocation monitoring survey should include observations on the presence, survival, health condition and growth of the translocated coral colonies. These parameters should then be compared with the baseline results collected from the pre-translocation survey. 	Minimize loss of coral	Design team, contractor, project operator	Within reclamation areas and pier footprint	Prior construction	N/A
S6.8.9 S6.8.10	<p>Measure to Control Water Quality Impact</p> <ul style="list-style-type: none"> Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. Diverting of the site runoff to silt trap facilities before discharging into storm drain; Proper waste and dumping management; and Standard good-site practice for land-based construction. 	Control water quality impact, especially on suspended solid level; minimize the contamination of wastewater discharge, accidental chemical spillage and construction site runoff to the receiving water bodies	Design Team, contractor	Marine and landbased works area	Construction phase	WQO
S6.8.11	<p>Compensation for Vegetation Loss</p> <ul style="list-style-type: none"> Felling of mature trees should be compensated by planting of standard or heavy standard trees within or in vicinity of the affected area as far as practicable. Such compensatory planting for trees should be provided with at least a 1:1 ratio. In addition, vegetation at the temporarily affected area should be reinstated with species similar to the existing condition. 	Compensate for the vegetation loss	Design Team, contractor	Land-based works area	Construction phase	N/A

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Fisheries Impact						
S7.7.3	Measure to Control Water Quality Impact <ul style="list-style-type: none"> Deployment of silt curtains around the active stone column installation points, opening of newly installed seawall and marine works area. 	Control water quality impact, especially on suspended solid level	Design Team / Contractor	Marine work area	Construction phase	WQO
Waste Management (Construction Phase)						
S8.6.3	Good Site Practices and Waste Reduction Measures <ul style="list-style-type: none"> Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site; Training of site personnel in site cleanliness, proper waste management and chemical handling procedures; Provision of sufficient waste disposal points and regular collection of waste; Appropriate measures to minimize windblown litter and dust during transportation of waste by either covering trucks or by transporting wastes in enclosed containers; and Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors. 	To reduce waste management impacts	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.4	Good Site Practices and Waste Reduction Measures (con't) <ul style="list-style-type: none"> Segregation and storage of different types of waste in different containers, skips or stockpiles to enhance reuse or recycling of materials and their proper disposal; Encourage collection of aluminium cans by providing separate labelled bins to enable this waste to be segregated from other general refuse generated by the workforce; Proper storage and site practices to minimize the potential for damage or contamination of construction materials; and Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste. 	To achieve waste reduction	Contractor	All work sites	Construction Phase	Waste Disposal Ordinance (Cap. 354) Land (Miscellaneous Provisions) Ordinance (Cap. 28)
S8.6.5	Good Site Practices and Waste Reduction Measures (con't) The Contractor shall prepare and implement a WMP as part of the EMP in accordance with ETWB TCW No. 19/2005 which describes the arrangements for avoidance, reuse, recovery, recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities. Such a management plan should incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP should be submitted to the Engineer for approval. The Contractor should implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP should be reviewed regularly and updated by the Contractor.	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.6	Good Site Practices and Waste Reduction Measures (con't) <ul style="list-style-type: none"> C&D materials would be reused in the project and other local concurrent projects as far as possible. 	To achieve waste reduction	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005

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S8.6.7	<p>Storage, Collection and Transportation of Waste</p> <p>Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include:</p> <ul style="list-style-type: none"> Waste, such as soil, should be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; Maintain and clean storage areas routinely; Stockpiling area should be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and Different locations should be designated to stockpile each material to enhance reuse. 	To minimize potential adverse environmental impacts arising from waste storage	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.8/ Waste Management Plan	<p>Storage, Collection and Transportation of Waste (con't)</p> <ul style="list-style-type: none"> Remove waste in timely manner; Waste collectors should only collect wastes prescribed by their permits; Impacts during transportation, such as dust and odour, should be mitigated by the use of covered trucks or in enclosed containers; Obtain relevant waste disposal permits from the appropriate authorities, in accordance with the Waste Disposal Ordinance (Cap. 354), Waste Disposal (Charges for Disposal of Construction Waste) Regulation (Cap. 345) and the Land (Miscellaneous Provisions) Ordinance (Cap. 28); Waste should be disposed of at licensed waste disposal facilities/ alternative disposal ground approved by RE and DEP; and Maintain records of quantities of waste generated, recycled and disposed. 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	ETWB TCW No. 19/2005
S8.6.8/ Waste Management Plan						
S8.6.8/ Waste Management Plan						
S8.6.8/ Waste Management Plan						
S8.6.8/ Waste Management Plan						
S8.6.8/ Waste Management Plan						
S8.6.9/ Waste Management Plan	<p>Storage, Collection and Transportation of Waste (con't)</p> <ul style="list-style-type: none"> Implementation of trip ticket system with reference to DEVB TC(W) No. 6/2010, Trip Ticket System for Disposal of Construction & Demolition Materials, to monitor disposal of waste and to control fly-tipping at PFRFs or landfills. A recording system for the amount of waste generated, recycled and disposed (including disposal sites) should be proposed. 	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010
S8.6.11 - S8.6.13/ Waste Management Plan	<p>Sorting of C&D Materials</p> <ul style="list-style-type: none"> Sorting to be performed to recover the inert materials, reusable and recyclable materials before disposal off-site. Specific areas shall be provided by the Contractors for sorting and to provide temporary storage areas for the sorted materials. The C&D materials should at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled in the reclamation as far as practicable before delivery to PFRFs. While opportunities for reusing the non-inert portion should be investigated before disposal of at designated landfills 	To minimize potential adverse environmental	Contractor	All work sites	Construction Phase	DEVB TCW No. 6/2010 ETWB TCW No. 33/2002 ETWB TCW No. 19/2005

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
S8.6.17 – S8.6.20	<p>Sediments (con't)</p> <ul style="list-style-type: none"> Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during boring, excavation, transportation and disposal of sediments or cement stabilization of sediment. A treatment area should be confined for carrying out the cement stabilization mixing and temporary stockpile. The area should be designed to prevent leachate from entering the ground. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during boring, excavation and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges/trucks. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 	To determine the best handling and treatment of sediment	Contractor	All works areas with sediments concern	Construction Phase	ETWB TCW No. 19/2005
S8.6.24 - S8.6.28/ Waste Management Plan	<p>Sediments (con't)</p> <ul style="list-style-type: none"> The excavated sediments is expected to be loaded onto the barge and transported to the designated disposal sites allocated by the MFC. The excavated sediment would be disposed of according to its determined disposal options and ETWB TC(W) No. 34/2002. Stockpiling of contaminated sediments should be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment should be covered by tarpaulin and the area should be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and surrounding water bodies. The stockpiling areas should be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas should be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, should be collected and discharged according to the Water Pollution Control Ordinance (WPCO). In order to minimise the potential odour / dust emissions during boring and transportation of the sediment, the excavated sediments should be kept wet during excavation/boring and should be properly covered when placed on barges. Loading of the excavated sediment to the barge should be controlled to avoid splashing and overflowing of the sediment slurry to the surrounding water. The barge transporting the sediments to the designated disposal sites should be equipped with tight fitting seals to prevent leakage and should not be filled to a level that would cause overflow of materials or laden water during loading or transportation. In addition, monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the DEP. In order to minimise the exposure to contaminated materials, workers should, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities should also be provided on site. 	To ensure handling of sediments are in accordance to statutory requirements	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
	<ul style="list-style-type: none"> Another possible arrangement for Type 3 disposal is by geosynthetic containment. A geosynthetic containment method is a method whereby the sediments are sealed in geosynthetic containers and, at the disposal site, the containers would be dropped into the designated contaminated mud pit where they would be covered by further mud disposal and later by the mud pit capping, thereby meeting the requirements for fully confined mud disposal. 					
S8.6.26/ Waste Management Plan	<p>Chemical Wastes.</p> <ul style="list-style-type: none"> If chemical wastes are produced at the construction site, the Contractor would be required to register with the EPD as a Chemical Waste Producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes should be used, and incompatible chemicals should be stored separately. Appropriate labels should be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive, flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the Chemical Waste Treatment Centre at Tsing Yi, or other licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation. 	To ensure proper management of chemical waste	Contractor	All works sites	Construction Phase	<p>Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes</p> <p>Waste Disposal (Chemical Waste) (General) Regulation</p>
S8.6.27/ Waste Management Plan	<p>General Refuse</p> <ul style="list-style-type: none"> General refuse should be stored in enclosed bins or compaction units separate from C&D material. A reputable waste collector should be employed by the contractor to remove general refuse from the site, separately from C&D material. Preferably an enclosed and covered area should be provided to reduce the occurrence of 'wind blown' light material. 	To ensure proper management of general refuse	Contractor	All works sites	Construction Phase	Public Health and Municipal Services Ordinance (Cap. 132)
Impact on Cultural Heritage (Construction Phase)						
S9.6.4	<p>Dust and visual impacts</p> <ul style="list-style-type: none"> Temporarily fenced off buffer zone with allowance for public access (minimum 1 m) should be provided; The open yard in front of the temple should be kept as usual for annual Tin Hau festival; Monitoring of vibration impacts should be conducted when the construction works are less than 100m from the temple. 	To prevent dust and visual impacts	Contractors	Work areas	Construction Phase	EIAO; GCHIA; AMO
S9.6.4	<p>Indirect vibration impact</p> <ul style="list-style-type: none"> Vibration level is suggest to be controlled within a peak particle velocity (ppv) limit of 5mm/s measured inside the historical buildings; Monitoring of vibration should be carried out during construction phase. Tilting and settlement monitoring should will be applied on the Cha Kwo Ling Tin Hau Temple as well. A proposal with details for the mitigation measures and monitoring of impacts on built heritage shall be submitted to AMO for comments before commencement of work. 	To prevent indirect vibration impact	Contractors	Work areas	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
Built Heritage Mitigation Plan	<ul style="list-style-type: none"> • Established Alert, Alarm and Action Level for the monitoring parameters. • To increase the instrumentation monitoring and reporting frequency. • To propose detailed action plan or contingency plan for the Engineer's approval when AAA Level is reached or exceeded. 	To prevent vibration impacts	NE/2015/01	Tin Hau Temple	Construction Phase	Vibration Limits on Heritage Buildings by CEDD; GCHIA; AMO.

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
Landscape and Visual Impact (Construction Phase)						
Table 10.8.1/ Landscape Mitigation Plan	CM1 - Construction area and contractor's temporary works areas to be minimised to avoid impacts on adjacent landscape.	Avoid impact on adjacent landscape areas	CEDD (via Contractor)	General	Construction planning and during construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM2 - Reduction of construction period to practical minimum.	Minimise duration of impact	CEDD (via Contractor)	N/A	Construction planning	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM3 - Topsoil, where the soil material meets acceptable criteria and where practical, to be stripped and stored for re-use in the construction of the soft landscape works. The Contract Specification shall include storage and reuse of topsoil as appropriate.	To allow re-use of topsoil	CEDD (via Contractor)	General	Site clearance	As per the Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM4 - Existing trees at boundary of site and retained trees within site boundary to be carefully protected during construction. Detailed Tree Protection Specification shall be provided in the Contract Specification, under which the Contractor shall be required to submit, for approval, a detailed working method statement for the protection of trees prior to undertaking any works adjacent to all retained trees, including trees in contractor's works areas. (Tree protection measures will be detailed at Tree Removal Application stage).	To minimize tree loss	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance and throughout construction period	ETWB TC 3/2006 and as per tree protection measures in Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM5 - Trees unavoidably affected by the works shall be transplanted where practicable. Where possible, trees should be transplanted direct to permanent locations rather than temporary holding nurseries. A detailed tree transplanting specification shall be provided in the Contract Specification and sufficient time for preparation shall be allowed in the construction programme.	To maximize preservation of existing trees	CEDD (via Contractor)	As per approved Tree Removal Application(s)	Site clearance	ETWB TC 3/2006 and as per tree protection measures in Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM6 - Advance screen planting of fast growing tree and shrub species to noise barriers and hoardings. Trees shall be capable of reaching a height >10m within 10 years.	To maximize screening of the works	CEDD (via Contractor)	At Lam Tin Interchange and edge of Road P2 landscape deck, TKO	Beginning of construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM7 - Hydroseeding or sheeting of soil stockpiles with visually unobtrusive material	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	As per Particular Specification
Table 10.8.1/ Landscape Mitigation Plan	CM8 - Control of night-time lighting by hooding all lights and through minimisation of night working periods.	To reduce visual intrusion	CEDD (via Contractor)	General	Throughout construction period	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM9 - Screening of works areas with hoardings with appropriate colours compatible with the surrounding area	Reduction of visual intrusion	CEDD (via Contractor)	Project site Boundary	Excretion of site hoarding	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM10 - Avoidance of excessive height and bulk of site buildings and structure	Reduction of visual intrusion and integration with environment	CEDD (via Contractor)	Built structures	Design and construction stage	N/A
Table 10.8.1/ Landscape Mitigation Plan	CM11 - Limitation of run-off into freshwater streams, ponds and sea areas	Avoidance of contamination of water courses and water bodies	CEDD (via Contractor)	TKO reclamation, TKO tunnel portal, Cha Kwo Ling roadworks	Throughout construction period	N/A

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
Table 10.8.1	CM12 - Minimise area of reclamation and design the edges sensitively to tie in with adjacent coastline characte	Minimise loss of Junk Bay and integration with existing coastlin	CEDD (via Contractor)	Temporary reclamation for barging points at TKO and Lam Tin and permanent reclamation for TKO Interchange slip roads and Road P2	Construction planning and reclamation stages	N/A
Landfill Gas Hazard (Design and Construction Phase)						
S11.5.9	<p>A Safety Officer, trained in the use of gas detection equipment and landfill gas-related hazards, should be present on site throughout the groundworks phase. The Safety Officer should be provided with an intrinsically safe portable instrument, which is appropriately calibrated and able to measure the following gases in the ranges indicated below:</p> <p>Methane 0-100% LEL and 0100% v/v Carbon dioxide 0-100% Oxygen 0-21%</p>	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note
	<p>Safety Measures</p> <ul style="list-style-type: none"> For staff who work in, or have responsibility for "at risk" area, such as all excavation workers, supervisors and engineers working within the Consultation Zone, should receive appropriate training on working in areas susceptible to landfill gas, fire and explosion hazards. An excavation procedure or code of practice to minimize landfill gas related risk should be devised and carried out. No worker should be allowed to work alone at any time in or near to any excavation. At least one other worker should be available to assist with a rescue if needed. Smoking, naked flames and all other sources of ignition should be prohibited within 15m of any excavation or ground-level confined space. "No smoking" and "No naked flame" notices should be posted prominently on the construction site and, if necessary, special areas should be designed for smoking. Welding, flame-cutting or other hot works should be confined to open areas at least 15m from any trench or excavation. Welding, flame-cutting or other hot works may only be carried out in trenches or confined spaces when controlled by a "permit to work" procedure, properly authorized by the Safety Officer (or, in the case of small developments, other appropriately qualified person). The permit to work procedure should set down clearly the requirements for continuous monitoring for methane, carbon dioxide and oxygen throughout the period during which the hot works are in progress. The procedure should also require the presence of an appropriately qualified person, in attendance outside the 'confined area', who should be responsible for reviewing the gas measurements as they are made, and who should have executive responsibility for suspending the work in the event of unacceptable or hazardous conditions. Only those workers who are appropriately trained and fully aware of the potentially hazardous conditions which may arise should be permitted to carry out hot works in confined areas. 					

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
S11.5.10 S11.5.25	<ul style="list-style-type: none"> • Where there are any temporary site offices, or any other buildings located within the Sai Tso Wan Landfill Consultation Zone which have enclosed spaces with the capacity to accumulate landfill gas, then they should either be located in an area which has been proven to be free of landfill gas (by survey using portable gas detectors); or be raised clear of the ground by a minimum of 500mm. This aims to create a clear void under the structure which is ventilated by natural air movement such that emission of gas from the ground are mixed and diluted by air. • Any electrical equipment, such as motors and extension cords, should be intrinsically safe. During piping assembly or conduiting construction, all valves/seals should be closed immediately after installation. As construction progresses, all valves/seals should be closed to prevent the migration of gases through the pipeline/conduit. All piping /conduiting should be capped at the end of each working day. • During construction, adequate fire extinguishing equipment, fire-resistant clothing and breathing apparatus (BA) sets should be made available on site. • Fire drills should be organized at not less than six monthly intervals. • The contractor should formulate a health and safety policy, standards and instructions for site personnel to follow. • All personnel who work on the site and all visitors to the site should be made aware of the possibility of ignition of gas in the vicinity of excavations. Safety notices (in Chinese and English) should be posted at prominent position around the site warning danger of the potential hazards. • Service runs within the Consultation Zone should be designated as “special routes”; utilities companies should be informed of this and precautionary measures should be implemented. Precautionary measures should include ensuring that staff members are aware of the potential hazards of working in confined spaces such as manholes and service chambers, and that appropriate monitoring procedures are in place to prevent hazards due to asphyxiating atmospheres in confined spaces. Detailed guidance on entry into confined spaces is given in Code of Practice on Safety and Health at Work in Confined Spaces (Labour Department, Hong Kong). • Periodically during ground-works construction within the 250m Consultation Zone, the works area should be monitored for methane, carbon dioxide and oxygen using appropriately calibrated portable gas detection equipment. The monitoring frequency and areas to be monitored should be set down prior to commencement of ground-works either by the Safety Officer or an approved and appropriately qualified person. 	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD’s Landfill Gas Hazard Assessment Guidance Note Labour Department’s Code of Practice for Safety and Health at Work in Confined Space
	<p>Monitoring</p> <ul style="list-style-type: none"> ● Routine monitoring should be carried out in all excavations, manholes, chambers, relocation of monitoring wells and any other confined spaces that may have been created. All measurements in excavations should be made with the extended monitoring tube located not more than 10 mm from the exposed ground surface. Monitoring should be performed properly to make sure that the area is free of landfill gas before any man enters into the area. ● For excavations deeper than 1m, measurements should be carried out: <ul style="list-style-type: none"> • at the ground surface before excavation commences;- • immediately before any worker enters the excavation; 					

EIA Ref. / EP Submission	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?	What requirements or standards for the measures to achieve?
S11.5.26 - S11.5.31	<ul style="list-style-type: none"> • at the beginning of each working day for the entire period the excavation remains open; and • periodically throughout the working day whilst workers are in the excavation. ● For excavations between 300mm and 1m deep, measurements should be carried out: <ul style="list-style-type: none"> • directly after the excavation has been completed; and • periodically whilst the excavation remains open. ● For excavations less than 300mm deep, monitoring may be omitted, at the discretion of the Safety Officer or other appropriately qualified person. ● Depending on the results of the measurements, actions required will vary and should be set down by the Safety Officer or other appropriately qualified person. ● The exact frequency of monitoring should be determined prior to the commencement of works, but should be at least once per day, and be carried out by a suitably qualified or qualified person before starting the work of the day. Measurements shall be recorded and kept as a record of safe working conditions with copies of the site diary and submitted to the Engineer for approval. The Contractor may elect to carry out monitoring via an automated monitoring system. 	Protect the workers from landfill gas hazards	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note
S11.5.32	The hazards from landfill gas during the construction stage within the Sai Tso Wan Landfill Consultation Zone should be minimized by suitable precautionary measures recommended in Chapter 8 of the Landfill Gas Hazard Assessment Guidance Note.	<p>construction stage within the Sai Tso Wan</p> <p>Protect the workers from landfill gas hazards</p>	Contractor	Project sites within the Sai Tso Wan Landfill Consultation Zone	Construction phase	EPD's Landfill Gas Hazard Assessment Guidance Note

Table II - Observation / Reminder / Non-compliance made during Site Audit

- Key:
- ✓ Observation/reminder was made during site audit but improved/rectified by the contractor in the next site audit
 - ✗ Observation/reminder was made during site audit but not yet improved/rectified by the contractor in the next site audit
 - # Follow up action will be reported in next reporting month
 - * Non-compliance of mitigation measure
 - Non-compliance but improved by the contractor

EIA Ref	Recommended Mitigation Measures	Contract No.	Work Sites	Details of Reminder/Observation	Recorded Date	Status
Water Quality Impact						
S5.8.9	Construction site should be provided with adequately designed perimeter channel and pretreatment facilities and proper maintenance. The boundaries of critical areas of earthworks should be marked and surrounded by dykes or embankments for flood protection. Temporary ditches should be provided to facilitate runoff discharge into the appropriate watercourses, via a silt retention pond. Permanent drainage channels should incorporate sediment basins or traps and baffles 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.	NE2015/02	Portion IX	24-Jun-2021: The Contractor had repair the drainage system immediately.	24-Jun-21	✓
S5.8.8	adequate maintenance of drainage systems to prevent flooding and overflow.	NE2015/01	Various Portion	The contractor is reminded to avoid ponding of water.	9-Jun-21 16-Jun-21 30-Jun-21	✓
Ecological Impact						
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Construction Noise Impact						
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Landscape and Visual Impact						
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Air Quality Impact						
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Fisheries Impact						
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Waste Management						
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters.	NE2015/01	Portion III	Waste/Chemical Management	2-Jun-21 9-Jun-21 30-Jun-21	✓
S5.8.22	All fuel tanks and storage areas should be provided with locks and be located 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 the coastal waters.	NE2015/02	Portion IX	The Contractor is reminded to provide drip tray for chemical.	24-Jun-21	✓
S8.6.8/ Waste Management Plan	Remove waste in timely manner;	NE2015/01	Portion III	The Contractor is reminded to remove the accumulate waste	2-Jun-21 9-Jun-21 30-Jun-21	✓
Landfill Gas Hazards						
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**APPENDIX O
SUMMARIES OF ENVIRONMENTAL
COMPLAINT, WARNING, SUMMON
AND NOTIFICATION OF SUCCESSFUL
PROSECUTION**

Table O1 - Cumulative Complaint Log for Tseung Kwan O - Lam Tin Tunnel

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
556	27-Jun-21	27-Jun-2021 / Marine Works Area	Anonymous	Working Hours	Operation of Marine Construction Works during Restricted Hours	Y	Tug boat and crane barge were used for relocating barge and airlifting materials. The Contractors held valid and approved CNP. No non-compliance was recorded. The details shall referred to CIR-N143.	Draft CIR submitted
555	29-Jun-21	29-Jun-21 / Marine Works Area	Anonymous	Water	Suspected Muddy Water at the Marine Works Area	N	Investigation undergoing	On-going
554	29-Jun-21	25-Jun-21 / Marine Works Area	Anonymous	Light / Working Hours	Construction works during restricted hours and light nuisance	N	No construction was undergoing during the time of complaint. The light shown in photo was used as safeguarding purpose. Details shall be referred to CIR-O7.	Draft CIR submitted
553	27-May-21	26-May-21 / C3	Anonymous	Air	Air quality impact nuisance nearby Po Yap Road (C3 - Apr & May 2021)	N	See Complaint #551	Draft CIR submitted
552	18-May-21	17-May-21 / C1	Anonymous	Noise	Noise Nuisance from Construction Works (C1 - May)	Y	Investigation undergoing	On-going
551	21-May-21	23-Apr-21 / C3	Resident from Ocean Shores	Air	Air quality impact nuisance nearby Po Yap Road (C3 - Apr & May 2021)	N	The contractor had applied mitigation measures such as regular watering and covering stockpile of dusty materials. The complaint is considered as project-related and details shall be referred to CIR-A21	Draft CIR submitted
550	21-May-21	4-May-21 / C2 & C3	Resident from Ocean Shores	Noise	Noise nuisance at early morning (C2&C3 May 2021)	N	The complaint is considered as non-project-related as both contractor and RE confirmed that no construction was carried out on or before 8 a.m. on the date of incident. The details shall be referred to CIR-N139	Draft CIR submitted
549	26-Apr-21	21-Apr-21 / C1	Mr. Chan from Hong Nga Court	Noise	Suspected Construction Works during night-time (C1 - Apr)	Y	Investigation undergoing	On-going
548	26-Apr-21	23-Apr-21 / C1	Mrs. Ho from Lung pak House	Noise	Noise nuisance during evening time (C1-Apr)	Y	Investigation undergoing	On-going
547	26-Apr-21	25-Apr-21 / C1	Mr. Lau from Yung Lai House	Noise	Noise nuisance at morning (C1-Apr)	Y	Investigation undergoing	On-going
546	19-Apr-21	4&11-Mar-21 / Marine Works Area	Anonymous	Noise	Noise nuisance on holiday mornings (C6 - Apr)	Y	Investigation undergoing	On-going
545	19-Apr-21	22-Mar-21 / Portion IX	Mr. Lai (Sai Kung District Council Member)	Noise	Noise nuisance on holiday mornings (C2 - Mar)	N	See Complaint #538	Closed
544	19-Apr-21	11-Mar-21 / Portion III	Resident of Yau Lai Estate	Noise	Noise Nuisance from Construction Works (C1 - Mar)	Y	See Complaint #521	Draft CIR submitted
543	19-Apr-21	3-Apr-21 / Portion III	Resident of Yau Lai Estate	Noise	Noise Nuisance from Construction Works (C1 - Apr)	Y	See Complaint #534	Closed
542	19-Apr-21	3-Apr-21 / Portion III	Resident of Yau Lai Estate	Noise	Noise Nuisance from Construction Works (C1 - Apr)	Y	See Complaint #534	Closed
541	19-Apr-21	7-Apr-21 / Portion III	Resident of Ping Tin Estate	Noise	Noise Nuisance from Construction Works (C1 - Apr)	Y	See Complaint #534	Closed
540	19-Apr-21	14-Apr-21 / Portion III	Mr. Wang (Kwun Tong District Council Member)	Noise	Noise Nuisance from Construction Works (C1 - Apr)	Y	See Complaint #534	Closed
539	16-Apr-21	22-Mar-21 / Portion IX	Resident of Ocean Shores	Noise	Suspected Construction Works during evening-time (C2 - Mar)	N	See Complaint #534	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
538	16-Apr-21	Non-specific / Works area near Ocean Shores	Resident of Ocean Shores	Noise	Noise nuisance on holiday mornings (C2 - Mar)	N	No works was conducted during the time of complaint. The complaint is considered as non-project-related. Details shall be referred to CIR-N138.	Closed
537	15-Apr-21	14/4/2021 / Works area near Park Central	Resident of Park Central	Noise	Noise Nuisance due to Breaking Works (C3- Apr)	Y	Breaking works was conducted during the time of complaint. No limit level for noise monitoring was triggered. The complaint is considered as project-related. Details shall be referred to CIR-N137.	Draft CIR submitted
536	14-Apr-21	7/4/2021 / Portion IX	Resident of Ocean Shores	Noise	Suspected low-frequency noise nuisance at Portion IX (Apr 2021)	N	The complaint is considered as non-project-related as no PME was turned on during the time of complaint. Details shall be referred to CIR-N136.	Closed
535	14-Apr-21	7/4/2021 / C1	Resident of Lam Tin District	Noise	Noise nuisance during nighttime (C1 - Apr 2021)	Y	See Complaint #534	Closed
534	8-Apr-21	3/4/2021 / C1	Resident of Yau Lai Estate	Noise	Noise nuisance during nighttime (C1 - Apr 2021)	Y	The complaint is considered as project-related as there was construction works conducted at Kwun Tong Bypass. The details shall be referred to CIR-N135.	Closed
533	26-Mar-21	15-Mar-2021 / Portion IVC or III	Resident of Yau Lai Estate	Noise	Noise nuisance during daytime (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
532	16-Mar-21	10-Mar-2021 / Zone C	Mr. Lui (Sai Kong District Council Member)	Noise	Noise nuisance during daytime (C3 - Mar 2021)	Y	See Complaint #529	Closed
531	10-Mar-21	10-Mar-2021 / Zone C	Resident of Park Central	Noise	Noise nuisance during daytime (C3 - Mar 2021)	Y	See Complaint #529	Closed
530	10-Mar-21	10-Mar-2021 / Zone C	Resident of Park Central	Noise	Noise nuisance during daytime (C3 - Mar 2021)	Y	See Complaint #529	Closed
529	10-Mar-21	10-Mar-2021 / Zone C	Resident of Park Central	Noise	Noise nuisance during daytime (C3 - Mar 2021)	Y	The complaint is considered as project-related and no non-compliance was found. The noise origin was believed to be the breaking works conducting at Po Yap Road. The concerned breaking works was completed on 13 Mar 2021. The details shall be referred to CIR-N134.	Closed
528	10-Mar-21	10-Mar-2021 / Portion IVC or III	Resident of Yau Lai Estate	Noise	Percussive Noise nuisance at morning (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
527	10-Mar-21	10-Mar-2021 / Portion IVC or III	Resident of Yau Lai Estate	Noise	Percussive Noise nuisance at morning (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
526	10-Mar-21	10-Mar-2021 / Portion IVC or III	Resident of Yau Lai Estate	Noise	Percussive noise nuisance at morning (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
525	9-Mar-21	5-Mar-2021 / Portion IX	Anonymous	Noise	Noise nuisance during daytime (C2 - Mar 2021)	Y	See Complaint #522	Closed
524	9-Mar-21	9-Mar-2021 / Portion IVC or III	Mr. Wong from District Councilors	Noise	Percussive noise nuisance at morning (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
523	9-Mar-21	9-Mar-2021 / Portion IVC or III	Resident of Yau Lai Estate	Noise	Percussive noise nuisance at morning (C1 - Mar 2021)	Y	See Complaint #521	Draft CIR submitted
522	4-Mar-21	3-Mar-2021 / Portion IX	Resident of Ocean Shore	Noise	Noise nuisance during daytime (C2 - Mar 2021)	Y	The complaint case was considered as project-related. The Contractor is reminded to close the gap of noise barrier and repair damaged noise barriers. The details shall be referred to CIR-N132.	Closed
521	4-Mar-21	3-Mar-2021 / Portion IVC or III	Resident of Yau Lei Estate	Noise	Noise nuisance during daytime (C1 - Mar 2021)	Y	The complaint is considered as project-related. No limit level of construction noise was recorded during March 2021 and the details shall be referred to CIR-N133.	Draft CIR submitted
520	1-Mar-21	1-Mar-2021 / Portion IVC or III	Resident of Yau Lei Estate	Noise	Noise nuisance during daytime (C1 - Mar 2021)	Y	See Complaint #518	Draft CIR submitted
519	24-Feb-21	21-Feb-2021 / Non-specific	Resident of Ocean Shores	Noise	Noise nuisance on morning (Feb 2021)	N	No PME was operating on-site at the time of complaint and the complaint is considered as non-project-related. The details shall be referred to CIR-N131	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status	
518	19-Feb-21	12-13 & 18 Feb 2021 / Non-specific	Resident of Yau Lei Estate & Hong Pak Court	Noise	Percussive noise nuisance at morning (C1)	Y	Investigation result shows that the percussive noise nuisance was generated from Portion IVC. The construction work started after 0700 and no limit level of daytime noise exceedance was recorded. The details shall be referred to CIR-N130	Draft CIR submitted	
517	8-Feb-21	8/2/2021 / Non-specific	Resident of Ocean Shores	Noise	Noise Nuisance from Excavator	Y	No clear judgement was made as the complainant's information is too vague and it is hard to pinpoint the excavator mentioned in the complaint was in fact the one located at the project site. The details shall be referred to CIR-N129.	Closed	
516	26-Jan-21	21-Feb-2021 / Non-specific	Resident of Ocean Shores	Noise / Operating Hours	Continuous Noise Nuisance during Nighttime (Jan 2021)	N	No PME was operating on-site on the date of complaint. The details shall be referred to CIR-N128	Closed	
515	23-Jan-21	12-13 & 18 Feb 2021 / Non-specific	Resident of Yau Lei Estate & Hong Pak Court	Noise		N			See complaint #504
514	22-Jan-21	8/2/2021 / Non-specific	Resident of Ocean Shores	Noise		Y			See complaint #511
513	22-Jan-21	15-Jan-2021 / Zone D	Resident of Ocean Shores	Air	Air quality impact due to open stockpile	N	See Complaint #508	Closed	
512	22-Jan-21	20-Jan-2021 / Zone D				N			
511	20-Jan-21	6/1/2021 & 15/1/2021 / Portion IX of C2	Resident of Ocean Shores	Noise	Continuous Noise Nuisance during Nighttime (Jan 2021)	Y	The complaint is considered as project-related as barge was operating in during time of complaint. The details shall be referred to CIR-N128	Closed	
510	19-Jan-21	Non-specific / Portion IX of C2	Resident of Ocean Shores	Noise		N			See complaint #505
509	15-Jan-21	15/1/2021 / Portion IX of C2	Resident of Ocean Shores	Noise		N			See complaint #505
508	13-Jan-21	5/1/2020 / Storage Area of C3	Resident of Ocean Shores	Air	Air quality impact due to open stockpile	N	The Complaint was found project-related. The dust origin was from the stockpile at Zone A of C3. The Contractor had sprayed water regularly to suppress the dust emission and improvement had been observed over Jan 2021. Details shall be referred to CIR-A20.	Closed	
507			Resident of Ocean Shores	Air		N			
506	7-Jan-21	6-Jan-2020 / Portion IX	Resident of Ocean Shores	Noise	Continuous Noise Nuisance during Nighttime (Jan 2021)	Y	See Complaint #500	Closed	
505	4-Jan-21	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		N			No clear judgement was made. Other than the construction site, other source for low-frequency noise was also identified. Details shall be referred to CIR-N128
504	4-Jan-21	1-Jan-2020/C1	Resident of Yau Lai Est.	Noise	Suspected noise nuisance from work site	N	The complaint was considered non-project-related as there was no PME working on site. The details shall be referred to CIR-N127.	Closed	
503	30-Dec-20	21-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise	Noise nuisance at nighttime on a weekday	Y	See complaint #500	Closed	
502	28-Dec-20	22&23-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Closed	
501B	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Closed	
501A	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		N	No direct evidence show that the Contractor operated barges at the time of complaint. Therefore the complaint was considered as non-project-related. The details shall be referred to CIR-N126.	Closed	
501	23-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y	The Contractor operated PME(s) at evening-/night- time without an approved valid CNP. The complaint is considered as project-related. The details shall be referred to CIR-N126.	Closed	
500	22-Dec-20	22-Dec-2020 / Portion IX	Resident of Ocean Shores	Noise		Y		Closed	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
499	21-Dec-20	20/12/2020 / marine works area	Resident of Ocean Shores	Operating hours / Noise	Horning noise nuisance on Sunday	N	The complaint is considered as non-project-related as no barge was working under the TKOLTT project at the time of complaint. The details shall be referred to CIR-O6.	Closed
498	18-Dec-20	17-Dec-2020 / Marine Works Area	Resident of Ocean Shores	Noise	Low frequency noise & occasional piling noise nuisance during night-time	Y	The complaint is considered as project-related as the noise nuisance was coming from water pumps that working 24/7. Details shall be referring to CIR-N125.	Closed
497	9-Dec-20	Days on/before 9/12/2020 / Portion IVC	Resident of Yau Lai Estate	Air & Noise	Dust & Noise Nuisance near Lam Tin Interchange (December)	Y	See Complaint #494	Closed
496	3-Dec-20	Days before 3-Dec-20 / Lam Tin Tunnel	Resident of Hong Pak Court	Noise	Dust & Noise Nuisance near Lam Tin Interchange (December)	Y	See Complaint #494	Closed
495	16-Dec-20	12-Dec-2020 / Po Yap Road	Resident of Park Central	Noise	Night time machanical noise nuisance	Y	The complaint is considered as project-related as the noise nuisance was coming from water pumps that working 24/7. Details shall be referring to N124.	Closed
494	5-Dec-20	Early Dec 2020 / Portion III	Resident of Lung Pak House / Staff from Elderly Hoose nearby	Noise	Noise Nuisance near Lam Tin Interchange (December)	Y	The complaint is considered as project-related and no non-compliance in CNMP had been recorded. The contractor is reminded to ensure the effectiveness of noise mitigation measures by various measures including repairing damaged noise barrier. The details shall be referred to CIR-C40.	Closed
493	8-Dec-20	25-Nov-2020 & 2-Dec-2020 / Works area nearby Park Central	Resident of Park Central	Noise	Percussive noise nuisance from at early morning	N	The complaint is considered as non-project-related. No operating PME(s) under TKO-LTT project at the time of complaint was known to emit percussive noise at the time of complaint. The details shall be referred to CIR-N123.	Closed
492	18-Nov-20	18-Nov-2020 / Portion VIII (C2)	Resident of Ocean Shores	Noise	Construction Noise nuisance at Morning	Y	Preliminary result reveals that pre-boring and breaking works had been conducted at the time of complaint. The details shall be referred to CIR-N122.	Closed
491	18-Nov-20	16-Nov-2020 / C1	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Restricted Hour)	Y	See Complaint #490.	Closed
490	13 & 16 Nov 20	5-12 & 14-Nov-2020 / C1	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Restricted Hour)	Y	The complaint is considered as project-related. The origin of noise nuisance was believed to be construction works at Tunnel S1 and S2. No non-compliance was found and the details shall be referred to CIR-N121	Closed
489	13-Nov-20	13-Nov-2020 / C1	Resident of Yau Lai Estate	Air & Noise	Dust and Noise Nuisance in Portion IVC	Y	The complaint was found project-related. The contractor had adpoted various noise mitigation measures suc as rock splitting method and erection of semi-enclosure to further reduce the noise impact to its surrounding. The details shall be referred to CIR-C39.	Closed
488	13-Nov-20	10-Nov-2020 / C2	Resident of Ocean Shores	Air	Dust emission from construction works	N	The complaint was found project-related. The Contractor is recommended to spray water more requently to suppress the dust nuisance. The details shall be referred to CIR-A19.	Closed
487	11-Nov-20	5-Nov-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	See Compliant #468	Closed
486	11-Nov-20	6-Nov-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	See Compliant #468	Closed
485	7-Nov-20	7-Nov-20	Resident of Park Central	Noise	Precussive noise nearby Park Central	Y	The complaint is considered non-project-related as no PME that know to emit percussive noise was operating during the time of complaint. The details shall be referred to CIR-N120.	Closed
484	7-Nov-20	7-Nov-20 / Portion IV	Resident of Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	See complaint #481	Closed
483	6-Nov-20	6-Nov-20	Resident of Ocean Shores	Noise	Low-frequency noise at night (Oct&Nov 2020)	N	The low-frequency noise was found coming from the water pumps that works 24/7 and other source may also contribute to the noise nuisance. The Contractor had followed the approved CNP. The complaint is considered project-related and shall be referred to CIR-N119	Closed

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482	30-Oct-20	29-Oct-2020 / C2	Non-specific	Air	Dust emission from construction works	N	Despite the contractor had sprinkle water regularly, the haul road was found dry during site audit session. The Contractor is reminded to sprinkle water more frequently and cover stockpiles of dusty material to reduce dust emission. The details shall be referred to CIR-A19	Closed
481	3-Nov-20	2-Nov-2020 /Portion IV	Resident of Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	The complaint is considered project-related as no other possible noise origin is know to emit such kind of noise at the surrounding. The Contractor had been reminded to applied lubricants and tighten the screws to reduce noise level. The details shall be referred to CIR-N118	Closed
480	3-Nov-20	3-Nov-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to November)	Y	See Complaint #469	Closed
479	3-Nov-20	2-Nov-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	See Complaint #469	Closed
478	3-Nov-20	30-Oct-2020 / Portion IVC	Mr. Wong from District Councilors	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	See Complaint #469	Closed
477	30-Oct-20	15-Oct-2020 / Portion IVC	Non-specific	Air	Air & Noise Nuisance near Lam Tin Interchange (October)	N	See Complaint #469	Closed
476	29-Oct-20	29-Oct-2020 / Portion IVC	Resident of Yau Lai Est	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	See Complaint #468	Closed
475	28-Oct-20	Not specific / Lam Tin interchange	Non-specified (near Yau Lai Estate)	Noise	Air & Noise Nuisance near Lam Tin Interchange (October)	Y	See Complaint #469	Closed
474	23-Oct-20	23-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Low-frequency noise at night (Oct-Nov 2020)	N	The low-frequency noise was found coming from the water pumps that works 24/7 and other source may also contribute to the noise nuisance. The Contractor had followed the approved CNP. The complaint is considered project-related and shall be referred to CIR-N119	Closed
473	21-Oct-20	19-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Noise Nuisance near Portion IX	Y	See complaint #459	On-going
472	20-Oct-20	20-Oct-20 / Portion IV	Resident from Ocean Shores	Noise	Noise Nuisance from Excavation Works	Y	Preliminary results show the noise source was from the backhoe at Portion IV. The Contractor had applied mitigation measures such as adding lubricant to mounting parts to alleviate the problem. The details shall be referred to CIR-N118	Closed
471	6-Oct-20	6-Oct-20 / Portion IX	Resident from Ocean Shores	Noise	Noise nuisance at morning (Oct 2020)	Y	See complaint #459	On-going
470	10-Oct-20	3-10 Oct 20 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	See Complaint #468	Closed
469	10-Oct-20	9-10 Oct 20 / Lam Tin Interchange	DC Member (Mr. Wang)	Noise	Air & Noise Nuisance near Lam Tin Interchange (October)	Y	The complaint is considered as project-related and no non-compliance in CNMP had been recorded. The contractor had adopted mitigation measures such as deploying noise absorbing materials among construction site and spraying water near dust generating activities. The details shall be referred to CIR-C38.	Closed
468	5-Oct-20	Mondays - Saturdays / Portion IVC	Resident of Yau Lai Estate	Noise	Noise Nuisance near Lam Tin Interchange (Late September to Early November)	Y	The complaint was considered project-related. Mitigation measures such as deploying noise barrier and attempts on blocking direct line of sight from NSR was observed. The details shall be referred to CIR-N117.	Closed
467	23-Sep-20	19-Sep-2020 / Portion IX		Noise	Daytime noise nuisance (mid-September)	Y	See complaint #459	On-going

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466	22-Sep-20	20-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise / Working Hours	Noise nuisance on Sunday	Y	Investigation result shows none of the contract under TKOLTT conducted works on Sunday. The details shall be referred to CIR-O5	Closed
465	20-Sep-20	20-Sep-.2020 / Portion IX				Y		Closed
464	17-Sep-20	August 2020 / Portion IX	Resident of Ocean Shores	Noise	Continuous Noise Nuisance over Aug 2020	Y	The investigation shows no non-compliance and action level for noise is triggered. The details shall be referred to CIR-N113	Closed
463	15-Sep-20	15-Sep-2020 / Non-specific	Anonymous	Noise	Percussive noise nuisance at early morning	Y	The complaint is considered non-project-related. The investigation pointed out the Contractor had maintain wastewater treatment facilities properly and no action or limit level of surface SS was triggered after the incident. The muddy water was coming from DSD desilting compound. Details shall be referred to CIR-W16	Closed
462	8-Sep-20	10-Sep-2020 / Portion IX	Anonymous	Noise	Suspected muddy water discharge	N		Closed
461	5-Sep-20	5-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise	Squeaky noise on a Saturday Morning	Y	The squeaky noise believed was coming from operating barges at C6. No non compliance was found. Details shall be referred to CIR-N115	Closed
460	8-Sep-20	8-Sep-2020 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise nuisance near East Harbour Cross Tunnel	Y	See complaint #456	Closed
459	4-Sep-20	1-Sep-2020 / Portion IX	Resident of Ocean Shores	Noise	Noise nuisance at morning (Early Sep 2020)	Y	The complainant had repeatedly complaint about the continuous noise nuisance from September to October 2020. The CIR will be prepared in one-go. Meanwhile, no action level of construction noise was recorded during noise monitoring; no non-compliance was identified during site inspection.	On-going

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
458	28-Aug-20	Early August 20 / Lam Tin Tunnel	Resident from Yau Lai Estate	Noise	Long-term noise nuisance since early August	Y	See complaint #456	Closed
457	27-Aug-20	24&25-Aug-20 / Portion IX	Resident from Ocean Shores	Noise	Noise nuisance at morning (Late August 2020)	Y	See complaint #456	Closed
456	18-Aug-20	18-Aug-20 / Portion IVC	Resident from Yau Lai Estate	Noise	Noise nuisance near East Harbour Cross Tunnel	Y	Investigation showed the nuisance was generated by breaking works. The contractor had promised to complete the semi-enclosure by October 2020. The details shall be referred to CIR-N112	Closed
455	18-Aug-20	Dates on/before 1-Aug-20 / Lam Tin Tunnel	Resident from Yau Lai Estate	Noise	Noise nuisance from tunnel works	Y	Breaking had been conducted during the time of complaint. The details shall be referred to CIR-N111	Closed
454	11-Aug-20	2-Aug-20 / Sea outside Ocean Shores	Resident from Ocean Shores	Operation Hours	Working on restricted hours and public holiday	N	The working barge was believed to be working under the Cross Bay Link project. None of the barges working on the time of complaint belongs to TKOLTT project. Despite works had been conducted, no PME was turned on during the time of complaint. The details shall be referred to CIR-O4.	Closed
453	3-Aug-20	3-Aug-20 / Western Marine Works Area	Resident from Ocean Shores	Water	Suspected muddy water and worn out silt curtain	N	The suspected muddy water was due to the strong tidal movement under typhoon influence. The silt curtain was not deployed properly when the typhoon was landed. Details shall be referred to CIR-W15	Closed
452	1-Aug-20	31-Jul-20 / Marine Works Area	Resident from Ocean Shores	Noise	Squeaky noise during nighttime	Y	The noise was originated from the wires that used for tightening the barge. The Contractor had not fasten the wire completely as strong wave and wind action may tear up the wire and made the barge stranded. The details shall be referred to CIR-N110.	Closed
451	28-Jul-20	28-Jul-20 / Portion IX	Resident from Ocean Shores	Noise	Breaking noise on the morning	Y	Breaking had been conducted during the time of complaint. The details shall be referred to CIR-N109	Closed
450	23-Jul-20 24-Jul-20	23&24-Jul-20 / Works area nearby Ocean Shores	Residents from Ocean Shores	Noise	Noise nuisance on weekdays	Y	The noise nuisance was originated from high-noise level works such as breaking and drilling. The details shall be referred to CIR-N108	Draft CIR submitted
449	16-Jul-20	12-Jul-20 / Lam Tin Tunnel	Resident of Hong Pak Court	Noise	Noise Nuisance Suspected from Tunnel (C1)	Y	Breaking work was conducted near the underground of Hong Pak Court. No non-conformance of CNP was identified, contractor is reminded to strictly follow the conditions of CNP and the time period of CNP. The details shall be referred to CIR-N110.	Closed
448	4-Jul-20	4-Jul-20 noon / Marine works area nearby Ocean Shores	Resident of Ocean Shores	Air	Dark Smoke Emission from Barge	N	The dark smoke was originated from the barge. It is common that dark smoke will be released when the barge's engine was starting. The details shall be referred to CIR-A18.	Closed
447C	10-Jul-20	28-Jun-2020 / TKO South open sea	Anonymous	Water	Suspected oil leakage at the TKO south open sea	N	The suspected oil leakage was believed to be an algae bloom over the whole bay area. The noise nuisance from speeding was considered not project related. The details shall be referred to CIR-C37	Closed
447B	10-Jul-20	29-Jun-2020 / TKO south open sea & flyover towards TKO Chinese Permanent Cemetery		Water / Noise	Suspected muddy water spillage and noise nuisance due to speeding	N		
447A	10-Jul-20	24-Jun-2020 / Non-specific		Noise	Long-term noise nuisance and insufficient noise mitigation measures	Y		

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446	12-Jun-20	31-May-2020 / Area nearby Yau Lai Est	Resident of Yau Lai Estate	Noise	Noise nuisance at Morning nearby East Harbour Crossing	Y	See complaint 442.	Closed
445	11-Jun-20	11-Jun-20 / Park Central	Resident of Park Central	Air	Pungent smell suspected coming from the work sites	N	See complaint 443B.	Closed
444	6-Jun-20	6-Jun-20 / Portion IX	Residents of Ocean Shores	Water	Flooding within work site and suspected muddy water spillage after downpour	N	The flooding is a normal phenomenon as the site boundary have been embarked. The suspected muddy water is wide-spread among the open sea at TKO south and no exceedance of SS were recorded after the incident. The complaint is considered non-project-related and details shall be referred to CIR-W14.	Closed
443B	6-May-20	Non-specific	Anonymous	Air/Noise	Odour nuisance nearby TKO MTR Station	N	The preliminary result showed no direct relationship between the nuisance and the construction works. The details shall be referred to CIR-A17.	Closed
443A					Noise nuisance at Night and Air Quality Impact from Works	Y	The complaint is considered non-project-related. There is no direct evidence showing the project site is the origin of the nuisance. The details shall be referred to CIR-C36	Closed
442	22-May-20	22-May-20 / LT Tunnel	Resident from Hong Pak Court	Noise	Noise nuisance from Tunnel Works	Y	The noise is believed to be breakin inside the tunnel. The CNP was compiled with and contractor is reminded to review breaking schedule to less sensitive hour. The details shall refer to CIR-N105.	Closed
441	8&9-Apr-20	9-Apr-20 / TKO surcharge area	Residents of Ocean Shores	Air/Noise	Noise Nuisance on early morning and Air Quality Works from Excavation Works	Y	The work schedule of C2 had been reviewed. The "beeping" noise is originated from C2 due to safety issue (for mobilization of materials with crane). The noise nuisance is believed to be coming from the vibration hammer. The Contractor had water the exposed area regular to reduce dust impact to the surrounding. The details shall be referred to CIR-C35	Closed
440	13&17-May-20	13-May-2020/Surcharge Area of TKO	Residents of Ocean Shores	Noise	Noise generation in early mornings of early May	Y	The work schedule of C2, C3 & C6 had been reviewed. The noise source is believed to be generated from C2 due to sheet-piling. The details shall be referred to CIR-N104.	Closed
439	7-Apr-20 & 24-Apr-20	April 2020 / Works area near Park Central (non-specific)	Residents of Park Central	Odour	Continuous diesel fuel odour nuisance near Park Central	N	No direct evidence proved that the odour source was originated from the work sites of TKOLTT. The details shall be referred to CIR-A16.	Closed
438	18-Apr-20	18-Apr-20 / Marine Works Area at TKO	Residents of Ocean Shores	Noise/ Light	Blasting, High Frequency Noise and Light in Tseung Kwan O	Y	The complaint was valid in regard of noise. Blasting had been carried out during the midnight and the Contractor is reminded to strictl follow requirements of CNP. The light source was originated from the construction vessels due to safety reason and guard watching. Details shall be referred to CIR-C34.	Closed
437	27-Mar-20	27-Mar-2020 / Surcharge Area (C2)	Resident of Ocean Shores	Noise	Low Frequency Noise during Midnight	Y	The noise source was the malfunctioned dewatering pumps. The details shall be referred to CIR-N103	Closed
436	26-Mar-20	26-Mar-20/ Portion IVC	District Council Member (Mr. Wong)	Noise	Noise nuisance, vibration and spectedly insufficient mitigation measures in Lam Tin	Y	See complaint #431-433.	Closed
435	23-Mar-20	23-Mar-20/ Lam Tin Tunnel	Resident of Cha Kwo Ling Village	Noise	Groundborne Noise from Blasting in the Evening	Y	Blasting was conducted at the time of complaint. The vibration monitoring conducted near Tin Hau Temple was considered the vibration level was acceptable. The details shall be referred to CIR-N102.	Closed
434	23-Mar-20	20-Mar-20/ Lam Tin	District Council Member (Mr. Wong)	Noise	Noise nuisance from Construction Works during Holiday	Y	See compliant #427.	Closed

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433	20-Mar-21	20-Mar-20/ Lam Tin	Resident of Hong Pak Court	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y	The time period and PME's of major works conducted during daytime of the complaints, no non-compliance in CNMP and during site audits has been recorded. The Contractor is recommended to provide alternative noise mitigation measures such as acoustic box for noisy PME's and regularly repair materials of the noise mitigation measures. Details shall be referred to CIR-N101.	Closed
432	18-Mar-20	18-Mar-20 / Portion IVC	Resident of Yau Lai Estate	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y		
431	14-Mar-20	14-Mar-20 / Portion IVC	Residents of Yau Lai Estate	Noise	Noise nuisance, vibration and suspectedly insufficient mitigation measures in Lam Tin	Y		
430	17-Mar-20	17-Mar-20 / Surcharge Area / C2	Anonymous	Water	Muddy Water at the Surcharge Area	N	The "muddy water" was created by the tug boat's screw propeller. The Contractor claimed the propeller stirred up seabed sediment and generated "muddy water". The details shall be referred to CIR-W13.	Closed
429	10-Mar-20	10-Mar-20 / Site Nearby Park Central	Resident of Park Central	Noise	Noise nuisance in early morning (Mar 2020)	Y	No construction works had been conducted at the time of complaint for C3 and the major works area in C2 was at least 300m away from the complainant. It is believed that the major noise source was coming from ASD's work site. The details shall be referred to CIR-N100	Closed
428	4-Mar-20	Not Specified / Tseung Kwan O	Mr. Lui, Sai Kung District Council	Odour / Noise	Odour and low frequency noise nuisance from construction site	Y	Only minor works had been conducted at the time of complaint. No direct evidence showed that the odour source was originated from C3. The suspected nuisance source is believed to be ASD's works area. The details shall be referred to CIR-C33	Closed
427	1-Mar-20	1-Mar-20 / Portion IVC	Resident of Yung Kai House	Noise	Noise nuisance from Construction Works during Holiday	Y	No construction works were conducted at the concerned locations and no direct evidence showing the complaint is project-related. The details shall be referred to CIR-N99	Closed
426	19-Feb-20	11-Feb-20 / Works area outside TKL Sports Centre	Anonymous	Noise	Noise nuisance from breaking works	Y	Refer to complaint #423 and #424.	Closed
425	18-Feb-20	29-Jan-2020 / Marine works Area	Mr. Chan from Ocean Shore		Noise nuisance from barge in morning	Y	No works had been conducted in the time period of complaint. The noise is believed to be non-project-related. The details shall be referred to CIR-N95.	Closed
424	11-Feb-20	8 and 11-Feb-2020 / Site near TKL Station	Resident of Park Central		Noise nuisance from breaking works	Y	The complaint was valid and the contractor had been operating only 1 breaker at a time. The contractor is suggested to further increase the mitigation measures to reduce impact to the surrounding neighborhood. The details shall be referred to CIR-N97	Closed
423	3-Feb-20	03-Feb-2020 / Site Near TKL Station				Y		
422	3-Feb-20	2-Feb-20 / Lam Tin Interchange	Resident of Cheuk Lai House, Yau Lai Estate		Noise nuisance suspected to be related to works involving metal hammering on Site near EHC	Y	No construction activities were conducted at the concerned locations during the period of complaint. The Contractor is reminded to keep conducting good site practice and strictly follows the requirements of approved CNP. The details shall be referred to CIR-N98	Closed

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421	21-Jan-20	21-Jan-20 / Portion IX	Ocean Shores Residents	Noise	Noise nuisance due to Blasting at midnight	Y	Blasting was conducted around 1:30am due to the vicinity of the Railway protection zone of MTR. The Contractor is reminded to keep the blast door closed during blasting to minimize noise impacts and re-schedule blasting to less sensitive hours as far as practicable. The details shall be referred to CIR-N96.	Closed
420	7-Jan-20	7-Jan-20 / Portion IX	Ocean Shores Residents		Irritating loud noise nuisance from Portion IX (C2)	Y	See complaint #417	Closed
419	7-Jan-20	Sundays before 7-Jan-20 / Tunnel Works	Resident of Hong Pak Court		Noise nuisance from Tunnel Works	Y	See Complaint #416.	Closed
418	7-Jan-20	5-6-Jan-20 / C1 Marine Works Area	Ocean Shores Residents		High-frequency noise during night-time	Y	The high frequency noise was believe to be noise emitted from the marine works area of C1. The details shall be referred to CIR-N94.	Closed
417	3-Jan-20	2-Jan-20 / Portion IX	Former District Member (Mr. Chan)		Annoying noise emission and inefficient noise mitigation measures	Y	The noise source is believed to come from a breaker and mitigation was insufficient. The Contractor was requested to strictly follow the Noise Mitigation Plan. The details shall be referred to CIR-N93.	Closed
416	29-Dec-19	29-Dec-19 / Non-specific	Resident of Hong Pak Court	Noise	Groundborne Noise from Works area	Y	Project-related with valid CNP. Contractor is reminded to reduce noise emission and prevent breaking and noisy activities during restricted hours. The details shall be referred to CIR-N92.	Closed
415	27-Dec-19	25-Dec-19 / Lam Tin Interchange (Portion IVC)	Resident of Yau Estate	Noise	Noise nuisance from Portion IVC	Y	Non project-related due to maintenance works of East Cross-harbor Tunnel. The details shall be referred to CIR-N91.	Closed
414	24-Dec-19	22-Dec-19 / Lam Tin Interchange (Portion IVC)	Resident of Yau Estate	Noise	Piling noise nuisance near Lam Tin Interchange	Y	Project-related with valid CNP. Contractor is reminded to reduce noise emission and prevent breaking and noisy activities during restricted hours. The details shall be referred to CIR-N91.	Closed
413	24-Dec-19	24-Dec-19 / Portion IX of Contract 2	Resident of Capri & Ocean Shores	Noise	Loud and continuous noise emission from Portion IX	Y	No breaking activity was conducted by the C3. It was believed that C2 was the major noise source and the mitigation measures were insufficient. The details shall be referred to CIR-C32.	Closed
412	19-Dec-19	14-Dec-19 / marine works area	Resident of Ocean Shores	Noise	Noise nuisance from the marine works area	Y	The major construction work was driven by pin piles. The noise emitted due to the construction activities is considered to be reduced to an acceptable level as no NSR falls under the ambit of 300m study area of the work site. Details should be referred to CIR-N90.	Closed
411	2-Dec-19	30-Nov-19 / Construction Sites Outside TKL Sports Center	Resident of Park Central	Air / Noise	Non-effective noise mitigation measures and related dust and noise nuisance	Y	The construction noise created by breaking works are considered non-project related due to the large separation distance between noise source and the Complainant's Location. Major dust emission from the works area next to C3 was recorded. The Contractor is reminded to provide regular watering to dusty works. Details should be referred to CIR-C31.	Closed
410	28-Nov-19	25-Nov-19 / Portion 4C	Anonymous	Noise	Noise nuisance from Lam Tin Works Area and operation hours	Y	Refer to Complaint #408	Closed
409	27-Nov-19	20&27-Nov-19 / Construction Sites near Po Yap Road & Chui Ling Road	Resident of Park Central	Air / Noise	Dust emission due to excavation works and noise nuisance from Piling works	Y	Although noise barrier had been erected and around the breakers, the direct line of sight to the NSRs at Park Central could not be totally blocked. The Contractor is recommended to provide cantilevered noise barrier with noise absorbing materials to minimise noise impact as far as practicable. Details should be referred to CIR-C31.	Closed
408	25-Nov-19	Non-specific (Nov-19) / Portion 4C	Resident of Yau Lai Estate	Noise	Serious Noise Nuisance from Lam Tin Works Area	Y	Despite the Contractor had applied different noise mitigation measures (e.g. semi enclosure and noise barrier). Environmental deficiency was observed during site audit session. The Contractor is recommended to apply alternative noise mitigation measures to improve the situation. The details shall be refer to CIR-N89.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
407	12-Nov-19	Non-specific (Nov-19) / LT Construction Site	Non-specified(Complainant has previously made complaints on LTI)	Operation Hours	Inquiries on operating hours & Noise Nuisance	N	The time of complaint falls under day-time. According to the Contractor and RE, the general starting time of construction works are 08:15 on normal week days. The Contractor had avoid conduct noisy works on morning to minimize noise impacts for the nearby residents. The details shall be refer to CIR-O3	Closed
406	5-Nov-19	5-Nov-19 / Tunnel near TKO	District Council Member (Mr. Chan)	Noise	Noise nuisance from Blasting activities during night-time	Y	No blasting was carried out on that night. The construction activities were conducted inside the tunnel with the blast door closed. The CNP that the Contractor held remained valid during the time of complaint. The details shall be refer to CIR-N88	Closed
405	29-Oct-19	17-Oct-2019 / Marine Works area near Ocean Shore	District Council Member (Mr. Chan)	Noise	Daytime times noise nuisance	Y	The complaint details does not tally up with the information provided with the Contractor and RE. Referring to the Contractor, there was construction works was starting at 09:00. Noise mitigation measures, such as acoustic mats, were applied to minimize noise impact. The details shall be refer to CIR-N87	Closed
404	15-Oct-19	12-Oct-19 / Marine Works area near Ocean Shore	Residents of Ocean Shores	Noise / Working Hours	Noise nuisance due to operation of barge on Saturday early morning	Y	The time of complaint falls within daytime and the major works conducted are dredging and reclamation. The contractor did not require any extra mitigation measures. The contractor had applied sound-proofing mat on the engine floor of the barges and is recommended to strictly follow the requirements of noise mitigation plan. The details shall be refer to CIR-N86	Closed
403	15-Oct-19	Oct-19 (Not Specified) / C2 Construction Site	Residents of Ocean Shores	Noise / Working Hours	Operation of marine construction works during late hours	Y	The major construction works is trimming works for the rock mount during the time period of complaint. Mitigation measures provided by the Contractor included provision of noise insulating mats to the engine floor of the barges and shorten the work hours by ending construction works on or before 21:00 since early Oct 2019. Details shall be referred to CIR-N85.	Closed
402	10-Oct-19	09-Oct-2019/ Site near TKO CPC	Residents of Ocean Shores	Noise	Noise nuisance of construction works at marine work area during early morning	Y	No construction activity at both the Cavern near the BCMCP Bridge and Platform 1B, including the barge, in particular during the complaint period between 2am and 3am on 9 Oct 2019. Since no works had conducted during the time of complaint, no mitigation measures are required. The details shall be referred to CIR-N84.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
401	5-Oct-19	05-Oct-2019 / C2 Portion IX	District Council Member (Mr. Chan)	Noise	High noise level from works area during daytime	Y	The time period of complaint falls under day-time and therefore the Contractor is required to carry out mitigation measures according to the latest CNMP only. The construction activities had been reviewed and no non-compliance was identified. No Limit Level of Exceedance at daytime was recorded during October 2019. For mitigation measures, the Contractor had set up sound-proofing mats and SlientUp to reduce noise impact. The details shall be refer to CIR-N83.	Closed
400	16-Sep-19	10-Sep-19 / TKO Marine Works Area	District Council Member (Mr. Chan)	Water	Muddy water discharge and deficiency in water quality mitigation measures	N	With accordance to the Contractor and RE, the silt curtains were deployed regarding to SCDP ver. 8 since 10-Sep-19, site inspection on 12-Sep-19 also showed the silt curtains were deployed properly. Despite there are chances of accidental muddy water discharge due to the removal of cofferdam on 13-Sep-19, local silt curtain had been place in order to minimize the unavoidable impact by related loading and unloading of fill materials. No muddy water had been observed outside the silt curtain area. Nevertheless, the Contractor is recommend to expand the coverage of the local silt curtain in order to well-confine the muddy water released from the grab. On top of that, the Contractor shall always follow the SCDP to ensure the minimization of impacts. Details should be referred to CIR-C30.	Closed
399	16-Sep-19	16-Sep-19 (Not Specified) / LT Interchange Potion III	Resident of Bik Lai House, Yau Lai Estate	Noise	Noise emission from the tunnel entrance (Potion III)	Y	No construction works was carried out during the time of complaint. Details should be referred to CIR-N82.	Closed
398	16-Sep-19	13-Sep-19 / Works Area of LT-TKO Tunnel outside Tiu King Leng MTR Station	Anonymous	Air / Water	Dark smoke emission and muddy water discharge from the marine work vessels near shore	N	No dark smoke emission was observed during the site inspection conducted in the week of the complaint. The Contractor has applied an air filtering tank to clean the exhaust from the barge before emission. Details should be referred to CIR-C30.	Closed
397	6-Sep-19	30 Aug-19 / Works area near Ocean Shores	Resident of Ocean Shores	Noise / Working hours	Noise emitted from Barge during Evening times	Y	The unloading works had been reviewed and no limit level of exceedance were recorded during August to early September. Since the period of complaint falls under evening times, no mitigation measures were required by the CNP. Details should be referred to CIR-N81.	Closed
396	6-Sep-19	30 Aug-19 / Works area near Ocean Shores	Resident	Noise	Noise nuisance from LT-TKO Tunnel	Y	The major works conducted were shortcreting, mucking out, maintaining, drilling and unloading. No limit level of exceedance in the restricted hours (19:00-23:00) between late August and early September were recorded. The Contractor is recommended to keep following noise mitigation plan to minimize noise nuisance. Details should be referred to CIR-N80.	Closed
395	6-Sep-19	31 Aug-19 / Works area near Ocean Shores	District Council Member (Mr. Chan)	Noise	Noise Nuisance during evening and night times	Y		Closed
394	6-Sep-19	Not specified (Sep-19) / Works area near Ocean Shores	Anonymous	Noise / Operating Hours	Noise nuisance during Evening & occasionally in Night time	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
393	30-Aug-19	30 Aug-19 / Marine works Area	District Council Member (Mr. Chan)	Water	Alleged muddy water discharge	N	High rainfall was recorded during period of complaint, therefore muddy water discharge at outfall from upstream and some surface runoff within the site is expected. However, no major silt curtain deficiency was observed during on-site observation and no leakage of muddy water from the marine works area was observed. Details should be referred to CIR-W12.	Closed
392	29-Aug-19	20-27 Aug-19/ Portion 4C	Resident of Bik Lai House, Yau Lai Estate	Noise	Noise nuisance from the operation of heavy machineries and missing of noise mitigation measures at Portion 4C	Y	A noise insulating cover was erected before the period of complaint, however, due to restricted site condition in the relocated breaking works area, the erection of the cover could not be carried out. Nevertheless, movable noise barriers and local semi-enclosure was adopted for breaking works. Details should be referred to CIR-N79.	Closed
391	26-Aug-19	10-Jul-19 / Construction site near Ocean shore	District Council Member (Mr. Chan)	Noise	Operation of construction works during late hours	Y	1 derrick barge was operated during the period of complaint with valid CNP. Regular maintenance and checking should be conducted for all operating barges. Details should be referred to CIR-N78.	Closed
390	26-Aug-19	31-Jul-19 / Construction site near Ocean shore	District Council Member (Mr. Chan)	Noise	Intermittent noise emitted from collision during night-time	Y	The noise source is suspected to be the collision between cofferdam and its broken part as the cofferdam was found damaged next morning. No construction was conducted at night time of 31 July. The contractor is recommended to maintain and check cofferdam regularly. Details should be referred to CIR-N77.	Closed
389	29-Jul-19	17 to 24-Jul-19 / Marine Construction Site near O King Road	Resident of Ocean Shore	Noise	Noise nuisance from the barge operating in reclamation works area near O King Road during evening times.	Y	1 derrick barge was operated during the period of complaint with valid CNP. Regular maintenance should be provided for all operating barges. Details shall refer to CIR-N76.	Closed
388	12-Jul-19	8-Jul-19 / Construction Site near Ocean Shores	District Council Member (Mr. Chan)	Noise	Noise nuisance and inadequate noise barrier at the construction site near Ocean shore	Y	Although Contractor has adopted a noise mitigation measure of drill rigs at Portion IV near Ocean Shore such as noise barrier with sound insulating fabric, the existing noise barrier in Portion IX and some in Portion IV are not adequate in screening the direct line of sight to Ocean Shore. Details should be referred to CIR-N75.	Closed
387	12-Jul-19	8 to 12-Jul-19 / Portion 4C of C1 Construction Site	Resident of Bik Lai House	Noise	Breaking noise emitted from the operation of 2 PME's at Portion 4C during weekday daytime.	Y	Two breakers were operated intermittently at the Portion 4C of C1 construction site during the period of complaint between 07:00 to 19:00. As observed during the site inspection/noise monitoring, movable noise barrier could not completely screen off the direct line-of-sight from PME's to Yau Lai Estate. Contractor has adopted mitigation measure to minimize the noise impact from breakers including using a noise barrier with noise insulating fabric, adopted a less noisy hydraulic spitting method for breaking works and has been developing a semi-enclosure noise barrier to replace the existing movable noise barrier. Details should be referred to CIR-N74.	Closed
386	10-Jul-19	9 to 10-Jul-19 / Not Specific	District Council Member (Mr. Chan)	Noise	Noise nuisance and disturbance from the TKOLT tunnel construction site involves intermittent noise emitted from collision during night-time.	Y	No construction works was carried out during the time of complaint. Details should be referred to CIR-N73.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
385	4-Jul-19	Late Jun-19 to 4-Jul-19 / Reclamation Area	Resident of Ocean Shore	Noise	The reclamation works continued into the evening during weekdays and works were also operated on Sunday.	Y	See Complaint no 384.	Closed
384	3-Jul-19	3-Jul-19 / Near Ocean Shore	District Council	Noise	The construction site was constantly emitting metallic percussion noise in the early morning.	Y	The concerned metallic percussion noise source was suspected from the collision between the detached sheet pile and the adjacent sheet pile of the broken cofferdam. The detached sheet pile was fixed by re-sealing it to the adjacent sheet pile. Details should be referred to CIR-N72.	Closed
383	29-Jun-19	Jun-19 / Lam Tin Interchange	Resident of Yau Lai Estate, Yung Lai House	Noise	Noise nuisance from construction works during weekday daytime and evening times. Noise barriers was found missing in certain parts of the construction areas.	Y	Some noise mitigation measures were observed during the site inspection including idle equipment were turned off and noise barrier has been erected close to noisy PMEs in the right direction facing Yau Lai Estate. However, the above mitigation measures were not applied to whole construction site such as noise barriers were not placed close enough to the noisy PMEs due to the uneven surface and other inconvenience. Details should be referred to CIR-N71.	Closed
382 (N08/RE/000110 19-19)	17-Jun-19	6-Jun-19 / Cofferdam area	District Council	Air	Dark smoke nuisance from the tug boat inside the cofferdam area.	N	During site audit, no violation of the Air Pollution Control (Smoke) Regulation from the construction site was observed by the ET. Air filter has been replaced on derrick barge to reduce the dark smoke emission upon the receipt of the complaint. The Contractor is recommended to replace the air filters regularly. Details should be referred to CIR-A15.	Closed
381 (N08/RE/000150 98-19)	11-Jun-19	1-Jun-19 / Near cofferdam	District Council	Water	Muddy water discharge from construction site near the cofferdam area on 4 June 19	N	High volume of upstream muddy water was collected due high rainfall according to reports and observation. As a result, the muddy water from upstream was discharged into the Junk Bay via various outfalls in Junk Bay, as observed during the rainstorm events. No sand plume within the cofferdam area and no muddy water discharge at the designated discharge point within the Site was identified during the site inspection and water quality monitoring. Details should be referred to CIR-W11.	Closed
380	11-Jun-19	6-Jun-19 / Near Tong Yin Street	Resident of Ocean Shore	Air	Odour nuisance from construction site near Tong Yin Street	N	No oil leakage from mobile crane was observed during the site inspection in June 2019. According to the testing reports, all ULSD fuel applied in the PMEs during the construction period contains sulphur content lower than 0.005% by weight, which complied with the Air Pollution Control (Fuel Restriction) Regulations. Details should be referred to CIR-A14.	Closed
379	11-Jun-19	4-Jun-19 / Near cofferdam area	General Public	Water	Discharge of mud water into Junk Bay from TKOLT construction site	N	See Complaint no 381.	Closed
378	11-Jun-19	13-Apr-19 / Near cofferdam area	General Public	Air	Dark smoke nuisance from construction site involves derrick barge operation near cofferdam area (daytime)	N	No violation of the Air Pollution Control (Smoke) Regulation was recorded from the construction site was observed. The contractor was recommended to install carbon filter at smoke exhaust of the barge as a more effective mitigation measures. Details should be referred to CIR-C27.	Closed
377	11-Jun-19	2-Jun-19 / Lam Tin Interchange	General Public	Noise	Complaint about the noise nuisance from Lam Tin Interchange construction site in daytime holiday.	Y	Only drilling works inside the tunnel was conducted during daytime under valid CNP. Groundborne noise is considered as the major factor contributing to the noise nuisance, the Contractor are recommended to re-schedule the drilling works inside the tunnel to less sensitive hours. Details should be referred to CIR-N70.	Closed
376	11-Jun-19	9-Jun-19 / Near Yau Lai Estate	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance near Yau Lai Estate involves vehicle movement (roller) during morning to 15:00 in holiday.	Y	No works involving roller was involved. Only drilling works inside the tunnel and dismantling of crusher shelter was conducted during Sunday daytime under valid CNP. Groundborne noise is considered as the major factor contributing to the noise nuisance, the Contractor are recommended to re-schedule the drilling works inside the tunnel to less sensitive hours. Details should be referred to CIR-N70.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
375	11-Jun-19	9-Jun-19 / Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance from Lam Tin Interchange construction site in daytime holiday.	Y	See Complaint no. 376.	Closed
374	4-Jun-19	3-Jun-19 / Near Ping Tin Estate	Resident of Ping Sin House in Ping Tin Estate	Noise	Vibration from the construction of Lam Tin Interchange in evening time at around 20:00	Y	Groundborne noise is considered as the major factor contributing to the noise nuisance. The reverse circulation drilling works may have emitted groundborne noise, however, only 1 unit was used in Portion II. Therefore, blasting is considered as the major cause for the vibration. Details should be referred to CIR-N69.	Closed
373	4-Jun-19	2-Jun-19 / Near ocean Shore	Resident of Ocean Shore	Noise	Complaint about the noise nuisance from the construction site near Ocean Shore and the construction site operation in day time holiday.	Y	No construction activity was conducted at the time of complaint as confirmed by Engineer. Therefore, the noise nuisance was not due to the construction site. Details should be referred to CIR-N68.	Closed
372	4-Jun-19	1-Jun-19 / Near ocean Shore	Resident of Ocean Shore	Others	Complaint about the construction site operation in the early morning on Saturday.	N	See Complaint no. 373.	Closed
371	30-May-19	30-May-19 / Near Ocean Shore	Resident of Ocean Shore	Noise	Noise nuisance from construction site near Ocean Shore during night time.	Y	See Complaint no. 373.	Closed
370 (N08/RE/000150 98-19)	29-May-19	19 & 26-May-19 / Near Ocean Shore	Resident of Ocean Shore	Noise	Noise nuisance about dredging mud and loudspeaker in the construction site near Ocean Shore during daytime holiday.	Y	Noise barriers/ Noise absorptive materials have been used to mitigate the noise generated from the construction works. Only walkie-talkies were used for communication in the construction site. Details should be referred to CIR-N67.	Closed
369	13-May-19	Not specific / Lam Tin interchange	Resident of Yau Lai Estate	Noise	Noise nuisance from the blasting work inside tunnel which involves explosion noise impact during midnight	Y	Contractor has adopted a mitigation measure for reduce the blasting noise impact from the tunnel such as blasting doors and did not conduct blasting works during mid-night blasting since mid-May 2019. Details should be referred to CIR-N66.	Closed

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368	19-May-19	19-May-19 / Near cofferdam area	General Public	Noise	Noise nuisance from barge with in cofferdam area in daytime holiday	Y	See Investigation / Mitigation Action for complaint no. 361.	Closed
367	5-May-19	5-May-19 / Lam Tin Tunnel - TKO entrance	Resident near Lam Tin Tunnel - TKO entrance	Noise & Air	Noise and air nuisance from construction near Lam Tin Tunnel - TKO entrance	Y	The major works during the period of complaint is scaling by breaker on day time holiday (Sunday). The works is compiled with CNP and no air quality action and noise limit level exceedance during the monitoring. Regarding the existing air quality mitigation measures, the water spray for the breaker was insufficient and the dust emission during unloading of dusty materials was observed. As the review of exiting noise mitigation measure, a broken noise SilentMat was found on the hammer of breaker. According to the above observation, Contractor has adopted serval improvement such as conduct a sufficient water spray during breaking and unloading materials, replaced the noise SilentMat of the breaker and placed the noise barrier between PME and NSRs. Details should be referred to CIR-C29.	Closed
366	4-May-19	4-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime.	Y	Regarding the observation during site inspection, the hammer of the breaker was surrounded by a broken noise absorption material and a noise barrier of a driller was placed in the incorrect direction of NSRs. Contractor has improved the above mitigation measures including replaced the noise absorption materials and relocated the noise barrier to facing the NSRs. Details should be referred to CIR-N65.	Closed
365	1-May-19	1-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime.	Y	See investigation / mitigation actions for Complaint No.366	Closed
364	1-May-19	1-May-19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime	Y	See investigation / mitigation actions for Complaint No.366	Closed
363	30-Apr-19	6th – 22th April -19 / Lam Tin Interchange	Resident of Ping Tin Estate	Noise	Noise nuisance from construction of Lam Tin Interchange in daytime and evening time	Y	See investigation / mitigation actions for Complaint No.366	Closed
362 (N08/RE/000133 96-19)	8-May-19	7-May-2019 / Junk Bay	District Council	Noise	Noise nuisance from marine works in the Junk Bay in the night-time (06:45)	Y	No marine works in the Junk Bay was conducted as confirmed by RE. No CCTV footage was recorded during the time of complaint. It was suggested that Contractor should conduct 24 hours CCTV monitoring. Details should be referred to CIR-N64.	Closed
361	7-May-19	28 Apr 2019 / Cofferdam Area	General Public	Noise	Noise nuisance from construction site at cofferdam area in holiday	Y	The reclamation works involves barges during the time of complaints has been compiled with the CNP. As review of existing mitigation measure, the sound proofing canvases for the barges were hanged up. Details should be referred to CIR-N63.	Closed

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360	2-May-19	27-04-2019/ Construction in Tong Tin Street	General Public	Noise	The complaint about the noise nuisance from cofferdam area during daytime and evening-time.	Y	The light source was found from the lighting of derrick barge within the cofferdam area and the noise source was found from the barge during filling works. Contractor has adopted The sound proofing canvases for the derrick barge was hanged up but no light mitigation measure. Details should be referred to CIR-C28.	Closed
359	30-Apr-19	30-04-2019/ Near Ocean Shore	Resident of Ocean Shore	Noise	The complaint about the noise nuisance involve percussion noise near Ocean Shore during daytime.	Y		Closed
358	30-Apr-19	27-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance during evening time.	Y		Closed
357	23-Apr-19	20-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance near cofferdam area during daytime.	Y		Closed
356	23-Apr-19	19-04-2019/ Near cofferdam area	General Public	Noise	The complaint about the noise nuisance near cofferdam area during holiday.	Y		Closed
355	17-Apr-19	17-04-2019/ Near cofferdam area	General Public	Noise & light	The complaint about the noise nuisance and light pollution near cofferdam area during evening-time.	Y		Closed
354	30-Apr-19	20 Apr 2019 / Cofferdam Area	Resident of Ocean Shore (Mr. Chan)	Others	The construction site near O King Road is operated in holiday during day-time and weekday during night-time.	N	The marine reclamation works at the Portion IX in C2 construction site was the major construction activity during the period of complaints. The concerned reclamation works is compiled with the relevant CNP. Details should be referred to CIR-O2.	Closed
		19 Apr 2019 / Cofferdam Area						
		15 Apr 2019 / Cofferdam Area						
		07 Apr 2019 / Cofferdam Area						
		31 Mar 2019 / Cofferdam Area						
353	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore (Mr. Chan)	Air	According to the complainant, large amount of smoke and exhaust was seen emitting from barges working within the cofferdam	N	See Investigation / Mitigation Action for complaint no. 329.	Closed

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352	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore	Noise	The complainant complained about the noise nuisance from the cofferdam area in Tiu Keng Leng during day-time.	Y	The major works during the time of complaints was a crawler crane unloading H piles to the Portion V of C2 construction site. Noise barriers were erected between the crane and NSRs to reduce noise impact. Details should be referred to CIR-N62.	Closed
351	13-Apr-19	13-04-2019/Cofferdam Area	Resident of Ocean Shore	Noise	The complainant complained the noise nuisance from the cofferdam area in Tiu Keng Leng during day-time.	Y		
350	8-Apr-19	07 Apr 2019 / Cofferdam Area in TKO	-	Air & Others	The complainant complained the dark smoke generation and the construction works from the cofferdam area in Tiu Keng Leng during holiday.	N	See Investigation / Mitigation Action for complaint no. 329.	Closed
349	7-Apr-19	07-04-2019/Cofferdam Area	Resident of Ocean Shore	Air	Dark smoke generation from the cofferdam area in Tiu Keng Leng during day-time.	N		Closed
348	2-Apr-19	02 Apr 2019 / LTT-TKO	-	Others	The complainant complained the LTT construction site was working during holiday.	N		Closed
347	1-Apr-19	01 Apr 2019 / Cofferdam Area	Resident of Ocean Shore	Noise	Percussive noise from the cofferdam area in Tiu Keng Leng during day-time.	Y		Closed
346	31-Mar-19	31st March 2019 / Construction of Road P2	District Council	Others	Complaint about the construction site operation of Road P2 in day time holiday	N	A tug boat and a derrick barge were operated for the marine reclamation work within the cofferdam area during the time of complaint. As the review of relevant CNP, no violation was observed. Details should be referred to CIR-O1.	Closed
345	26-Mar-19	26th March 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the noise nuisance in day time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
344	28-Mar-19	26th March 2019 / Construction of Road P2	District Council	Noise	Complaint letter received regarding noise nuisance and dark smoke generation from the marine barges	Y	See Investigation / Mitigation Action for complaint no. 378.	Closed

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343	25-Mar-19	25th March 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the noise nuisance sound like a breaking works in day time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
342	25-Mar-19	24th March 2019 / Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance from the construction of Lam Tin Interchange in day time holiday (Sunday). The noise monitoring was conducted in Hong Nga Court by staff after the complaint and the noise level is result in acceptable level, but the complainant replied that the noise monitoring is meaningless and the noise nuisance is not acceptable for her.	Y	See Investigation / Mitigation Action for complaint no. 330.	Closed
341	24-Mar-19	24th March 2019 / Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complaint about the noise nuisance from Lam Tin Tunnel construction works in day time.	Y		Closed
340	24-Mar-19	24th March 2019 / Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance from the construction site day time holiday (Sunday).	Y		Closed
339	21-Mar-19	21st March 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the construction noise nuisance involving percussive noise in early morning (07:00)	Y		Closed
338	21-Mar-19	21st March 2019 / Construction of Lam Tin Interchange	Resident of Ocean Shore	Noise	Construction noise	Y		See Investigation / Mitigation Action for complaint no. 323.
337	20-Mar-19	19th March 2019 / Construction of Road D4 and Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Complaint about the noise nuisance from the construction vehicle near Park Central in night time.	Y	See Investigation / Mitigation Action for complaint no. 329.	Closed
336	20-Mar-19	20th March 2019 / Construction of Road P2	Resident of Park Central	Noise & Pest	Complaint about the noise and pest nuisance from the construction site near Park Central in evening time.	Y		Closed
335	19-Mar-19	19th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Construction noise nuisance from reclamation works near the TKO-LTT reclamation site during the evening time (19:00-23:00).	Y		Closed

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334	19-Mar-19	19th March 2019 / Construction of Road P2	District Council	Noise	Construction noise nuisance from the TKO-LTT reclamation site during evening time (after 19:00).	Y	See Investigation / Mitigation Action for complaint no. 323.	Closed
333	19-Mar-19	18th - 19th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Construction noise nuisance from construction noise in evening time (around 20:30).	Y		Closed
332	18-Mar-19	18th March 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complaint about the noise nuisance during day time, evening time and night time.	Y	The construction activities in the complaint dates are complied with CNP. No noise limited level exceedance was recorded. During the site inspection, no noise barriers were erected between noisy PMEs and NSRs at LTI. Regarding the observation in the inspection, Contractor has adopted an improvement such as placed the noise barriers between the PMEs and NSPs to reduce noise nuisance. Details should be referred to CIR-N61.	Closed
331	18-Mar-19	18th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance in night time and the past few days. (Before 07:00)	Y		Closed
330	17-Mar-19	17th March 2019 / Construction of Lam Tin Interchange	General Public	Noise	Complaint about the noise nuisance from in night time holiday.	Y		Closed
329	15-Mar-19	15th March 2019 / Construction of Road D4	Resident of Park Central	Noise & Air	Complaint about the noise from the construction works and the odour nuisance involves engine oil from construction machine	Y	The construction activities in the complaint dates are compiled with the CNMP. No noise and air quality limit level exceedance were recorded. Contractor had implemented the mitigation measures for the noise and odour nuisances including acoustic mat was erected between the PME and NSR, ultra-low sulphur diesel was applied as fuel oil in PME and general refuses were disposed properly. Details should be referred to CIR-C26.	Closed
328	14-Mar-19	9th March 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Complaint about the noise nuisance involve drilling work in the day time (08:00).	Y	A formation works was conducted in 7 am to 7pm on 9 Mar 2019. No noise limit level exceedance was recorded in the nearest noise monitoring result. However, there was no any adoption of mitigation measure to minimize the noise nuisance from the site. As response the received complaint, the contractor should place the noise barrier between the PMEs and NSR. Details should be referred to CIR-N58.	Closed
327	13-Mar-19	13th March 2019 / Construction of Lam Tin Interchange	Resident of Bik Lai House	Noise	Noise nuisance suspected from the construction works involving chiseling during evening time (22:07).	Y	A handing processed rock at Lam Tin Interchange was conducted on the complaint date in 7 pm to 11 pm involving dump truck and excavator which construction activities was compiled with the CNP. No noise limit level exceedance was record in the evening time monitoring. However, the noise barrier was not placed in the direction of the Yau Lai Estate during breaking works, the contractor had implemented a mitigation measure such as placed the noise barrier to reduce noise level from the breaker but the noise barrier was far from the concerned breaker. Details should be referred to CIR-N59.	Closed
326	13-Mar-19	13th March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Noise nuisance suspected from marine works near Ocean Shores in the day time (16:30)	Y	See Investigation / Mitigation Action for complaint no. 322.	Closed
325	9-Mar-19	9th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involve machine and percussive noise in night time (02:00 -03:00).	Y	Only drilling works were conducted inside the tunnel in early morning under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N56.	Closed
324	7-Mar-19	7th March 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance involving chiseling noise from the construction site near Hong Pak Court during day time and evening time in the past few months.	Y	Only drilling works were conducted inside the tunnel in early morning and daytime under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N56.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
323 (EPD-N08/RE/000065 23-19)	4-Mar-19	4th March 2019/ Cofferdam Area	Resident of Ocean Shore	Noise	Construction noise (Evening time)	Y	Only 1 derrick barge and a tug boat was used in the evening time under valid CNP. No Limit Level Exceedances were recorded at Station CM6(A) during evening time. Acoustic mat should be used to screen the engine of the barge to reduce the noise nuisance from the reclamation works. Lubricants should be applied to the barge to reduce the noise emission during barge movement.	Closed
322	13-Mar-19	1st March 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Noise nuisance suspected from a yellow excavator near Ocean Shores in day time (15:44).	Y	No noise limit level exceedance was recorded and the number of operating PMEs complied with the CNMP. The sound proofing canvases were not always adopted as a mitigation measure to screen the noise emitted from the engine of the barge. Contractor should adopt the aforementioned mitigation measures as far as practicable. The contractor was also recommended to enhance the mitigation measure including frequently checking the noise barriers/sound proofing canvases, frequent checking and repair the gaps or broken acoustic sheets and continue to strictly follow the requirements in the approved CNMP.	Closed
321	28-Feb-19	28th February 2019 / Construction of Lam Tin Interchange	Management Section of Yau Lai Estate	Noise	Construction noise (Night time)	Y	Only drilling works were conducted inside the tunnel in early morning under valid CNP. Groundborne noise is considered as the factor that contributes to the noise nuisance. The Contractor is recommended to reschedule drilling works to less sensitive hours. Details should be referred to CIR-N55.	Closed
320	22-Feb-19	22nd February 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complaint about the noise nuisance involving percussive noise in early morning (Day time). Complainant said the construction should be operated after 08:00.	Y	See Investigation / Mitigation Action for complaint no. 313.	Closed
319	21-Feb-19	21st February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involving percussive noise in night time	Y		Closed

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318	21-Feb-19	21st February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complaint about the noise nuisance involving percussive noise from the construction in night time	Y		Closed
317	25-Feb-19	23th February 2019 / Construction of Road P2	Resident in O King Road	Air	Complained about the odour nuisance of petroleum smell	N	See Investigation/ Mitigation Action on Complaint no.294. Details should be referred to CIR-A12.	Closed
316	18-Feb-19	18th February 2019 / Construction of Road P2	Resident in O King Road	Air	Complaint about the dark smoke and odour nuisances	N		Closed
315	17-Feb-19	15th February 2019 / Construction of Lam Tin Interchange, Road P2 and Tseung Kwan O Interchange	General Public	Noise	Complained about construction noise (Daytime)	Y	The metal wire used for anchoring the barge inside the cofferdam area are the source for the noise nuisance. Ropes were used to replace metal wire to reduce noise nuisance from metal collision while mooring boats. Details should be referred to CIR-N54.	Closed
314	17-Feb-19	16th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Air	Dust nuisance suspected from the construction works and absence of water spraying near Lam Tin Interchange in daytime.	N	No Air Quality action level or limit level exceedance during the monitoring conducted by ETL. Contractor had implemented mitigation measure to reduce and prevent dust emission including conducted water sprays and covered the cement bags. Details should be referred to CIR-A13.	Closed
313	17-Feb-19	17th February 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Construction noise nuisance from the drilling and breaking works at Branch Tunnel in the morning (Day time)	Y	Breaking and drilling works were conducted during the time of complaint. The breakers were often seen wrapped with acoustic mat, however, they are easily damaged during the breaking works. Noise barrier are more effective in reducing the noise nuisance than the acoustic mat, but the erection of noise barrier are not often adopted properly to screen the noise from the NSR due to the additional works involved and the landform on site. Groundborne noise could also be a factor contributing to noise nuisance. Details should be referred to CIR-N53.	Closed
312	16-Feb-19	16th February 2019 / Construction of Lam Tin Interchange	District Council	Noise	Complained about the explosion noise (Daytime)	Y	No exceedances were recorded and recommendation were made to further enhance the mitigation measures, such as regularly and reviewing the noise control activities that are being carried out on site regularly to ensure compliance with statutory requirement, provide training for the workers to prevent unnecessary noise disturbance and frequently check and maintain the absorptive lining adhered on blasting doors on a regular basis.	Closed
311	15-Feb-19	15th February 2019 / Construction of Lam Tin Interchange	Public	Noise	Complained about the explosion noise (Daytime)	Y	See Investigation / Mitigation Action for complaint no. 312.	Closed
310	14-Feb-19	14th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Construction noise nuisance about the rock handling work at LTI (Daytime)	Y	Dump truck and excavator was used to transfer crushed rocks from the crusher with valid CNP. Additional noise barrier was added at the site boundary near Shun Lai house, Yau Lai Estate to reduce the direct-line of sight from the NSRs to the site. Details should be referred to the CIR-N51.	Closed
309	13-Feb-19	13th February 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Construction noise nuisance about the rock handling work at LTI (evening time)	Y		Closed
308	13-Feb-19	1th - 13th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Management Section of Kwong Tin Estate	Noise	Complaint about construction noise (Night time)	Y	See Investigation/ Mitigation Action on Complaint no.302. Details should be referred to CIR-N48.	Closed
307	13-Feb-19	13th February 2019 / Construction at Tsueng Kwan O (C1)	Resident of Ocean Shore	Noise	The complaint about the noise nuisance in day time	Y	Noise nuisance was originated from the beeping noise emitted during vehicle reversing of the loader. The total length of beeping noise should be less than 5 mins. The reverse alarm system is a necessary safety measure that cannot be revoked. Details should be referred to CIR-N50.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
306	13-Feb-19	13th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise in night time	Y	See Investigation/ Mitigation Action on Complaint no.302. Details should be referred to CIR-N48.	Closed
305	12-Feb-19	12th February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise in night time.	Y		Closed
304	8-Feb-19	8th February 2019 / Construction of Road P2 and Associated Works	Resident of Ocean Shore	Noise	Noise nuisance suspected from marine works near Ocean Shores in the day time	Y	There were two construction activities in the site including dredging and trimming in day time on 8 Feb 2019. Details should be referred to CIR-N49.	Closed
303	2-Feb-19	27th January - 2nd February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Ping Tin Estate	Noise	Noise nuisance suspected from the construction works involving chiseling noise during day time, evening time and night time.	Y	Project-related. The following recommendations were made to further enhance the mitigation measures: <input type="checkbox"/> Frequent checking and repair the gaps or broken acoustic sheets; <input type="checkbox"/> Replace any broken SilentMat for wrapping the breaker head; <input type="checkbox"/> To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; <input type="checkbox"/> The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers; <input type="checkbox"/> To continue to strictly follow the requirements in the approved CNMP; <input type="checkbox"/> To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and <input type="checkbox"/> Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed
302	2-Feb-19	27th January - 2nd February 2019 / Construction of works at the TKO-Lam Tin tunnel	Resident of Hong Pak Court	Noise	Noise nuisance suspected from the construction works involving chiseling noise during day time	Y		Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
301	31th January 2019	27th - 31th January 2019 / Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Noise nuisance suspected from the	Y	See Investigation/ Mitigation Action on Complaint no.290. Details should be referred to CIR-N45.	Closed
300	30th January 2019	30th January 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the construction works involving mobile crane	Y	See investigation / Mitigation Action for complaint no. 296. Details should be referred to CIR-N47.	Closed
299	30th January 2019	27th - 29th January 2019 / Construction Site of Footbridge between Tiu Keng Leng Sport Centre and Park Central	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the construction works involving mobile crane and also suspected from elevation platform	Y	See investigation / Mitigation Action for complaint no. 296. Details should be referred to CIR-N47.	Closed
298	30th January 2019	Not specific / Near Po Shun Road	Resident of Park Central	Noise & Air Quality	The dust generation and noise nuisance from the construction site near Po Shun Road	Y	There were several construction activities in the site including the removal of steel mould & scaffolding of bridge deck, erection of scaffolding for staircase and construction of Pour 1 of main deck (GLA-5) during time of complaint. Details should be referred to CIR-C25.	Closed
297	30th January 2019	27 th - 30th January 2019 / Construction works at TKO-Lam Tin tunnel	Resident of Hong Nga Court	Noise	Noise nuisance suspected from the construction involving chiselling works	Y	See Investigation/ Mitigation Action on Complaint no.290. Details should be referred to CIR-N45.	Closed
296	29th January 2019	27th - 29th January 2019 / Construction Site of Footbridge near Tiu Keng Leng Sport Centre.	Resident of Park Central	Noise	Beeping Noise nuisance suspected from the mobile crane at the Footbridge near Park Central Block 6	Y	Project-related. The following recommendations were made to further enhance the mitigation measures: <input type="checkbox"/> To arrange a signalman instead of mobile crane reversing signal for minimize the beeping noise disturbance; <input type="checkbox"/> Frequent checking and repair the operating PME; <input type="checkbox"/> The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers; <input type="checkbox"/> To continue to strictly follow the requirements in the approved CNMP; <input type="checkbox"/> To ensure noise barrier and sound proofing canvases wrapped on PME are intact and in good condition.	Closed
295	29th January 2019	29th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complaint about the noise nuisance from the steel cable wire for anchoring between barge and pier	Y	There was a salvage works for the sunken barge (CS306) in a whole day on 27 Jan, 12 am to 3 pm on 28 Jan and 11:40 am on 29 Jan 2019. Details should be referred to CIR-N46.	Closed
294	29th January 2019	29th January 2019 / Construction of Road P2	Resident in O King Road	Air Quality	Complaint about the dark smoke and odour nuisances from barge.	Y	The sulphur content percentage of the adopted diesel fuel was lower than 0.05% which is compiled with the Hong Kong Air Pollution Control (Marine Light Diesel) Regulation, therefore the odour problem should be minimised. Smoke filtering tanks were adopted on deck level of derrick barges to reduce emission of dark smoke and exhaust smell. The situation has improved after the filter has been replaced. Details should be referred to CIR-A12.	Closed
293 (EPD-K15/RE/000032 91-19)	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Night time)	Y	See investigation / Mitigation Action for complaint no. 270. Details should be referred to CIR-C29.	Closed

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292	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from breaking work.	Y	Project-related. The following recommendations were made to further enhance the mitigation measures:	Closed
291	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about the construction noise from breaking work.	Y	<input type="checkbox"/> To arrange a signalman instead of mobile crane reversing signal for minimize the beeping noise disturbance; <input type="checkbox"/> Frequent checking and repair the operating PME; <input type="checkbox"/> The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receivers;	Closed
290	29th January 2019	29th January 2019 / Construction of Lam Tin Interchange	District Council	Noise	Complained about the construction noise from Tunnel Works	Y	<input type="checkbox"/> To continue to strictly follow the requirements in the approved CNMP; <input type="checkbox"/> To ensure noise barrier and sound proofing canvases wrapped on PME are intact and in good condition.	Closed
289 (EPD-N08/RE/000008 59-19)	24th January 2019	Early December 2018 -24-Jan-2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from Tunnel Works	Y	See Investigation/ Mitigation Action on Complaint no.288. Details should be referred to CIR-N44.	Closed
288	18th January 2019	18th January 2019 (Non-specific)/ Construction of Road P2	Public	Noise	Complained about the construction noise from Tunnel Works	Y	No major construction works at the concerned night time. There was only salvage operation carried out in 11 pm to 12 pm on 17 Jan 2019. No violation of CNP nor Noise Control Ordinance is found in this regard. Details should be referred to CIR-N44.	Closed
287	17th January 2019	17th January 2019 / Construction of Lam Tin Interchange	Resident of Yung Lai House	Noise	Complained about the construction noise from Kam Tin Interchange.	Y	Project-related. The following recommendations are made to further enhance the mitigation measures: <input type="checkbox"/> To regularly check and review the noise control activities that are being carried out on site to ensure compliance with statutory requirement. <input type="checkbox"/> Machines may be in intermittent use should be shut down between works periods or should be throttled down to a minimum. <input type="checkbox"/> To provide training for the workers to prevent unnecessary noise disturbance. <input type="checkbox"/> To provide cantilever barrier to screen the construction noise from the NSRs	Closed
286	17th January 2019	17th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near the Park Central in day time	N	See Investigation/ Mitigation Action on Complaint no. 285. The concerned air compressor has been removed on 16 th Jan 2019. Details should be referred to CIR-N41.	Closed

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285	17th January 2019	17th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air blower/fan with generator near Tiu Keng Leng Sport Centre and Park Central.	N	The concerned air compressor was removed from the construction site since 16 January 2019 afternoon, but the high frequency noise nuisance complaints were received on 17 January 2019. According to the CM8(A) noise monitoring record by environmental team, the other noise source from construction site are beeping noise of the reverse alarm system of the plant. Therefore, the high frequency noise nuisance is considered project related after 16 January 2019. Details should be referred to CIR-N41.	Closed
284	16th January 2019	16th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
283	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
282	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from an air compressor near Tiu Keng Leng Sport Centre and Park Central.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
281	15th January 2019	15th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Chui Ling Road roundabout and Tiu Keng Leng Sport Centre in day time.	N	See Investigation/ Mitigation Action on Complaint no. 272. Additional noise barrier was erected around the said air compressor. Details should be referred to CIR-N41.	Closed
280	14th January 2019	14th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Chui Ling Road roundabout and Tiu Keng Leng Sport Centre in day time.	N	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed
279	14th January 2019	14th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site near Tiu Keng Leng Sport Centre in day time Saturday and Holiday (Sunday).	N	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed

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278	12th January 2019	12th January 2019 / Construction of Road D4	Resident of Park Central	Noise	High frequency machine noise nuisance involving air compressor from the construction site between Tiu Keng Leng Sport Centre and Park Central in day time	Y	See Investigation/ Mitigation Action on Complaint no. 272. Details should be referred to CIR-N41.	Closed
277	12th January 2019	12th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the noise from breaking activities.	N	See investigation/ Mitigation Action on Complaint no. 264. Details should be referred to N39.	Closed
276	11th - 12th January 2019	11th - 12th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	The complaints are considered as project-related. The following recommendations were made to further enhance the mitigation measures: <input type="checkbox"/> Frequent checking and repair the gaps or broken acoustic sheets; <input type="checkbox"/> Replace any broken SilentMat for wrapping the breaker head; <input type="checkbox"/> To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; <input type="checkbox"/> The deployment of Cantilever noise barrier <input type="checkbox"/> To continue to strictly follow the requirements in the relevant CNP. <input type="checkbox"/> To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer <input type="checkbox"/> Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP. Details can be referred to CIR-N40.	Closed
275	11th January 2019	11th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the construction noise from a crane near footbridge between Tiu Keng Leng Sport Centre and Park Central	Y	See Investigation/ Mitigation Action on Complaint no. 272.	Closed
274 (EPD-N08/RE/000012 34-19)	11th January 2019	11th January 2019 / Construction of Road D4	Public	Noise	Complaint about the high frequency machine noise nuisance from the construction site of footbridge between Tiu Keng Leng Sport Centre and park Central.	Y	No high-frequency noise was detected near the complaint location, however, the noise similar to description was detected within the renovation works inside Park Central. Details should be referred to complaint no. 272 and CIR-N41.	Closed
273	10th January 2019	10th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	The complaints are considered as project-related. The following recommendations were made to further enhance the mitigation measures: <input type="checkbox"/> Frequent checking and repair the gaps or broken acoustic sheets; <input type="checkbox"/> Replace any broken SilentMat for wrapping the breaker head; <input type="checkbox"/> To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; <input type="checkbox"/> The deployment of Cantilever noise barrier <input type="checkbox"/> To continue to strictly follow the requirements in the relevant CNP. <input type="checkbox"/> To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer <input type="checkbox"/> Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed
272	8th January 2019	8th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complaint about the high frequency machine noise nuisance from the construction site near Park Central in day time.	Y	High frequency noise emitted from an air compressor was suspected. Noise barrier was seen erected. Noise barrier using material with higher absorption coefficient such as mineral wool is recommended. Details should be referred to CIR-N41.	Closed

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271	8th January 2019	8th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	<p>The complaints are considered as project-related.</p> <p>The following recommendations were made to further enhance the mitigation measures:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Frequent checking and repair the gaps or broken acoustic sheets; <input type="checkbox"/> Replace any broken SilentMat for wrapping the breaker head; <input type="checkbox"/> To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; <input type="checkbox"/> The deployment of Cantilever noise barrier <input type="checkbox"/> To continue to strictly follow the requirements in the relevant CNP. <input type="checkbox"/> To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer <input type="checkbox"/> Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP. 	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
270 (EPD-K15/RE/000006 91-19)	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Cha Kwo Ling Tsuen	Noise & Air Quality	Complained about construction noise & dust (Day & Night-time)	Y	Regular noise monitoring results for day time and night time show full compliance of the noise criteria. Air quality monitoring result in all stations show that no adverse air quality impact has been brought about to the nearby sensitive receivers during the time of complain. During Site audit, damaged acoustic material on the breaker was observed. Watering was provided at during rock breaking to avoid dust generation. The Contractor was reminded to deploy noise barrier to screen the line-of-sight from sensitive receiver.	Closed
269	7th January 2019	7th January 2019 / Construction of Road D4	Resident of Park Central	Noise	Complained about the night time construction noise near Park Central.	Y	No noticeable high frequency noise was detected from the air compressor and noise barrier was seen erected in the line-of-sight from the NSR to the Air compressor. Refer to CIR-41 for details.	Closed
268	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the construction noise at Lam Tin Interchange.	Y	No exceedances were record at the nearest monitoring station. The following recommendation were made to further enhance the mitigation measure: ✓Frequent checking and repair the gaps or broken acoustic sheets; ✓Replace any broken Silent Mat for wrapping the breaker head; ✓To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; ✓The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receiver; ✓To continue to strictly follow the requirements in the relevant CNP; ✓To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and ✓Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP.	Closed
267	7th January 2019	7th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	Refer to Investigation/ Mitigation Action on Complaint no. 264. Details should be referred to N39.	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
266	7th January 2019	7th January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	<p>No exceedances were recorded at the nearest monitoring station, however, the approved location for noise monitoring was located at the podium of Ocean Shores. Due to inaccessibility to private unit, it is not possible to perform monitoring at higher floor. ET will keep approaching Ocean Shore Management Office for impact noise monitoring at higher floor. The recommendations for Contractor is as follows:</p> <ul style="list-style-type: none"> - only well-maintained plant on-site and plant should be serviced regularly during the construction program; - Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receivers; Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to minimum. 	Closed
265	7th January 2019	7th January 2019 / Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	<p>No exceedances were record at the nearest monitoring station. The following recommendation were made to further enhance the mitigation measure:</p> <ul style="list-style-type: none"> ✓Frequent checking and repair the gaps or broken acoustic sheets; ✓Replace any broken Silent Mat for wrapping the breaker head; ✓To adopt Cantilever noise barriers at Lam Tin Interchange to screen noise effectively; ✓The deployment of Cantilever noise barrier should screen the line-of-sight from sensitive receiver; ✓To continue to strictly follow the requirements in the relevant CNP; ✓To conduct an ad hoc ground-borne noise monitoring with the coordination of the Engineer; and ✓Engineer should monitor the plant and machine to ensure construction activities are in compliance of CNP. 	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
264	2nd January 2019	2nd January 2019 / Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking activities.	Y	No noise limit level exceedance was recorded at the noise monitoring stations near ocean shores. The contractor has applied lubricants to the joint of the excavators to dampen the noise emitted from the PMEs. The contractor is recommended to use noise barriers to screen the PMEs from the NSRs as per the Noise mitigation plan.	Closed
263 (EPD-)	1st January 2019	31st December 2018 / Coastal near TKO cemetery	General Public	Water	Complained concerning oil leakage/ on the sea surface near the sunken barge at C2 site.	N	Oil leakage happened due to the derrick lighter was submerged to the sea within the cofferdam. As the oil leakage was found outside the cofferdam during site inspection, there was a gap in the cofferdam. The oil leakage was cleaned up and the floating oil absorber has been used to surround the cofferdam by Contractor. The Contractor are reminded to 1) regular check if the site vessels and cofferdam are in good-condition; 2) To regular monitor the operation of any activities in the cofferdam area; 3) To implement the proposed site vessels safety and the emergency responses including clearance measures. Details of the investigation should be referred to CIR-W10.	Closed
262	30 th December 2018	26 th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Pak Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
261	26 th December 2018	26 th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise from tunnel works of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
260	26 th December 2018	26 th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
259	26 th December 2018	26 th December 2018/ Construction of Lam Tin Interchange	Management Section of Hong Nga Court	Noise	Complained about the construction noise of Lam Tin Interchange.	Y	Refer to investigation for complaint no. 254	Closed
							There was no major construction works at the concerned area during the time of complaint and confirmed by the Resident Engineer. Steel cable wire for anchoring between barge and pier is considered as a possible noise source. The complaint is considered project related.	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
258	18 th December 2018	18 th December 2018/ Construction of Lam Tin Interchange	Engineering Section of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	<p><u>Mitigation measures:</u></p> <p>Cable wire for anchoring between barge and pier has been replaced by rope between 27 Dec and 2 Jan to reduce noise impact. In addition, other good site practices recommended in the "Implementation Schedule of Proposed Mitigation Measures" of EM&A Manual and the approved CNMP of this Contract had been implemented by the Contractor, including the following:</p> <ul style="list-style-type: none"> • Only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction program; • Plants known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from the nearby noise sensitive receivers; • Machines and plants that may be in intermittent use should be shut down between works periods or should be throttled down to minimum. 	Closed
257	18 th December 2018	18 th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from the marine works.	Y	There was no major construction works at the concerned area during the time of complaint and confirmed by the Resident Engineer. Steel cable wire for anchoring between barge and pier is considered as a possible noise source. The Contractor has replaced the cable wire for anchoring between barge and pier with ropes between 27 Dec and 2 Jan to reduce noise impact.	Closed
256	17 th December 2018	15 th December 2018/ Construction of Road P2	Resident of Ocean Shore	Noise	Complained about the construction noise from breaking and piling activities	N	<p>No exceedance was recorded in the noise monitoring result. The number of PME operated in LTI was consistent with the proposed Construction Noise mitigation Plan (CNMP)</p> <p>The following recommendations were made for the Contractor to enhance the mitigation measures:</p> <ul style="list-style-type: none"> • To frequently check and repair operating PME if any loosen or worn parts of the equipment to reduce excessive noise disturbance; • Noise barriers should be designed and erected around the noise sources to block the direct line-of-sight from the NSR as per the CNMP; • To ensure all erected noise barriers and sound proofing canvases wrapped on PME are intact and in good condition. 	Closed
254	16 th December 2018	16 th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	• The night-time works were only conducted inside the tunnels with valid CNP. The noise nuisances are not considered as air-borne in nature, but ground-borne noise. 2.17 In order to confirm the possible ground-borne nature of the noise nuisances for complaints summarized in this report, CEDD has engaged the environmental team to conduct ad hoc ground-borne noise monitoring with the coordination of the Engineer. The findings will be provided in a separate report for the ad hoc monitoring.	Closed
253	15 th December 2018	15 th December 2018/ Construction of Lam Tin Interchange	Resident of Hong Nga Court	Noise	Complained about the construction noise from Tunnel Works	Y	Refer to the investigation for complaint no. 254	Closed
252	30 th November 2018	30 th November 2018/ Construction of Road D4	Resident of Park Central	Noise & Air	Complained about the construction noise and dust resuspension in Road D4.	Y	<p>The number of PMEs operated on site and on-time percentage from 19 to 30 November complied with the CNMP, thus, no violation was identified.</p> <p>Based on the noise and air monitoring results in November 2018, no Limit Level Exceedance was recorded.</p> <p>Mitigation Measures</p> <ul style="list-style-type: none"> • A more effective acoustic barrier was erected between the drill rig and Park Central. • Frequent water spraying along the Po Yap Road for eight times a day. • Stockpile are covered with impervious material to avoid dust resuspension 	Closed
							The complaint lodged on 25 th November 2018 is considered as non-project related, as no works was conducted on that day.	

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
251	28 th November 2018	27 th November 2018/ Construction of TKO portal	Public	Noise	Complained about the construction noise from the marine works.	Y	The complaint on 27th November 2018 is considered project related. The contractor is reminded to 1) frequently check and repair operating PME if any loosen or worn parts of the equipment to reduce excessive noise disturbance; 2) Ensure no further use of PA system for marine works.	Closed
250	26 th November 2018	26 th November 2018/ Public sea in TKO	Resident of Ocean Shore	Noise	Complained about the noise nuisance from the operation of derrick barge on Sunday.	Y	Refer to the investigation for complaint no. 251	Closed
249	25 th November 2018	20 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from the Excavators in LTI on Sunday morning.	Y	Refer to the investigation for complaint no. 251	Closed
248	20 th November 2018	20 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance during transfer of material in evening time at LTI	Y	Regular noise monitoring results for restricted and non-restricted hours show full compliance of the noise criteria (night-time noise exceedance is considered non-project related). The contractor is reminded to adopt cantilever noise barriers at Lam Tin Interchange to screen noise effectively by screening the line-of-sight from sensitive receivers	Closed
247	20 th November 2018	19 th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the noise nuisance from rock dropping during evening time	Y	Refer to the investigation for complaint no. 248	Closed
246	19 th November 2018	19 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from dump truck in evening time	Y	Refer to the investigation for complaint no. 248	Closed
245	8 th November 2018	8 th November 2018/ Lam Tin Interchange	Public	Noise	Complained about construction noise during night time from LTI	Y	Refer to the investigation for complaint no. 248	Closed
243	8 th November 2018	8 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the construction noise during evening time from LTI.	Y	Refer to the investigation for complaint no. 248	Closed
242	7 th November 2018	7 th November 2018/ Lam Tin Interchange	Public	Noise	Complained about the construction noise and dust nuisance.	Y	Refer to the investigation for complaint no. 248	Closed

Complaint No.	Received Date	Date/Location of Complaint	Complainant	Nature	Details of Complaint	Noise Action Level Exceedance	Investigation/ Mitigation Action	Status
241	6 th November 2018	6 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Refer to the investigation for complaint no. 248	Closed
240	6 th November 2018	6 th November 2018/ Lam Tin Interchange	Resident of Yau Lai Estate	Noise	Complained about the noise nuisance from LTI during evening time	Y	Refer to the investigation for complaint no. 248	Closed

Appendix O - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions**Table O2 - Summary of Cumulative Complaint Log for Tseung Kwan O - Lam Tin Tunnel**

Reporting Month/Year	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Prosecutions in Reporting Month
2016	11	0	0
2017	99	1	0
2018	150	0	1
2019	156	0	0
2020	88	0	0
Jan-21	12	0	0
Feb-21	3	0	0
Mar-21	14	0	0
Apr-21	17	0	0
May-21	3	0	0
Jun-21	3	0	0
Total	556	1	1

Table O3 - Cumulative Log for Notifications of Summons

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this Reporting Month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	The Summon was issued on 22 Dec 2017 First hearing on 29/3/2018	Noise nuisance during nighttime (C1 - Apr 2021)	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--
NE/2017/06	--	--	--	--	--	--
NE/2017/07	--	--	--	--	--	--

Table O4 - Cumulative Log for Successful Prosecutions

Contract No.	Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
NE/2015/01	--	--	--	--	--	--
NE/2015/02	KTS24138/2017	25 June 2017/ Marine construction site at Junk Bay	Contrary to: Sections 6 (1) (b) and 6 (5), Noise Control Ordinance, Cap.400	Successful prosecution to the subcontractor on 27 June 2018	1	1
NE/2015/03	--	--	--	--	--	--
NE/2017/01	--	--	--	--	--	--
NE/2017/02	--	--	--	--	--	--
NE/2017/06	--	--	--	--	--	--

NE/2017/07	--	--	--	--	--	--
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**APPENDIX P
WASTE GENERATION IN THE
REPORTING MONTH**

Monthly Summary Waste Flow Table for Jun 2021



Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	a.Total Quantity Generated (see Note 8)	b. Hard Rock and Large Broken Concrete	c. Reused in the Contract	d. Reused in Other Projects	e. Disposed as Public Fill	f. Imported Fill	g. Metals (see Note 5)	h. Paper / Cardboard Packaging (see Note 5)	i. Plastics (see Note 3) (see Note 5)	j. Chemical Waste	k. Others, e.g. general refuse
	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000m ³)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
January	11.091	6.430	0.000	6.430	4.661	0.000	0.000	0.000	0.000	0.000	0.239
February	14.149	4.329	0.000	4.329	9.820	0.000	0.000	0.000	0.000	0.000	0.533
March	9.334	5.356	0.000	5.356	3.978	0.000	0.000	0.000	0.000	0.000	0.901
April	24.397	4.352	0.000	4.352	20.045	0.000	0.000	0.000	0.000	1.680	0.675
May	18.246	2.529	0.000	2.529	15.717	0.000	0.000	0.000	0.000	0.165	0.502
June	10.865	2.010	0.000	2.010	8.855	0.000	0.000	0.000	0.000	0.000	0.599
Sub-total	88.082	25.006	0.000	25.006	63.076	0.000	0.000	0.000	0.000	1.845	3.449
July											
August											
September											
October											
November											
December											
Total	88.082	25.006	0.000	25.006	63.076	0.000	0.000	0.000	0.000	1.845	3.449

Total inert C&D waste generated = c+d+e

Total inert C&D waste recycled = c+d

$$\% \text{ of recycled inert C\&D waste} = \frac{\text{Total C\&D waste recycled}}{\text{Total C\&D waste generated}}$$

- Notes: (1) The performance target are given in PS Clause 6(14)
- (2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site
- (3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material
- (4) The Contractor shall also submit the latest forecast of the amount of C&D materials expected to be generated from the Works, together with a break down of the nature where the total amount of C&D materials expected to be generated from the Works is equal to or exceeding 50,000m³. (PS Clause 1.105(4) refers)
- (5) All recyclable materials, including metals, paper / cardboard packaging, plastics, etc. will be collected by registered collector for recycling.
- (6) Conversion factors for reporting purpose:
in-situ: rock = 2.5 tonnes/m³; soil = 2.0 tonnes/m³
- (7) excavated: rock = 2.0 tonnes/m³; soil = 1.8 tonnes/m³; broken concrete and bitumen = 2.4 tonnes/m³, soil and rock = 1.9 tonnes/m³
- (8) C&D Waste = 0.9 tonnes/m³; bentonite slurry = 2.8 tonnes/m³
Diesel density: 0.8kg/l
Numbers are rounded off to the nearest three decimal places
The "Total Quantity Generated" equals to the sum of "Reuse in the Contract", "Reuse in Other Projects" and "Disposed as Public Fill"

Monthly Summary Waste Flow Table for 2021 Year

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 Borken Concrete	Reused in the Contract	Reused in other Projects	Disposal as Public Fill	Imported Fill	Metals	Paper / Cardboard Packaging	Plastics (See note 3)	Chemical Waste	Other, e.g. general refuse
	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000m ³]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000kg]	[in '000m ³]
Jan	2.66301	0.00000	0.00000	0.00000	2.66301	0.00000	0.00000	0.00000	0.00000	0.00000	0.11320
Feb	0.89033	0.00000	0.00000	0.00000	0.89033	0.00000	14.25000	0.00000	0.00000	0.00000	0.12088
Mar	0.44910	0.00000	0.00000	0.00000	0.44910	0.00000	24.99000	0.00000	0.00000	0.00000	0.09580
Apr	1.77404	0.00000	0.00000	0.00000	1.77404	0.00000	42.72000	0.00000	0.00000	0.00000	0.11686
May	4.14261	0.00000	0.00000	0.00000	4.14261	0.00000	17.80000	0.00000	0.00000	0.00000	0.17156
June	4.91083	0.00000	0.00000	0.00000	4.91083	0.00000	28.40000	0.00000	0.00000	0.00000	0.63252
SUB-TOTAL	14.82991	0.00000	0.00000	0.00000	14.82991	0.00000	128.16000	0.00000	0.00000	0.00000	1.25082
Jul	0.00000										
Aug	0.00000										
Sep	0.00000										
Oct	0.00000										
Nov	0.00000										
Dec	0.00000										
TOTAL	14.82991	0.00000	0.00000	0.00000	14.82991	0.00000	128.16000	0.00000	0.00000	0.00000	1.25082

Note: Conversion to 1000m³ for general refuse is weight in 1000kg multiply by 0.002
 Conversion to 1000m³ for Inert C&D is weight in 1000kg multiply by 0.0005
 Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material
 Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material



Monthly Summary of Waste Flow Table for 2021

Name of Person completing the Record: Steve Wong

Month	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated (in '000m ³)	Broken Concrete <i>(see Note 1)</i>	Reused in the Contract (in '000m ³)	Reused in other Projects (in '000m ³)	Disposed as Public Fill (in '000m ³)	Metals (in '000 Kg)	Paper/ cardboard packaging (in '000 Kg)	Plastics	Chemical Waste (in '000 Kg)	Others, e.g. general refuse (in '000m ³)
		(in '000m ³)						<i>(see Note 2)</i>		
Jan	0.5830	0	0	0	0.5830	0	0	0	0	0.0032
Feb	0.2614	0	0	0	0.2614	0	0	0	0	0.0081
Mar	0.7659	0	0	0	0.7659	0	0	0	0	0.0078
Apr	0.1487	0	0	0	0.1487	0	0	0	0	0.0089
May	0.1876	0	0	0	0.1876	0	0	0	0	0.0053
Jun	0.1218	0	0	0	0.1218	0	0	0	0	0.01343
Sub-total	2.0684	0	0	0	2.0684	0	0	0	0	0.0467
Jul	0.0000	0	0	0	0.0000	0	0	0	0	0
Aug	0.0000	0	0	0	0.0000	0	0	0	0	0
Sep	0.0000	0	0	0	0.0000	0	0	0	0	0
Oct	0.0000	0	0	0	0.0000	0	0	0	0	0
Nov	0.0000	0	0	0	0.0000	0	0	0	0	0
Dec	0.0000	0	0	0	0.0000	0	0	0	0	0
Total	2.0684	0	0	0	2.0684	0	0	0	0	0.0467

Notes:

- (1) Broken concrete for recycling into aggregates.
- (2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
- (3) Use the conversion factor: 1 full load of 24t / 30t dumping truck being equivalent to 6.5m³ / 8.125 m³ by volume.



Monthly Summary Waste Flow Table For 2021

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rock & Large Broken Concrete	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill	Metals	Paper/ Cardboard Packaging	Plastics	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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0	0	0	0	0	0	0	0	0	0	0.003
Feb	0	0	0	0	0	0	0	0	0	0	0.006
Mar	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0.003
Jun	0	0	0	0	0	0	0	0	0	0	0
Sub-total	0	0	0	0	0	0	0	0	0	0	0.012
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0	0	0	0	0	0	0	0	0	0	0.012

- Notes:
- (1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
 - (2) Plastics refer to plastic bottles / containers, plastic sheets / foam from packaging material.
 - (3) Each dump truck carries 6m³ of general refuse.
 - (4) The commencement date of the Contract is 9 November 2018. The current reporting period is from 1 June 2021 to 30 June 2021.

Monthly Summary Waste Flow Table for 2021

Name of Department: Civil Engineering and Development Department

Contract No.: NE/2017/01

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	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 '000kg)	(in '000kg)	(in '000kg)	(in '000kg)	(in '000m ³)
Jan	0.0132	0.0000	0.0000	0.0000	0.0132	0.0000	9.0500	0.0000	0.0000	0.0000	0.0107
Feb	0.0374	0.0000	0.0000	0.0000	0.0374	0.0000	0.0000	0.0000	0.0000	0.0000	0.0077
Mar	0.4590	0.0000	0.0000	0.0000	0.0459	0.0000	0.0000	0.0000	0.0000	0.0000	0.0123
Apr	0.0058	0.0000	0.0000	0.0000	0.0058	0.0000	14.4200	0.0000	0.0000	0.0000	0.0216
May	0.0224	0.0000	0.0000	0.0000	0.0224	0.0000	28.3400	0.0000	0.0000	0.0000	0.0296
Jun	0.0061	0.0000	0.0000	0.0000	0.0061	0.0000	51.5900	0.0000	0.0000	0.0000	0.0137
Sub-total	0.5439	0.0000	0.0000	0.0000	0.1309	0.0000	103.4000	0.0000	0.0000	0.0000	0.0956
Jul											
Aug											
Sep											
Oct											
Nov											
Dec											
Total	0.5439	0.0000	0.0000	0.0000	0.1309	0.0000	103.4000	0.0000	0.0000	0.0000	0.0956

- Notes:
1. Assume the density of soil fill is 2 ton/m³.
 2. Assume the density of rock and broken concrete is 2.5 ton/m³.
 3. Assume the density of mixed rock and soil is 1.9 ton/m³.
 4. Assume the density of slurry and bentonite is 2.8 ton/m³.
 5. The slurry and bentonite are disposed at Tseung Kwan O Area 137 Fill Bank.
 6. Assume the density of C&D waste is 0.9 ton/m³.
 7. The non-inert C&D wastes are disposed at NENT.

Monthly Summary Waste Flow Table for 2021 (year)

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

Project : Cross Bay Link, TKO, Main Bridge and Associated Works

Contract No.: NE/2017/07

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	0.132	0.000	0.000	0.000	0.132	0.000	0.000	0.113	0.000	0.000	0.399
Feb	0.108	0.000	0.000	0.000	0.108	0.000	0.000	0.186	0.000	0.000	0.351
Mar	0.060	0.000	0.000	0.000	0.060	0.000	0.000	0.099	0.000	0.000	0.512
Apr	0.018	0.000	0.000	0.000	0.018	0.000	0.000	0.121	0.000	0.000	0.283
May	0.576	0.000	0.000	0.000	0.576	0.000	0.000	0.103	0.000	0.000	0.278
Jun	1.170	0.000	0.000	0.000	1.170	0.000	0.000	0.210	0.000	0.000	0.437
Sub-total	2.064	0.000	0.000	0.000	2.064	0.000	0.000	0.832	0.000	0.000	2.259
Jul	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sep	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Oct	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Dec	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	2.064	0.000	0.000	0.000	2.064	0.000	0.000	0.832	0.000	0.000	2.259

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.

**APPENDIX Q
TENTATIVE CONSTRUCTION
PROGRAMME**

High Level 3 Months Look Ahead Programme

Activities	Jul-21	Aug-21	Sep-21
Lam Tin Interchange			
EHC2 U-Trough			
Site Formation - Area 1G1 & 1G2 &5			
Site Formation - Area 2			
Site Formation - Slope Stabilisation			
Site Formation - Retaining Wall			
Administration Building			
West Ventilation Building			
Bridge Construction			
Emergency Stormwater storage tank + Stormwater pumping station			
S01_2, EHC1 & 4 Construction			
CKLR Underground Utilities			
Landscape Deck			
LTI Drainage			
Tunnel			
Main Tunnel Lining Works			
S02_2 Excavation & Lining			
TKO Interchange			
Bridge Construction			
East Ventilation Building			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021				
										Jun	Jul	Aug	Sep	Oct
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works (Jun 2021)														
Project Commencement and Completion														
P2-Cal.A	K10020	Project Completion Date	0.0	0.0	21-Jun-21	21-Jun-21	-136.0	0%	0.0					
Revised Contract Key Date and Section Completion of Works under CE57,124,135,														
P2-Cal.A	K10412	Section 2 All Works within Portion II	0.0	0.0	21-Jun-21*	21-Jun-21	-16.5	0%	0.0	◆				
P2-Cal.A	K10406	Key Date 3 Portion IV, V, VI, VIII and IX Road P2, Slip Roads and E&M Works	0.0	0.0	21-Jun-21*	21-Jun-21	-130.5	0%	0.0		◆			
P2-Cal.A	K10418	Section 5 All Works Comprising the Landscape Softworks	0.0	0.0	21-Jun-21*	21-Jun-21	-2.5	0%	0.0	◆				
P2-Cal.A	K10408	Key Date 4 Portion IV, V, VI, VIII and IX Opening Road P2 and CBL	0.0	0.0	21-Jun-21*	21-Jun-21	0.0	0%	0.0	◆				
P2-Cal.A	K10414	Section 3 All Works within Portion IV, V, VI, VII, VIII and IX	0.0	0.0	21-Jun-21*	21-Jun-21	0.0	0%	0.0	◆				
P2-Cal.A	K10416	Section 4 All Works Comprising the Preservation and Protection of Existing Trees	0.0	0.0	21-Jun-21*	21-Jun-21	0.0	0%	0.0	◆				
Possible Contract Key Date & Section Completion of the Works under CE154, 159,														
P2-Cal.A	K10419-14	Key Date 4 Portion IV, V, VI, VIII and IX Opening Road P2 and CBL	0.0	0.0	09-Jul-21*	09-Jul-21	0.0	0%	0.0		◆			
P2-Cal.A	K10419-19	Section 5 All Works Comprising the Landscape Softworks	0.0	0.0	21-Jul-21*	21-Jul-21	0.0	0%	0.0		◆			
P2-Cal.A	K10419-17	Section 3 All Works within Portion IV, V, VI, VII, VIII and IX	0.0	0.0	24-Jul-21*	24-Jul-21	0.0	0%	0.0		◆			
P2-Cal.A	K10419-18	Section 4 All Works Comprising the Preservation and Protection of Existing Trees	0.0	0.0	24-Jul-21*	24-Jul-21	0.0	0%	0.0		◆			
P2-Cal.A	K10419-16	Section 2 All Works within Portion II	0.0	0.0	24-Jul-21*	24-Jul-21	0.0	0%	0.0		◆			
Area Handover Date														
P2-Cal.A	A10700	Area X (Additional Works Area)	0.0	0.0	29-Jun-21*	30-Jun-21	0.0	0%	0.0		◆			
P2-Cal.A	A10680	Area D	0.0	0.0	30-Jun-21*	30-Jun-21	0.0	0%	0.0		◆			
P2-Cal.A	A10730	Zone 2 of Area Y (Additional Works Area)	0.0	0.0	30-Jun-21*	30-Jun-21	0.0	0%	0.0		◆			
Preliminaries, Submission, Contractor's Design Submission and Approval														
Contractor's Design Submission and Acceptance														
E&M Design														
Detail Design for E&M Works (Tunnel and associated)														
MVAC Detail Design														
Underpass														
P2-Cal.A	S11640-20	Resubmission of Detailed Design	21.0	22.0	04-Dec-20 A	12-Jul-21	-341.5	0%	-200.0					
P2-Cal.A	S11640-23	Acceptance of Details Design by Supervisor	14.0	14.0	10-Apr-21 A	26-Jul-21	-341.5	0%	-94.0					
FS Detail Design														
Underpass and Plant Room														
P2-Cal.A	S11651-50	Re-submission of Detail Design	21.0	15.0	19-Dec-20 A	05-Jul-21	-258.5	28.57%	-178.0					
P2-Cal.A	S11651-51	Acceptance of Details Design by Supervisor	4.0	14.0	10-Feb-21 A	19-Jul-21	-258.5	0%	-156.0					
Plumbing and Drainage Detail Design														
Underpass and Plant Room														
P2-Cal.A	S11659	Accept detail design by the Supervisor	14.0	8.0	21-May-21 A	28-Jun-21	-215.5	42.86%	-25.0					
Electrical Detail Design														
Underpass Lighting														
P2-Cal.A	S11660-78	Re-submission of Detail Design	21.0	15.0	19-Dec-20 A	05-Jul-21	-369.5	28.57%	-178.0					

Actual Work ◆ B
 Remaining Work ◆ M
 Critical Remaining Work

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works

3 Monthly Rolling Programme Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - BCT	2021				
										Jun	Jul	Aug	Sep	Oct
P2-Cal.A	S11660-80	Acceptance of Detail Design	14.0	14.0	10-Feb-21 A	19-Jul-21	-369.5	0%	-146.0			Acceptance of Detail Design		
FS System			65.0	63.0	20-May-21 A	22-Aug-21	-309.5		-60.0					
P2-Cal.A	S11789	Reviewed by WSD	28.0	28.0	20-May-21 A	18-Jul-21	-309.5	0%	-32.0			Reviewed by WSD		
P2-Cal.A	S11790	Formal Submission to Supervisor /Submission of Form WWO46 Part I/II	14.0	14.0	19-Jul-21	01-Aug-21	-309.5	0%	0.0			Formal Submission to Supervisor /Submission of Form WWO46 Part I/II		
P2-Cal.A	S11800	Review and Accept Submission and associated elements	21.0	21.0	02-Aug-21	22-Aug-21	-309.5	0%	0.0			Review and Accept Submission and associated elements		
Major Construction Works Method Statement			18.0	18.0	12-Apr-21 A	08-Jul-21	-365.5		-70.0					
Construction of U-Troughs structure (P2 CH363-411)			18.0	18.0	12-Apr-21 A	08-Jul-21	-365.5		-70.0					
P2-Cal.A	S14136	Accept Method Statement for Construction of U-Troughs Structure (P2 CH363-411)	18.0	18.0	12-Apr-21 A	08-Jul-21	-365.5	0%	-70.0			Accept Method Statement for Construction of U-Troughs Structure (P2 CH363-411)		
Procurement of Major Material			365.0	137.0	15-Sep-20 A	01-Dec-21	-161.5		0.0					
Civil/Structural			164.0	114.0	02-Mar-21 A	04-Nov-21	-138.5		-37.0					
P2-Cal.A	S14999	Offsite Fabrication of Traffic and directional signs	60.0	27.0	02-Mar-21 A	17-Jul-21	-57.5	55%	-78.0			Offsite Fabrication of Traffic and directional signs		
P2-Cal.A	S14997	Offsite Fabrication of Steel Works for the Sign Gantry (DS22)	70.0	38.0	10-May-21 A	28-Jul-21	-167.5	45.71%	-10.0			Offsite Fabrication of Steel Works for the Sign Gantry (DS22)		
P2-Cal.C	S14997-01	Offsite Fabrication of Steel Works for the Sign Gantry (FADS22)	50.0	38.0	18-May-21 A	04-Aug-21	-97.5	24%	-15.0			Offsite Fabrication of Steel Works for the Sign Gantry (FADS22)		
P2-Cal.A	S14998	Offsite Fabrication of Steel Works for the Sign Gantry (FVMS & FADS35)	90.0	90.0	07-Aug-21	04-Nov-21	-167.5	0%	0.0					
Architectural			170.0	151.0	28-May-21 A	18-Nov-21	-248.5		-5.0					
P2-Cal.A	S15142-01	Manufacturing of VE Panel	150.0	139.0	01-Jun-21 A	06-Nov-21	-236.5	7.33%	-9.0					
P2-Cal.A	S15142-02	Manufacturing of Precast Concrete Panel	170.0	151.0	28-May-21 A	18-Nov-21	-248.5	11.18%	-5.0					
E&M			443.0	164.0	15-Sep-20 A	01-Dec-21	-339.5		0.0					
P2-Cal.A	S15180	Procurement and Delivery of ELV Equipment (SCADA and ELV)	48.0	16.0	20-May-21 A	06-Jul-21	-201.5	66.67%	0.0			Procurement and Delivery of ELV Equipment (SCADA and ELV)		
P2-Cal.A	S15148	Procurement and Delivery of P/D Equipment	280.0	32.0	15-Sep-20 A	30-Jul-21	-215.5	88.57%	-39.0			Procurement and Delivery of P/D Equipment		
P2-Cal.A	S15146	Procurement and Delivery of FS Equipment	24.0	24.0	20-Jul-21	12-Aug-21	-258.5	0%	35.0			Procurement and Delivery of FS Equipment		
P2-Cal.A	S15190	Procurement and Delivery of LED Lighting	98.0	98.0	20-Jul-21	25-Oct-21	-322.5	0%	17.0					
P2-Cal.A	S15144	Procurement and Delivery of MVAC Plant	100.0	100.0	27-Jul-21	03-Nov-21	-341.5	0%	31.0					
P2-Cal.A	S15150	Procurement and Delivery of EL Equipment	135.0	135.0	20-Jul-21	01-Dec-21	-369.5	0%	17.0					
Section 2 of the Works (All Works Within Portion II)			379.0	84.0	10-Jun-20 A	28-Sep-21	-96.5		-13.0					
Roadworks			379.0	84.0	10-Jun-20 A	28-Sep-21	-96.5		-13.0					
SR1 CH0.00 to P2 CH650			211.0	24.0	10-Jun-20 A	19-Jul-21	-36.5		-117.0					
P2-Cal.C	LC12104	Construction of Road Kerb/Sign Post	14.0	10.0	10-Jun-20 A	02-Jul-21	-36.5	28.57%	-300.0			Construction of Road Kerb/Sign Post		
P2-Cal.C	LC12124	Installation of Type II Railing/ Granite Stone Facing	21.0	14.0	02-Dec-20 A	19-Jul-21	-36.5	33.33%	-162.0			Installation of Type II Railing/ Granite Stone Facing		
Adjacent to site office (SMH SR05 & SR06)			92.0	84.0	16-Jun-21 A	28-Sep-21	-143.5		0.0					
P2-Cal.C	LC12164	Construction of ELS for SMH-SR07	36.0	32.0	16-Jun-21 A	28-Jul-21	-143.5	11.11%	0.0			Construction of ELS for SMH-SR07		
P2-Cal.C	LC12174	Construction of SMH-SR07and Backfilling	24.0	24.0	29-Jul-21	25-Aug-21	-143.5	0%	0.0			Construction of SMH-SR07and Backfilling		
P2-Cal.C	LC12184	Construction of Ducting and Drawpit	14.0	14.0	26-Aug-21	10-Sep-21	-143.5	0%	0.0			Construction of Ducting and Drawpit		
P2-Cal.C	LC12194	Construction of catchpit and u-channel	14.0	14.0	11-Sep-21	28-Sep-21	-143.5	0%	0.0			Construction of catchpit and		
Section 3 of the Works All Works within Portion IV, V, VI, VII, VIII, and IX			1122.0	269.0	06-Apr-18 A	18-May-22	306.0		-72.0					
Existing Land Section			1063.0	269.0	06-Apr-18 A	18-May-22	306.0		-92.0					
Retaining Wall P2-A CH 500- 650			159.0	87.0	20-Feb-21 A	02-Oct-21	-188.5		-50.0					
P2-Cal.C	LC12003	Utility Works	30.0	58.0	20-Feb-21 A	27-Aug-21	-188.5	0%	-124.0			Utility Works		

■ Actual Work ◆ B
■ Remaining Work ◆ M
■ Critical Remaining Work

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
 P2
 and Associated Works

3 Monthly Rolling Programme
 Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - ELS	ELC Duration	2021				
											Jun	Jul	Aug	Sep	Oct
P2-Cal.C	LC12013	Road Works at Tong Yin Street	29.0	29.0	28-Aug-21	02-Oct-21	-188.5	0%	0.0						Road Works at Tong Yin Street
P2 Road															
P2 CH 318 - 363															
Structure P2 CH 318 - 363 & SR2 CH100-110 (U Trough B)															
Bay 1															
P2-Cal.C	LC13410	Construction of insitu Concrete Profile Barrier (2moulds) (NCE193 & NCE219)	81.0	74.0	12-Mar-21	15-Sep-21	-175.5	8.64%	-72.0						Construction of insitu Concrete Profile Barrier
P2 CH 363 - 411															
ELS P2 CH 363 - 411															
P2-Cal.C	LC15310-01	Excavate to -1.0mPD at Bay 1	10.0	10.0	25-Jun-21	07-Jul-21	-320.5	0%	0.0						Excavate to -1.0mPD at Bay 1
P2-Cal.C	LC15280	Installation of 1st Layer Strut/ Waler at +3.8mPD	19.0	21.0	01-Jun-21	15-Jul-21	-320.5	0%	-18.0						Installation of 1st Layer Strut/ Waler at +3.8mPD
P2-Cal.C	LC15320-01	Installation of 2nd layer strut at -0.4mPD at Bay 1	7.0	7.0	08-Jul-21	15-Jul-21	-320.5	0%	0.0						Installation of 2nd layer strut at -0.4mPD at Bay 1
P2-Cal.C	LC15290	Excavate to +1.0mPD (1296m3)	23.0	23.0	24-Jun-21	21-Jul-21	-320.5	0%	-18.0						Excavate to +1.0mPD (1296m3)
P2-Cal.C	LC15340-02	Excavate to -4.0mPD at Bay 1 and construct blinding layer	6.0	6.0	16-Jul-21	22-Jul-21	-320.5	0%	0.0						Excavate to -4.0mPD at Bay 1 and construct blinding layer
P2-Cal.C	LC15340-12	Excavation and construction of vertical blinding for sunken slab at Bay 1	5.0	5.0	23-Jul-21	28-Jul-21	-320.5	0%	7.0						Excavation and construction of vertical blinding for sunken slab at Bay 1
P2-Cal.C	LC15300	Installation of 2nd Layer Strut at +1.60mPD for CH363 to CH387	27.0	27.0	30-Jun-21	31-Jul-21	-320.5	0%	-18.0						Installation of 2nd Layer Strut at +1.60mPD for CH363 to CH387
P2-Cal.C	LC15310	Excavate to -1.0mPD~-1.9mPD for CH363 to CH387 (1440m3)	23.0	23.0	12-Jul-21	06-Aug-21	-320.5	0%	-18.0						Excavate to -1.0mPD~-1.9mPD for CH363 to CH387 (1440m3)
P2-Cal.C	LC15320	Installation of 3rd Layer Strut at +0.0mPD/-0.9mPD	27.0	27.0	17-Jul-21	17-Aug-21	-320.5	0%	-18.0						Installation of 3rd Layer Strut at +0.0mPD/-0.9mPD
P2-Cal.C	LC15330	Excavate to -4.8~-3.8mPD (2376m3)	22.0	22.0	28-Jul-21	21-Aug-21	-320.5	0%	-18.0						Excavate to -4.8~-3.8mPD (2376m3)
P2-Cal.C	LC15340	Construction of Blinding Layer	22.0	22.0	30-Jul-21	24-Aug-21	-320.5	0%	-18.0						Construction of Blinding Layer
P2-Cal.C	LC15340-01	Excavation and construction of vertical blinding for sunken slabs	31.0	31.0	26-Jul-21	30-Aug-21	-320.5	0%	-10.0						Excavation and construction of vertical blinding for sunken slabs
Structure P2 CH 363 - 411 (U Trough B) (Team 9 & 10)															
P2-Cal.C	LC14110	Construction of Base Slab Bay 1	13.0	13.0	29-Jul-21	12-Aug-21	-313.5	0%	2.0						Construction of Base Slab Bay 1
P2-Cal.C	LC14120	Construction of Base Slab Bay 2	13.0	13.0	29-Jul-21	12-Aug-21	-320.5	0%	2.0						Construction of Base Slab Bay 2
P2-Cal.C	LC14190-10	Concrete infill (0.5m) and backfilling between bay 1 and Bay 2 from -3.5 to -0.5mPD (6 Layers, 10/Layer)	6.0	6.0	13-Aug-21	19-Aug-21	-313.5	0%	-6.0						Concrete infill (0.5m) and backfilling between bay 1 and Bay 2 from -3.5 to -0.5mPD
P2-Cal.C	LC14200-10	Removal of 2nd strut for Bay 1 & 2 at -0.00mPD	5.0	5.0	20-Aug-21	25-Aug-21	-313.5	0%	-5.0						Removal of 2nd strut for Bay 1 & 2 at -0.00mPD
P2-Cal.C	LC14130	Construction of Base Slab Bay 3	15.0	15.0	13-Aug-21	30-Aug-21	-320.5	0%	-4.0						Construction of Base Slab Bay 3
P2-Cal.C	LC14210	Construction of Wall Bay 1	14.0	14.0	26-Aug-21	10-Sep-21	-143.5	0%	6.0						Construction of Wall Bay 1
P2-Cal.C	LC14220	Construction of Wall Bay 2	14.0	14.0	26-Aug-21	10-Sep-21	-313.5	0%	1.0						Construction of Wall Bay 2
P2-Cal.C	LC14140	Construction of Base Slab Bay 4	14.0	14.0	31-Aug-21	15-Sep-21	-320.5	0%	1.0						Construction of Base Slab Bay 4
P2-Cal.C	LC14190	Concrete infill (0.5m) and backfilling between bay 3 and Bay 4 from -4.368 to -1.3mPD (10 Layers, 10/Layer)	20.0	20.0	31-Aug-21	23-Sep-21	-320.5	0%	-8.0						Concrete infill (0.5m) and backfilling between bay 3 and Bay 4 from -4.368 to -1.3mPD
P2-Cal.C	LC14230	Construction of 1st Wall Bay 3 up to +3.4mPD (with box out for 2nd layer of struts)	14.0	14.0	09-Sep-21	25-Sep-21	-314.5	0%	-3.0						Construction of 1st Wall Bay 3 up to +3.4mPD
P2-Cal.C	LC14200	Removal of 3rd Strut for Bay 3 & 4 at -0.90mPD	20.0	20.0	04-Sep-21	28-Sep-21	-320.5	0%	-14.0						Removal of 3rd Strut for Bay 3 & 4 at -0.90mPD
P2-Cal.C	LC14230-10	Construction of 1st rise Feature Wall at Bay 3 up to +1.0mPD	30.0	30.0	09-Sep-21	16-Oct-21	-318.5	0%	-30.0						Construction of 1st rise Feature Wall at Bay 3 up to +1.0mPD
P2-Cal.C	LC14330	Backfill, Removal of remaining ELS, closing of temporary box out and site clearance at Bay 1 and 2	43.0	43.0	11-Sep-21	03-Nov-21	-143.5	0%	-25.0						Backfill, Removal of remaining ELS, closing of temporary box out and site clearance at Bay 1 and 2
P2 CH 411- 500															
Structure P2 CH 411 - 500 (U Trough A)															
Wall Stem															
P2-Cal.C	LC15230	Construction of wall stem Final Pour at Bay 1	13.0	13.0	25-Aug-21	08-Sep-21	-227.5	0%	0.0						Construction of wall stem Final Pour at Bay 1

█ Actual Work ◆ B
█ Remaining Work ◆ M
█ Critical Remaining Work

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
 P2
 and Associated Works

3 Monthly Rolling Programme
 Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - ELS	Duration	2021				
											Jun	Jul	Aug	Sep	Oct
P2-Cal.C	LC15242	Backfilling and Removal of Sheetpile after Bay 1 final pour completed	14.0	14.0	09-Sep-21	25-Sep-21	-227.5	0%	0.0						Backfilling and Removal of SH
Remaining Works			35.0	35.0	21-Jun-21	31-Jul-21	-47.5		-8.0						
P2-Cal.C	LC20910	Installation of steelwork of ADS22	3.0	3.0	21-Jun-21	23-Jun-21	-109.5	0%	0.0						Installation of steelwork of ADS22
P2-Cal.C	LC20950	TCSS installation for FVMS and ADS22 (by C4)	5.0	5.0	24-Jun-21	29-Jun-21	-109.5	0%	0.0						TCSS installation for FVMS and ADS22 (by C4)
P2-Cal.C	LC20905	Construction of direction signs DS25 and DS36 (include footings)	12.0	12.0	19-Jul-21	31-Jul-21	-47.5	0%	0.0						Construction of direction signs DS25 and DS36 (include footings)
SR2			1038.0	269.0	06-Apr-18 A	18-May-22	306.0		-164.0						
SR2 CH110 - 170			149.0	88.0	07-Apr-21 A	04-Oct-21	-195.5		17.0						
ELS			115.0	54.0	07-Apr-21 A	23-Aug-21	-220.5		-15.0						
P2-Cal.C	LC16200-01	Excavate to -1mPD at Bay 1 & 2 (CH146 - 170)	21.0	4.0	24-May-21 A	24-Jun-21	-193.5	80.95%	-6.0						Excavate to -1mPD at Bay 1 & 2 (CH146 - 170)
P2-Cal.C	LC16140	Installation of Dewatering Wall	7.0	14.0	07-Apr-21 A	07-Jul-21	-236.5	5%	-68.0						Installation of Dewatering Wall
P2-Cal.C	LC16170	Installation of 1st layer struts @ +4.0mPD	10.0	19.0	05-May-21 A	13-Jul-21	-241.5	0%	-47.0						Installation of 1st layer struts @ +4.0mPD
P2-Cal.C	LC16210-01	Installation of 2nd layer Struts @ +0.0 at Bay 1 & 2 (CH146 - 170)	17.0	17.0	25-Jun-21	15-Jul-21	-193.5	0%	-10.0						Installation of 2nd layer Struts @ +0.0 at Bay 1 & 2 (CH146 - 170)
P2-Cal.C	LC16180	Excavate to +1.6mPD (2412m3) Bay 3-5 (CH110 - 146)	4.0	4.0	14-Jul-21	17-Jul-21	-241.5	0%	1.0						Excavate to +1.6mPD (2412m3) Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16230-01	Excavate to -4.0mPD and construct blinding layer at Bay 1 & 2 (CH146 - 170)	6.0	6.0	16-Jul-21	22-Jul-21	-193.5	0%	0.0						Excavate to -4.0mPD and construct blinding layer at Bay 1 & 2 (CH146 - 170)
P2-Cal.C	LC16190	Installation of 2nd layer strut @ +1.6mPD Bay 3-5 (CH110 - 146)	7.0	7.0	19-Jul-21	26-Jul-21	-241.5	0%	2.0						Installation of 2nd layer strut @ +1.6mPD Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16200	Excavate to -1.0~-1.9mPD (1286m3) Bay 3-5 (CH110 - 146)	4.0	4.0	27-Jul-21	30-Jul-21	-241.5	0%	1.0						Excavate to -1.0~-1.9mPD (1286m3) Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16210	Installation of 3rd layer Struts @ +0.0~-0.9mPD Bay 3-5 (CH110 - 146)	9.0	9.0	31-Jul-21	10-Aug-21	-241.5	0%	0.0						Installation of 3rd layer Struts @ +0.0~-0.9mPD Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16220	Excavate to -4.1~-5.1mPD (2541m3) Bay 3-5 (CH110 - 146)	4.0	4.0	11-Aug-21	14-Aug-21	-241.5	0%	0.0						Excavate to -4.1~-5.1mPD (2541m3) Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16230	Construction of Blinding Layer Bay 3-5 (CH110 - 146)	2.0	2.0	16-Aug-21	17-Aug-21	-241.5	0%	2.0						Construction of Blinding Layer Bay 3-5 (CH110 - 146)
P2-Cal.C	LC16230-11	Vertical blinding for sunken slab at Bay 3-5 (CH110 - 146)	5.0	5.0	18-Aug-21	23-Aug-21	-241.5	0%	-5.0						Vertical blinding for sunken slab at Bay 3-5 (CH110 - 146)
Structure SR2 CH110 - 170 (U Trough B) (team 11 - 13)			61.0	61.0	23-Jul-21	04-Oct-21	-195.5		33.0						
P2-Cal.C	LC16240	Construction of Bay 1 Base Slab	14.0	14.0	23-Jul-21	07-Aug-21	-193.5	0%	1.0						Construction of Bay 1 Base Slab
P2-Cal.C	LC16250	Construction of Bay 2 Base Slab	14.0	14.0	23-Jul-21	07-Aug-21	-193.5	0%	2.0						Construction of Bay 2 Base Slab
P2-Cal.C	LC16250-10	Concrete infill and Backfilling from -5.2mPD to -0.5mPD for Bay 1 and 2	10.0	10.0	09-Aug-21	19-Aug-21	-193.5	0%	-10.0						Concrete infill and Backfilling from -5.2mPD to -0.5mPD for Bay 1 and 2
P2-Cal.C	LC16250-20	Removal of 2nd layer Struts @ +0.0 at Bay 1 & 2	6.0	6.0	20-Aug-21	26-Aug-21	-193.5	0%	-6.0						Removal of 2nd layer Struts @ +0.0 at Bay 1 & 2
P2-Cal.C	LC16260	Construction of Bay 3 Base Slab	10.0	10.0	24-Aug-21	03-Sep-21	-241.5	0%	5.0						Construction of Bay 3 Base Slab
P2-Cal.C	LC16270	Construction of Bay 4 Base Slab	10.0	10.0	24-Aug-21	03-Sep-21	-235.5	0%	5.0						Construction of Bay 4 Base Slab
P2-Cal.C	LC16280	Construction of Bay 5 Base Slab	10.0	10.0	24-Aug-21	03-Sep-21	-241.5	0%	5.0						Construction of Bay 5 Base Slab
P2-Cal.C	LC16290	Concrete infill (0.5m) and backfilling between bay 3 - 5 from -5.04 to -1.7mPD	6.0	6.0	04-Sep-21	10-Sep-21	-241.5	0%	5.0						Concrete infill (0.5m) and backfilling between bay 3 - 5 from -5.04 to -1.7mPD
P2-Cal.C	LC16310	Construction of Bay 1 Wall up to 3.0mPD	15.0	15.0	27-Aug-21	13-Sep-21	-193.5	0%	5.0						Construction of Bay 1 Wall up to 3.0mPD
P2-Cal.C	LC16320	Construction of Bay 2 Wall up to 3.0mPD	15.0	15.0	27-Aug-21	13-Sep-21	-193.5	0%	0.0						Construction of Bay 2 Wall up to 3.0mPD
P2-Cal.C	LC16300	Removal of 3rd Layer ELS for Bay 3 - 5	4.0	4.0	11-Sep-21	15-Sep-21	-241.5	0%	6.0						Removal of 3rd Layer ELS for Bay 3 - 5
P2-Cal.C	LC16320-10	Waterproofing and backfilling between bay 1 and 2 from -0.5 to 3.0mPD	14.0	14.0	14-Sep-21	30-Sep-21	-193.5	0%	-14.0						Waterproofing and backfilling between bay 1 and 2 from -0.5 to 3.0mPD
P2-Cal.C	LC16330	Construction of Bay 3 Wall up to +3.5mPD	14.0	14.0	16-Sep-21	04-Oct-21	-241.5	0%	1.0						Construction of Bay 3 Wall up to +3.5mPD
P2-Cal.C	LC16340	Construction of Bay 4 1st Wall to +0.6mPD	14.0	14.0	16-Sep-21	04-Oct-21	-241.5	0%	1.0						Construction of Bay 4 1st Wall to +0.6mPD
P2-Cal.C	LC16350	Construction of Bay 5 1st Wall to +0.6mPD	14.0	14.0	16-Sep-21	04-Oct-21	-241.5	0%	1.0						Construction of Bay 5 1st Wall to +0.6mPD
SR2 CH170 - 250			769.0	19.0	28-Feb-19 A	08-Sep-21	507.0		9.0						
Structure SR2 CH 170 - 250 (U Trough A)			769.0	19.0	28-Feb-19 A	08-Sep-21	507.0		9.0						

█ Actual Work ◆ B
█ Remaining Work ◆ M
█ Critical Remaining Work

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
P2
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3 Monthly Rolling Programme
Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021	Jun	Jul	Aug	Sep	Oct
P2-Cal.C	LC17395	Construction of wall stem 2nd pour (top level) at CH170 - 182.5	9.0	9.0	18-Aug-21	27-Aug-21	-235.5	0%	0.0						
P2-Cal.C	LC17510	Waterproofing, Backfilling and Remove sheetpile	40.0	5.0	28-Feb-19 A	02-Sep-21	-235.5	87.5%	-705.0						
P2-Cal.C	LC90670	Construction of insitu Concrete Profile Barrier (CH170-CH180) (2 moulds) (NCE193 & NCE219)	10.0	10.0	28-Aug-21	08-Sep-21	507.0	0%	0.0						
Road and Drainage & Utilities Works (P2 CH318 - 650 & SR2 CH100 - 310)			368.0	269.0	06-Apr-18 A	18-May-22	-281.5		-851.0						
P2-Cal.C	LC17590	Road and Drainage & Utilities Works (SR2 CH100 - 250)	300.0	260.0	28-Jun-18 A	06-May-22	-272.5	13.33%	-842.0						
P2-Cal.C	LC17560	Road and Drainage & Utilities Works (P2 CH318 - 500)	300.0	269.0	06-Apr-18 A	18-May-22	-281.5	10.33%	-919.0						
New Reclaimed Section			641.0	269.0	16-Nov-19 A	18-May-22	306.0		-72.0						
Marine Works			603.0	57.0	03-Jan-20 A	26-Aug-21	-69.5		115.0						
Concrete Coping			512.0	56.0	27-Apr-20 A	26-Aug-21	-69.5		115.0						
Eastern Seawall			163.0	56.0	16-Dec-20 A	26-Aug-21	-69.5		-41.0						
P2-Cal.C	MC13535	Coping Area 3 (CH300-371) (71m)	11.0	8.0	21-Jan-21 A	30-Jun-21	-253.5	21.4%	-117.0						
P2-Cal.C	MC13515	Coping Area 5 (CH371-500) (129m)	32.0	32.0	16-Dec-20 A	29-Jul-21	-45.5	65.4%	-148.0						
P2-Cal.C	MC13475	Coping Area 2 (CH189-300) (111m)	48.0	48.0	02-Jul-21	26-Aug-21	-253.5	0%	0.0						
Western Seawall			15.0	3.0	27-Apr-20 A	26-Jun-21	-106.8		-330.3						
P2-Cal.C	MC13555	Coping Area 4 (CH271-371W) (100m)	15.0	3.0	27-Apr-20 A	26-Jun-21	-106.8	96.7%	-330.3						
Armour Protection			182.0	3.0	03-Jan-20 A	23-Jun-21	-107.5		-252.0						
Laying of Armour Rock (West)			133.0	2.3	03-Jan-20 A	23-Jun-21	-106.8		-300.3						
P2-Cal.C	MC13755	Armour CH440-500 (4735m3)	15.0	1.0	11-May-20 A	21-Jun-21	-105.5	93.33%	-316.0						
P2-Cal.C	MC13735	Armour CH375-440 (4882m3)	15.0	1.0	15-May-20 A	21-Jun-21	-106.8	93.33%	-312.0						
P2-Cal.C	MC13715	Armour CH311-375 (4767m3)	7.0	1.0	22-May-20 A	22-Jun-21	-106.8	85.71%	-315.0						
P2-Cal.C	MC13695	Armour CH271-311 (1833m3)	8.0	0.3	03-Jan-20 A	23-Jun-21	-106.8	96.69%	-425.3						
Laying of Armour Rock (East)			156.0	3.0	13-Jan-20 A	23-Jun-21	-247.5		-270.0						
P2-Cal.C	MC13955	Armour CH375-440 (4882m3)	12.0	1.0	14-Mar-20 A	21-Jun-21	-246.5	91.67%	-362.0						
P2-Cal.C	MC13935	Armour CH300-375 (4767m3)	12.0	1.0	06-Feb-20 A	21-Jun-21	-253.5	91.67%	-394.0						
P2-Cal.C	MC13915	Armour CH250-300 (3181m3)	10.0	1.0	13-Jan-20 A	22-Jun-21	-247.5	90%	-415.0						
P2-Cal.C	MC13895	Armour CH190-250 (2310m3)	9.0	1.0	13-Aug-20 A	23-Jun-21	-247.5	88.89%	-245.0						
Land Works			586.0	269.0	16-Nov-19 A	18-May-22	306.0		-72.0						
Road P2 Underpass (CH105-CH318)			579.0	269.0	16-Nov-19 A	18-May-22	306.0		-159.0						
Instrumentation and Monitoring for Road P2 Structure Construction			460.0	269.0	16-Nov-19 A	18-May-22	-281.5		-278.0						
P2-Cal.C	LC17760	Monitoring of Instrumentation	460.0	269.0	16-Nov-19 A	18-May-22	-281.5	41.52%	-278.0						
Underpass			139.0	110.0	20-Apr-21 A	30-Oct-21	465.0		-21.0						
Underpass P2 CH 105 - 318			133.0	104.0	20-Apr-21 A	23-Oct-21	471.0		-21.0						
Foundation (On Top Surcharge)			30.0	30.0	26-Aug-21	30-Sep-21	-300.5		0.0						
P2-Cal.C	LC17823-1	Installation of Sokceted H-pile (6 nos) for Electrical Plant Room Drilling to FL - 3d/nos	10.0	10.0	26-Aug-21	06-Sep-21	-300.5	0%	0.0						
P2-Cal.C	LC17825-1	Installation of Sokceted H-pile (6 nos) for Electrical Plant Room Grouting - 2d/nos	10.0	10.0	07-Sep-21	17-Sep-21	-300.5	0%	0.0						
P2-Cal.C	LC17840-01	Loading Test for Pre-bored Socketed H-Pile for Electrical Plant Room	10.0	10.0	18-Sep-21	30-Sep-21	-300.5	0%	0.0						
Base Slab (Team 1 to 4)			6.0	6.0	29-Jun-21	06-Jul-21	-312.5		1.0						
P2-Cal.C	LC18120-16	Removal of 3rd Struts @ -4.5mPD for Bay 7	6.0	6.0	29-Jun-21	06-Jul-21	-312.5	0%	1.0						

■ Actual Work ■ Remaining Work ■ Critical Remaining Work
◆ B ◆ M ◆ M

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road P2 and Associated Works

3 Monthly Rolling Programme Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021	Jun	Jul	Aug	Sep	Oct
1st Wall (Team 1 to 6)															
P2-Cal.C	LC18145	Construction of pour wall (1st East and West interim level -2.2mPD) - bay 12	11.0	3.0	09-Jun-21 A	23-Jun-21	-275.5	72.73%	-1.0		Construction of pour wall (1st East and West interim level -2.2mPD) - bay 12				
P2-Cal.C	LC18150	Construction of pour wall (1st East and West interim level -2.2mPD) - bay 11	11.0	3.0	09-Jun-21 A	23-Jun-21	-275.5	72.73%	-1.0		Construction of pour wall (1st East and West interim level -2.2mPD) - bay 11				
P2-Cal.C	LC18198-06	Removal of 2nd Strut @ -1.5~-2.5mPD for Bay 1, 2, 3 & 4	15.0	13.0	18-Jun-21 A	06-Jul-21	-308.5	13.33%	0.0		Removal of 2nd Strut @ -1.5~-2.5mPD for Bay 1, 2, 3 & 4				
P2-Cal.C	LC18165	Construction of pour wall (1st East and West interim level -2.2mPD) - bay 8	14.0	14.0	07-Jul-21	22-Jul-21	-306.5	0%	0.0			Construction of pour wall (1st East and West interim level -2.2mPD) - bay 8			
P2-Cal.C	LC18170	Construction of pour wall (1st East and West interim level -2.2mPD) - bay 7	11.0	11.0	16-Jul-21	28-Jul-21	-301.5	0%	0.0			Construction of pour wall (1st East and West interim level -2.2mPD) - bay 7			
P2-Cal.C	LC18200-01	Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 8, & 9 (7 layers, 1D/layer)	14.0	14.0	23-Jul-21	07-Aug-21	-306.5	0%	0.0			Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 8, & 9 (7 layers, 1D/layer)			
P2-Cal.C	LC18200-07	Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 7 (7 layers, 1D/layer)	14.0	14.0	29-Jul-21	13-Aug-21	-301.5	0%	0.0			Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 7 (7 layers, 1D/layer)			
P2-Cal.C	LC18200-11	Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 10, 11, 12, 13 & 14 (7 layers, 1D/layer)	54.0	49.0	12-Jun-21 A	17-Aug-21	-307.5	9.26%	-1.0		Waterproofing and Backfilling from -5.8mPD to -3.8mPD for Bay 10, 11, 12, 13 & 14				
P2-Cal.C	LC18200-06	Removal of 2nd Strut @ -2.5mPD for Bay 8 & 9	10.0	10.0	09-Aug-21	19-Aug-21	-306.5	0%	0.0			Removal of 2nd Strut @ -2.5mPD for Bay 8 & 9			
P2-Cal.C	LC18200-16	Removal of 2nd Strut @ -2.5mPD for Bay 10, 11, 12, 13 & 14	41.0	41.0	07-Jul-21	23-Aug-21	-312.5	0%	0.0			Removal of 2nd Strut @ -2.5mPD for Bay 10, 11, 12, 13 & 14			
P2-Cal.C	LC18200-08	Removal of 2nd Strut @ -2.5mPD for Bay 7	5.0	5.0	20-Aug-21	25-Aug-21	-306.5	0%	0.0			Removal of 2nd Strut @ -2.5mPD for Bay 7			
2nd Wall (Team 1 to 6)															
P2-Cal.C	LC18267	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 1	13.0	13.0	07-Jul-21	21-Jul-21	-308.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 1			
P2-Cal.C	LC18255	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 4	11.0	11.0	22-Jul-21	03-Aug-21	-308.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 4			
P2-Cal.C	LC18260	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 3	11.0	11.0	22-Jul-21	03-Aug-21	-292.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 3			
P2-Cal.C	LC18265	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 2	11.0	11.0	22-Jul-21	03-Aug-21	-292.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 2			
P2-Cal.C	LC18210	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 14	15.0	15.0	22-Jul-21	07-Aug-21	-312.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 14			
P2-Cal.C	LC18215	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 13	11.0	11.0	09-Aug-21	20-Aug-21	-312.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 13			
P2-Cal.C	LC18220	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 12	11.0	11.0	21-Aug-21	02-Sep-21	-312.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 12			
P2-Cal.C	LC18274-01	Waterproofing and Backfilling from -3.8~-2.8mPD to +0.2mPD for Bay 1, 2, 3, & 4 (14 Layers, 1D/layer)	30.0	30.0	04-Aug-21	07-Sep-21	-308.5	0%	0.0			Waterproofing and Backfilling from -3.8~-2.8mPD to +0.2mPD for Bay 1, 2, 3, & 4 (14 Layers, 1D/layer)			
P2-Cal.C	LC18240	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 8	14.0	14.0	26-Aug-21	10-Sep-21	-306.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 8			
P2-Cal.C	LC18245	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 7	14.0	14.0	26-Aug-21	10-Sep-21	-306.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 7			
P2-Cal.C	LC18274-06	Removal of 1st Strut at +1.5mPD for Bay 1, 2, 3 & 4	25.0	25.0	16-Aug-21	13-Sep-21	-308.5	0%	0.0			Removal of 1st Strut at +1.5mPD for Bay 1, 2, 3 & 4			
P2-Cal.C	LC18225	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 11	11.0	11.0	03-Sep-21	15-Sep-21	-312.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 11			
P2-Cal.C	LC18235	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 9	11.0	11.0	11-Sep-21	24-Sep-21	-286.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 9			
P2-Cal.C	LC18275-04	Waterproofing and Backfilling from -3.8mPD to +0.2mPD for Bay 7&8 (14 Layers, 1D/layer)	14.0	14.0	11-Sep-21	28-Sep-21	-306.5	0%	0.0			Waterproofing and Backfilling from -3.8mPD to +0.2mPD for Bay 7&8 (14 Layers, 1D/layer)			
P2-Cal.C	LC18230	Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 10	11.0	11.0	16-Sep-21	29-Sep-21	-312.5	0%	0.0			Construction of pour wall (2nd East, West and Mid interim level +0.8mPD) - bay 10			
P2-Cal.C	LC18275-11	Waterproofing and Backfilling from -3.8mPD to +0.2mPD for Bay 10, 11, 12, 13, 14 (14 Layers, 1D/layer)	58.0	58.0	09-Aug-21	18-Oct-21	-312.5	0%	0.0			Waterproofing and Backfilling from -3.8mPD to +0.2mPD for Bay 10, 11, 12, 13, 14 (14 Layers, 1D/layer)			
P2-Cal.C	LC18275-16	Removal of 1st Strut @ +1.5mPD for Bay 10,11, 12, 13 & 14	49.0	49.0	25-Aug-21	23-Oct-21	-312.5	0%	0.0			Removal of 1st Strut @ +1.5mPD for Bay 10,11, 12, 13 & 14			
3rd Wall & Top Slab (Team 1 to 6)															
P2-Cal.C	LC18290	Construction of pour wall 3rd - bay 14	15.0	15.0	11-Sep-21	29-Sep-21	-312.5	0%	0.0				Construction of pour wall 3rd - bay 14		
P2-Cal.C	LC18347	Construction of pour wall 3rd - bay 1	13.0	13.0	14-Sep-21	29-Sep-21	-308.5	0%	0.0				Construction of pour wall 3rd - bay 1		
Fixed Foam Room/Sump Pit Room/Stormwater Plant Room															
Fixed Foam Room/Sump Pit Room (Team 7)															
P2-Cal.C	LC18402-01	Petrol Interceptor Manholes	15.0	24.0	10-Jun-21 A	19-Jul-21	-290.5	0%	-17.0		Petrol Interceptor Manholes				
P2-Cal.C	LC18405	Erection of scaffold/fitework for 1st slab construction	6.0	6.0	20-Jul-21	26-Jul-21	-290.5	0%	0.0		Erection of scaffold/fitework for 1st slab construction				
P2-Cal.C	LC18410	Construction of 2nd pour wall and slab up to -6.0mPD	9.0	9.0	27-Jul-21	05-Aug-21	-290.5	0%	0.0		Construction of 2nd pour wall and slab up to -6.0mPD				

■ Actual Work ◆ B
■ Remaining Work ◆ M
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NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
 P2
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3 Monthly Rolling Programme
 Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Dur	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021	Jun	Jul	Aug	Sep	Oct
P2-Cal.C	LC18395	Installation of waterproofing works to 1st wall	7.0	7.0	06-Aug-21	13-Aug-21	-290.5	0%	0.0				Installation of waterproofing works to 1st wall		
P2-Cal.C	LC18400	Waterproofing and backfilling works (1st -10.1mPD to -5.3mPD)	4.0	4.0	14-Aug-21	18-Aug-21	-290.5	0%	0.0				Waterproofing and backfilling works (1st -10.1mPD to -5.3mPD)		
Stormwater Plant Room (Team 7 & 8)			64.0	59.0	15-Jun-21 A	28-Aug-21	516.0		-9.0						
P2-Cal.C	LC18465	Excavation to formation -13.8 ~ 14.5mPD	5.0	9.0	15-Jun-21 A	30-Jun-21	-321.5	0%	-9.0		Excavation to formation -13.8 ~ 14.5mPD				
P2-Cal.C	LC18470	Construction of 2nd half base slab (6B3) and backfill between sheet pile	19.0	19.0	02-Jul-21	23-Jul-21	-321.5	0%	0.0		Construction of 2nd half base slab (6B3) and backfill between sheet pile				
P2-Cal.C	LC18475	Removal of 3rd water/strut @ -10.0mPD	2.0	2.0	24-Jul-21	26-Jul-21	-321.5	0%	0.0		Removal of 3rd water/strut @ -10.0mPD				
P2-Cal.C	LC18480	Construction of 1st pour walls for Stormwater plant room to (W1B)	14.0	14.0	27-Jul-21	11-Aug-21	-321.5	0%	0.0		Construction of 1st pour walls for Stormwater plant room to (W1B)				
P2-Cal.C	LC18510	Installation of waterproofing works to 1st wall	6.0	6.0	12-Aug-21	18-Aug-21	-321.5	0%	0.0		Installation of waterproofing works to 1st wall				
P2-Cal.C	LC18515	Backfill between wall W1B and sheetpile (-12.5mPD to -10mPD) and waterproofing under inlet chamber	5.0	5.0	19-Aug-21	24-Aug-21	-321.5	0%	0.0		Backfill between wall W1B and sheetpile (-12.5mPD to -10mPD) and waterproofing under inlet chamber				
P2-Cal.C	LC18515-01	Backfill between wall and sheetpile (-10mPD to -7.3mPD)	4.0	4.0	25-Aug-21	28-Aug-21	516.0	0%	0.0		Backfill between wall and sheetpile (-10mPD to -7.3mPD)				
Fixed Foam Room/Sump Pit Room/Stormwater Plant Room (Up to -5.0mPD) (Team 7 & 8)			110.0	81.0	20-Apr-21 A	24-Sep-21	-252.5		-23.0						
P2-Cal.C	LC18522	Construction of Temporary Working Platform for Construction of CLP Transformer Room	77.0	4.0	20-Apr-21 A	24-Jun-21	-250.5	94.81%	23.0		Construction of Temporary Working Platform for Construction of CLP Transformer Room				
P2-Cal.C	LC18521	Construct inlet chamber base slab (6B4) and walls (W2)	12.0	12.0	25-Aug-21	07-Sep-21	-321.5	0%	0.0		Construct inlet chamber base slab (6B4) and walls (W2)				
P2-Cal.C	LC18524	Construction of slab (MS1+6B5) at -5.0mPD	19.0	19.0	31-Aug-21	21-Sep-21	-319.5	0%	0.0		Construction of slab (MS1+6B5) at -5.0mPD				
P2-Cal.C	LC18590	Construction of CLP Transformer Room	75.0	75.0	25-Jun-21	21-Sep-21	-250.5	0%	0.0		Construction of CLP Transformer Room				
P2-Cal.C	LC18521-02	Waterproofing and backfilling between inlet chamber and sheetpiles	14.0	14.0	08-Sep-21	24-Sep-21	-321.5	0%	0.0		Waterproofing and backfilling between inlet chamber and sheetpiles				
E&M Works			38.0	38.0	14-Sep-21	30-Oct-21	-250.5		0.0						
Stormwater Plant Room			38.0	38.0	14-Sep-21	30-Oct-21	-250.5		0.0						
CLP Switch Room/ Electrical Plant Room Installation			38.0	38.0	14-Sep-21	30-Oct-21	-250.5		0.0						
P2-Cal.C	LC19458	Electrical Installation in CLP Switch Room including self T&C and Submission of WR1	38.0	38.0	14-Sep-21	30-Oct-21	-250.5	0%	0.0						
U-Trough A and B			236.0	117.0	07-Dec-20 A	08-Nov-21	458.0		-36.0						
"U-Trough A Type 3 and U-Trough B Type 4" from S200 CH821 to P2 CH105			167.0	117.0	20-Apr-21 A	08-Nov-21	458.0		0.0						
Structure S200 CH821 - CH845 (No Water/Strut) (team 14)			22.0	22.0	21-Jun-21	16-Jul-21	-135.5		0.0						
P2-Cal.C	LC21200	Backfilling from -0.96 to +5.5mPD (22 layers, 1D/layer)	22.0	22.0	21-Jun-21	16-Jul-21	-135.5	0%	0.0		Backfilling from -0.96 to +5.5mPD (22 layers, 1D/layer)				
Structure S200 CH845 - CH926 (1 Layer Water/Strut) (team 15)			107.0	57.0	20-Apr-21 A	26-Aug-21	446.0		0.0						
P2-Cal.C	LC21145	Construction of wall (East and West) - bay 4	23.0	5.0	25-May-21 A	25-Jun-21	498.0	78.26%	-4.0		Construction of wall (East and West) - bay 4				
P2-Cal.C	LC21140-01	Construction of wall (East and Middle) - bay 3	5.0	6.0	20-Apr-21 A	26-Jun-21	-95.5	0%	-51.0		Construction of wall (East and Middle) - bay 3				
P2-Cal.C	LC21130-10	Waterproofing and backfill from -2.7mPD to +1.0mPD (13 Layers, 1D/layer) (bay 5 -7)	14.0	7.0	31-May-21 A	28-Jun-21	-285.5	50%	-10.0		Waterproofing and backfill from -2.7mPD to +1.0mPD (13 Layers, 1D/layer) (bay 5 -7)				
P2-Cal.C	LC21135	Removal of 1st layer strut/waling @ +2.5 for Bay 5-7	9.0	9.0	29-Jun-21	09-Jul-21	-285.5	0%	3.0		Removal of 1st layer strut/waling @ +2.5 for Bay 5-7				
P2-Cal.C	LC21155	Construction of wall (East and West) - bay 6	11.0	11.0	10-Jul-21	22-Jul-21	-285.5	0%	0.0		Construction of wall (East and West) - bay 6				
P2-Cal.C	LC21150	Construction of wall (East and West) - bay 5	11.0	11.0	23-Jul-21	04-Aug-21	-285.5	0%	0.0		Construction of wall (East and West) - bay 5				
P2-Cal.C	LC21160	Construction of wall (East and West) - bay 7	11.0	11.0	28-Jul-21	09-Aug-21	-285.5	0%	0.0		Construction of wall (East and West) - bay 7				
P2-Cal.C	LC21190	Backfilling from +1.0mPD to +5.5mPD (15 Layers, 1D/layer)	15.0	15.0	10-Aug-21	26-Aug-21	-170.5	0%	0.0		Backfilling from +1.0mPD to +5.5mPD (15 Layers, 1D/layer)				
Structure S200 CH926 - CH969 (2 Layer Water/Strut) (team 16)			98.0	86.0	09-Jun-21 A	30-Sep-21	-302.5		3.0						
P2-Cal.C	LC25700	Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 8	13.0	0.0	12-Jun-21 A	21-Jun-21	-302.5	100%	7.0		Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 8				
P2-Cal.C	LC25740	Construction of 1st wall (East, West and Mid interim level@ +1.5mPD) - bay 10	10.0	11.0	12-Jun-21 A	03-Jul-21	-302.5	0%	-7.0		Construction of 1st wall (East, West and Mid interim level@ +1.5mPD) - bay 10				
P2-Cal.C	LC25720	Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 9	10.0	10.0	09-Jun-21 A	15-Jul-21	-302.5	0%	-20.0		Construction of 1st wall (East and West interim level@ +1.5mPD) - bay 9				
P2-Cal.C	LC25780	Installation of waterproofing works to 2nd wall	9.0	9.0	16-Jul-21	26-Jul-21	-302.5	0%	0.0		Installation of waterproofing works to 2nd wall				

- █ Actual Work
- █ Remaining Work
- █ Critical Remaining Work
- ◆ B
- ◆ M

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
P2
and Associated Works

3 Monthly Rolling Programme
Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Duration	Start Date	Finish Date	Total Float	Activity % Complete	Variance - SLT	SLT Duration	2021				
											Jun	Jul	Aug	Sep	Oct
P2-Cal.C	LC25800	Mass Concrete Fill x 2 and Backfill works from -4.7mPD to +1.0mPD (16 Layers, 1D/Layer)	20.0	20.0	27-Jul-21	18-Aug-21	-302.5	0%	0.0						
P2-Cal.C	LC25820	Removal of 1st layer strut/waling @ +1.5mPD (Bay 8 - 10)	9.0	9.0	19-Aug-21	28-Aug-21	-302.5	0%	0.0						
P2-Cal.C	LC25840	Construction of 2nd wall (East and West) - bay 8	15.0	15.0	30-Aug-21	15-Sep-21	-302.5	0%	0.0						
P2-Cal.C	LC25860	Construction of 2nd wall (East and West) - bay 9	12.0	12.0	16-Sep-21	30-Sep-21	-302.5	0%	0.0						
Structure S200 CH965 - P2 CH105 (3 Layer Waler/Strut) (team 14)			69.0	69.0	05-Jul-21	23-Sep-21	-279.5	0%	0.0						
P2-Cal.C	LC26080	Construction of 1st wall (East and West interim level@ -1.0mPD) - bay 11	10.0	10.0	05-Jul-21	15-Jul-21	-279.5	0%	0.0						
P2-Cal.C	LC26120	Installation of waterproofing works to 1st wall	7.0	7.0	16-Jul-21	23-Jul-21	-279.5	0%	0.0						
P2-Cal.C	LC26140	Mass Concrete Fill x 1 and Backfill works from -5.475mPD to -0.7mPD (15 Layers, 1D/layer)	17.0	17.0	24-Jul-21	12-Aug-21	-279.5	0%	0.0						
P2-Cal.C	LC26160	Removal of 2nd layer strut/waling @ +0.0mPD (Bay 11)	5.0	5.0	13-Aug-21	18-Aug-21	-279.5	0%	0.0						
P2-Cal.C	LC26180	Construction of 2nd wall (East and West interim level@ +1.5mPD) - bay 11	11.0	11.0	19-Aug-21	31-Aug-21	-279.5	0%	0.0						
P2-Cal.C	LC26220	Installation of waterproofing works to 2nd wall	7.0	7.0	01-Sep-21	08-Sep-21	-279.5	0%	0.0						
P2-Cal.C	LC26240	Mass Concrete Fill x 1 and Backfill works from -1.0mPD to +1.0mPD (5 layers, 1D/layer)	7.0	7.0	09-Sep-21	16-Sep-21	-279.5	0%	0.0						
P2-Cal.C	LC26260	Removal of 1st layer strut/waling @ +2.5mPD (Bay 11)	5.0	5.0	17-Sep-21	23-Sep-21	-279.5	0%	0.0						
Remaning Works			96.0	96.0	16-Jul-21	08-Nov-21	458.0	0%	-2.0						
P2-Cal.C	LC26403	Installation of wall mount fixing supports for E&M / TCSS	10.0	10.0	16-Jul-21	27-Jul-21	-179.5	0%	0.0						
P2-Cal.C	LC26430	Construction of Steel Work FADS22 and Civil Provision of TCSS on FADS22	6.0	6.0	05-Aug-21	11-Aug-21	-97.5	0%	0.0						
P2-Cal.C	LC26440	Installation of Directional Sign FADS22	6.0	6.0	12-Aug-21	18-Aug-21	-97.5	0%	0.0						
P2-Cal.C	LC26403-01	Laying of TCSS cables from S200 CH821 to P2 CH105 (By C4)	6.0	6.0	23-Aug-21	28-Aug-21	-201.5	0%	0.0						
P2-Cal.C	LC26390	Construction of insitu Concrete Profile Barrier (S200 CH821 to P2 CH941) (6 moulds) (NCE193 & NCE219)	72.0	72.0	10-Aug-21	04-Nov-21	461.0	0%	0.0						
P2-Cal.C	LC26410	Construction of Road and Drains (S200 CH821 to P2 CH926)	60.0	60.0	27-Aug-21	08-Nov-21	-170.5	0%	0.0						
Retaining Wall Type W1 S200 CH755 - CH821/ S300 CH326 - CH261			181.0	79.0	05-Feb-21 A	21-Sep-21	-227.5	0%	7.0						
Construction of Base Slab (team 17-22)			159.0	57.0	05-Feb-21 A	26-Aug-21	-221.5	0%	-19.0						
P2-Cal.C	LC21440-06	Construction of Retaining Wall Type W1 (S200 CH809 to CH821) (Base Slab Bay 5)	12.0	12.0	21-Jun-21	05-Jul-21	-273.5	0%	-3.0						
P2-Cal.C	LC21440-03	Construction of Retaining Wall Type W1 (S200 CH768 to CH781) (Base Slab Bay 2)	10.0	10.0	28-Jun-21	09-Jul-21	-219.5	0%	-1.0						
P2-Cal.C	LC21440-01	Excavation, Re-compaction and Blinding	15.0	19.0	05-Feb-21 A	13-Jul-21	-273.5	0%	-110.0						
P2-Cal.C	LC21440-065	Construction of Retaining Wall Type W1 (S300 CH287 to CH274 East) (Base Slab Bay 11)	7.0	7.0	10-Jul-21	17-Jul-21	-249.5	0%	3.0						
P2-Cal.C	LC21440-04	Construction of Retaining Wall Type W1 (S200 CH781 to CH795) (Base Slab Bay 3)	7.0	7.0	14-Jul-21	21-Jul-21	-231.5	0%	2.0						
P2-Cal.C	LC21440-062	Construction of Retaining Wall Type W1 (S300 CH300 to CH287) (Base Slab Bay 8)	9.0	9.0	19-Jul-21	28-Jul-21	-249.5	0%	1.0						
P2-Cal.C	LC21440-05	Construction of Retaining Wall Type W1 (S200 CH795 to CH809) (Base Slab Bay 4)	7.0	7.0	22-Jul-21	29-Jul-21	-231.5	0%	3.0						
P2-Cal.C	LC21440-063	Construction of Retaining Wall Type W1 (S300 CH287 to CH274 West) (Base Slab Bay 9)	7.0	7.0	11-Aug-21	18-Aug-21	-221.5	0%	3.0						
P2-Cal.C	LC21440-060	Construction of Retaining Wall Type W1 (S300 CH326 to CH313) (Base Slab Bay 6)	7.0	7.0	11-Aug-21	18-Aug-21	-249.5	0%	3.0						
P2-Cal.C	LC21440-064	Construction of Retaining Wall Type W1 (S300 CH274 to CH261 West) (Base Slab Bay 10)	7.0	7.0	19-Aug-21	26-Aug-21	-221.5	0%	3.0						
P2-Cal.C	LC21440-061	Construction of Retaining Wall Type W1 (S300 CH313 to CH300) (Base Slab Bay 7)	7.0	7.0	19-Aug-21	26-Aug-21	-249.5	0%	3.0						
Construction of 1st Pour Wall (team 17-22)			95.0	79.0	20-May-21 A	21-Sep-21	-249.5	0%	1.0						
P2-Cal.C	LC21440-07	Construction of Retaining Wall Type W1 (S200 CH755 to CH768) (1st pour Wall Bay 1)	10.0	6.0	20-May-21 A	26-Jun-21	-223.5	40%	-22.0						
P2-Cal.C	LC21440-116	Construction of Retaining Wall Type W1 (S300 CH274 to CH261 East) (1st pour Wall Bay 12)	11.0	5.0	17-Jun-21 A	28-Jun-21	-280.5	54.55%	0.0						
P2-Cal.C	LC21440-115	Construction of Retaining Wall Type W1 (S300 CH287 to CH274 East) (1st pour Wall Bay 11)	11.0	11.0	19-Jul-21	30-Jul-21	-204.5	0%	-1.0						
P2-Cal.C	LC21440-08	Construction of Retaining Wall Type W1 (S200 CH768 to CH781) (1st pour Wall Bay 2)	11.0	11.0	22-Jul-21	03-Aug-21	-229.5	0%	-1.0						

█ Actual Work █ Remaining Work █ Critical Remaining Work
◆ B ◆ M

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
 P2
 and Associated Works

3 Monthly Rolling Programme
 Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021					
										Jun	Jul	Aug	Sep	Oct	
P2-Cal.C	LC21440-112	Construction of Retaining Wall Type W1 (S300 CH300 to CH287) (1st pour Wall Bay 8)	11.0	11.0	29-Jul-21	10-Aug-21	-249.5	0%	-1.0						
P2-Cal.C	LC21440-09	Construction of Retaining Wall Type W1 (S200 CH781 to CH795) (1st pour Wall Bay 3)	11.0	11.0	06-Aug-21	18-Aug-21	-231.5	0%	-1.0						
P2-Cal.C	LC21440-11	Construction of Retaining Wall Type W1 (S200 CH809 to CH821) (1st pour Wall Bay 5)	11.0	11.0	06-Aug-21	18-Aug-21	-231.5	0%	-1.0						
P2-Cal.C	LC21440-10	Construction of Retaining Wall Type W1 (S200 CH795 to CH809) (1st pour Wall Bay 4)	11.0	11.0	19-Aug-21	31-Aug-21	-231.5	0%	-1.0						
P2-Cal.C	LC21440-110	Construction of Retaining Wall Type W1 (S300 CH326 to CH313) (1st pour Wall Bay 6)	11.0	11.0	27-Aug-21	08-Sep-21	-249.5	0%	-1.0						
P2-Cal.C	LC21440-111	Construction of Retaining Wall Type W1 (S300 CH313 to CH300) (1st pour Wall Bay 7)	11.0	11.0	09-Sep-21	21-Sep-21	-249.5	0%	-1.0						
Remaining Works			40.0	40.0	30-Jul-21	14-Sep-21	-221.5		-30.0						
P2-Cal.C	LC21450-00	Concrete Fill and temporary arrangements to suit early handover of TCSS (S200 CH755 to CH821)	6.0	6.0	30-Jul-21	05-Aug-21	-231.5	0%	-6.0						
P2-Cal.C	LC21505	Laying of TCSS duct and construction of TCSS Drawpits (S200 CH781 to CH821)	10.0	10.0	11-Aug-21	21-Aug-21	-201.5	0%	0.0						
P2-Cal.C	LC21450-10	Concrete Fill and temporary arrangements to suit early handover of CLP and Watermain (S200 CH755 to CH821)	12.0	12.0	01-Sep-21	14-Sep-21	-231.5	0%	-12.0						
"U-Trough A Type 1 & 2" from S200 CH674 - CH821, S100/CH280, S300/CH403.5 & S400/CH158.1			215.0	96.0	07-Dec-20 A	13-Oct-21	479.0		-35.0						
ELS (S300/CH403.5 & S400/CH158.1)			3.0	2.0	07-Dec-20 A	22-Jun-21	-280.5		-154.0						
P2-Cal.C	LC22830	Construction of Blinding and Waterproofing	3.0	2.0	07-Dec-20 A	22-Jun-21	-280.5	93.8%	-154.0						
Structure "U-Trough A Type 1" from S200 CH674 - CH755 & S100/CH280			46.0	20.0	15-May-21 A	14-Jul-21	555.0		-5.0						
1st Pour Wall (Team 23-26)			11.0	11.0	02-Jul-21	14-Jul-21	555.0		0.0						
P2-Cal.C	LC23000	Construction of U-trough A Structure Bay 8 (S200 CH743 - S200 CH755) (1st Pour Wall)	11.0	11.0	02-Jul-21	14-Jul-21	555.0	0%	0.0						
2nd Pour Wall (Team 23-25)			46.0	20.0	15-May-21 A	14-Jul-21	555.0		-5.0						
P2-Cal.C	LC23010	Construction of U-trough A Structure Bay 1 (S100 CH280 - S200 CH683) (2nd Pour Wall)	13.0	6.0	08-Jun-21 A	26-Jun-21	-258.5	53.85%	-2.0						
P2-Cal.C	LC23020	Construction of U-trough A Structure Bay 2 (S200 CH683 - S200 CH695) (2nd Pour Wall)	13.0	9.0	08-Jun-21 A	30-Jun-21	-261.5	30.77%	-8.0						
P2-Cal.C	LC23060	Construction of U-trough A Structure Bay 6 (S200 CH719 - S200 CH731) (2nd Pour Wall)	4.0	9.0	15-May-21 A	30-Jun-21	-261.5	0%	-34.0						
P2-Cal.C	LC23020-1	Construction of End Wall at Bay 2	13.0	13.0	28-Jun-21	13-Jul-21	556.0	0%	-13.0						
P2-Cal.C	LC23280	Construction of U-trough A Structure Bay 8 (S200 CH719 - S200 CH731) (2nd Pour Wall)	11.0	11.0	02-Jul-21	14-Jul-21	-226.5	0%	0.0						
Structure "U-Trough A Type 1 & 2" from S300/CH403.5 & S400/CH158.1			40.0	14.0	17-May-21 A	09-Jul-21	559.0		-8.0						
Wall (Team 27-28)			40.0	14.0	17-May-21 A	09-Jul-21	559.0		-8.0						
P2-Cal.C	LC23200	Construction of U-trough A Structure S300 Bay 3 (S300 CH379 - S300 CH367) (Wall)	15.0	8.0	17-May-21 A	02-Jul-21	565.0	46.67%	-23.0						
P2-Cal.C	LC23240	Construction of U-trough A Structure S400 Bay 3 (S400 CH136 - S300 CH124) (Wall)	11.0	8.0	19-May-21 A	02-Jul-21	565.0	27.27%	-25.0						
P2-Cal.C	LC23270	Construction of U-trough A Structure S300 Bay 6 (S300 CH340 - S300 CH326) (Wall)	14.0	14.0	23-Jun-21	09-Jul-21	-249.5	0%	-3.0						
Remaining Works			87.0	87.0	02-Jul-21	13-Oct-21	-108.5		-8.0						
P2-Cal.C	LC23350-00	Fill rockfill material from 5.5mPD to 11.8mPD (S200 CH755 - S200 CH674/S100 CH280)	24.0	24.0	02-Jul-21	29-Jul-21	-261.5	0%	40.0						
P2-Cal.C	LC23360	Construction of Steel Work DS22 and Civil Provision of TCSS on DS22	6.0	6.0	29-Jul-21	04-Aug-21	-62.5	0%	0.0						
P2-Cal.C	LC23350-00-00	Concrete Fill and temporary arrangements to suit early handover of TCSS/WM/CLP (S200 CH674 - CH755)	6.0	6.0	30-Jul-21	05-Aug-21	-197.5	0%	-6.0						
P2-Cal.C	LC23370	Installation of Directional Sign DS22	6.0	6.0	05-Aug-21	11-Aug-21	-62.5	0%	0.0						
P2-Cal.C	LC23440	Laying of TCSS cables for S200 CH755-674 by C4	6.0	6.0	06-Aug-21	12-Aug-21	-215.5	0%	14.0						
P2-Cal.C	LC23355	Fill rockfill material from 5.5mPD to 7.8mPD (S300 CH403 - S300 CH355)	14.0	14.0	30-Jul-21	14-Aug-21	-261.5	0%	-14.0						
P2-Cal.C	LC23353	Fill rockfill material from 5.5mPD to 7.8mPD (S400 CH158 - S300 CH326)	14.0	14.0	30-Jul-21	14-Aug-21	-261.5	0%	-14.0						
P2-Cal.C	LC23410	Construction of Civil Provision for CCTV on High Mast	6.0	6.0	12-Aug-21	18-Aug-21	-62.5	0%	0.0						
P2-Cal.C	LC23410-01	Construction of Civil Provision of Controller Cabinet and Earthing Provision	15.0	15.0	16-Aug-21	01-Sep-21	-183.5	0%	0.0						
P2-Cal.C	LC23460-1	TCSS and control cabinet installation for Sign Gantry DS22 (by C4)	20.0	20.0	16-Aug-21	07-Sep-21	-168.5	0%	0.0						

■ Actual Work ◆ ◆ B
■ Remaining Work ◆ ◆ M
■ Critical Remaining Work

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
P2
and Associated Works

3 Monthly Rolling Programme
Update

Date	Revision	Checked	Approved
20-Jun-21			

Calendar	Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Finish	Total Float	Activity % Complete	Variance - Act. Duration	2021					
										Jun	Jul	Aug	Sep	Oct	
P2-Cal.C	LC23350-00-01	Backfill from 11.8mPD to 13mPD (S200 CH755 - S200 CH674/S100 CH280)	24.0	24.0	13-Aug-21	09-Sep-21	-215.5	0%	-24.0						
P2-Cal.C	LC23353-00	Backfill from 7.8mPD to 9mPD (S400 CH158 - S300 CH326)	24.0	24.0	16-Aug-21	11-Sep-21	-204.5	0%	-24.0						
P2-Cal.C	LC23355-00	Backfill from 7.8mPD to 9mPD (S300 CH403 - S300 CH355)	24.0	24.0	16-Aug-21	11-Sep-21	-190.5	0%	-24.0						
P2-Cal.C	LC23460	Laying of TCSS duct and Construction of TCSS Drawpits for S300 CH403 - S300 CH355	20.0	20.0	02-Sep-21	25-Sep-21	-183.5	0%	0.0						
P2-Cal.C	LC23350-017	In situ Concrete Profile Barrier Construction for S300 CH403-S300 CH355 (6moulds) (NCE193&NCE219)	16.0	16.0	13-Sep-21	02-Oct-21	-190.5	0%	0.0						
P2-Cal.C	LC23350-015	In situ Concrete Profile Barrier Construction for S400 CH158-S300 CH326 (6moulds) (NCE193&NCE219)	25.0	25.0	13-Sep-21	13-Oct-21	-204.5	0%	0.0						
U-Trough C Structures			265.0	107.0	09-Nov-20 A	27-Oct-21	-280.5		4.0						
"U-Trough C Type 1, 2, 3 & 4" from CT01 CH117.156 - CH366			265.0	107.0	09-Nov-20 A	27-Oct-21	-280.5		4.0						
ELS & Structure "U-Trough C Type 1, 2, 3 & 4" from CT01 CH117.156 - CH366			240.0	82.0	09-Nov-20 A	25-Sep-21	-261.5		29.0						
Base Slab (Team 29)			238.0	80.0	09-Nov-20 A	23-Sep-21	-271.5		-29.0						
P2-Cal.C	LC23470	Excavation, Recompaction and Installation of Capping Plate	35.0	16.0	09-Nov-20 A	09-Jul-21	-251.5	54.29%	-160.0						
P2-Cal.C	LC23560	Construction of Cycle Track Bay 9 Base Slab CT01 CH270 to CH 260	11.0	11.0	15-Jul-21	27-Jul-21	-280.5	0%	0.0						
P2-Cal.C	LC23570	Construction of Cycle Track Bay 10 Base Slab CT01 CH260 to CH251	11.0	11.0	28-Jul-21	09-Aug-21	-280.5	0%	0.0						
P2-Cal.C	LC23610	Construction of Cycle Track Bay 14 Base Slab CT01 CH213 to CH201	11.0	11.0	03-Aug-21	14-Aug-21	-273.5	0%	0.0						
P2-Cal.C	LC23620	Construction of Cycle Track Bay 15 Base Slab CT01 CH201 to CH189	11.0	11.0	16-Aug-21	27-Aug-21	-273.5	0%	0.0						
P2-Cal.C	LC23630	Construction of Cycle Track Bay 16 Base Slab CT01 CH189 to CH177	11.0	11.0	28-Aug-21	09-Sep-21	-272.5	0%	0.0						
P2-Cal.C	LC23640	Construction of Cycle Track Bay 17 Base Slab CT01 CH177 to CH165	11.0	11.0	10-Sep-21	23-Sep-21	-271.5	0%	0.0						
1st Wall (Team 30)			109.0	82.0	07-May-21 A	25-Sep-21	-261.5		41.0						
P2-Cal.C	LC23720	Construction of Cycle Track Bay 4 Wall CT01 CH330 to CH318	11.0	10.0	07-May-21 A	02-Jul-21	-251.5	9.09%	-35.0						
P2-Cal.C	LC23730	Construction of Cycle Track Bay 5 Wall CT01 CH318 to CH306	12.0	2.0	16-Jun-21 A	05-Jul-21	-238.5	83.33%	-5.0						
P2-Cal.C	LC23760	Construction of Cycle Track Bay 8 Wall CT01 CH282 to CH270	13.0	13.0	06-Jul-21	20-Jul-21	-251.5	0%	-1.0						
P2-Cal.C	LC23750	Construction of Cycle Track Bay 7 Wall CT01 CH294 to CH282	12.0	12.0	21-Jul-21	03-Aug-21	-251.5	0%	0.0						
P2-Cal.C	LC23775	Construction of Cycle Track Bay 9 Wall (West) CT01 CH270 - CH260	12.0	12.0	10-Aug-21	23-Aug-21	-280.5	0%	-1.0						
P2-Cal.C	LC23770	Construction of Cycle Track Bay 9 Wall (East) CT01 CH270 to CH 260	20.0	20.0	10-Aug-21	01-Sep-21	-261.5	0%	1.0						
P2-Cal.C	LC23785	Construction of Cycle Track Bay 10 Wall (West) CT01 CH260 to CH251	12.0	12.0	24-Aug-21	06-Sep-21	-280.5	0%	-1.0						
P2-Cal.C	LC23820	Construction of Cycle Track Bay 14 Wall CT01 CH213 to CH201	12.0	12.0	28-Aug-21	10-Sep-21	-273.5	0%	-1.0						
P2-Cal.C	LC23780	Construction of Cycle Track Bay 10 Wall (East) CT01 CH260 to CH251	20.0	20.0	02-Sep-21	25-Sep-21	-261.5	0%	1.0						
P2-Cal.C	LC23830	Construction of Cycle Track Bay 15 Wall CT01 CH201 to CH189	12.0	12.0	11-Sep-21	25-Sep-21	-273.5	0%	-1.0						
Footpath, Cycle Track, Road and Drainage Works CT01 CH117.156 - CH366			41.0	41.0	07-Sep-21	27-Oct-21	-280.5		7.0						
P2-Cal.C	LC24110	Fill rockfill material from +4.0mPD to +10.7mPD between Bay 1 and Bay 10	41.0	41.0	07-Sep-21	27-Oct-21	-280.5	0%	7.0						
Associated Works			12.0	12.0	16-Sep-21	30-Sep-21	-232.5		-9.0						
P2-Cal.C	LC25550	Installation of Watermains DN250 for C1	12.0	12.0	16-Sep-21	30-Sep-21	-232.5	0%	-9.0						
Section 4 of the Works - Preservation and Protection of Existing Trees			1563.0	364.0	12-Jan-17 A	19-Jun-22	-380.5		-422.0						
P2-Cal.A	LC25260	Preservation and Protection of Existing Trees	1451.0	364.0	12-Jan-17 A	19-Jun-22	-380.5	74.91%	-534.0						
P2-Cal.A	LC25280	Nursery Transplanted Trees at the Contractor's holding nursery	1177.0	364.0	28-Apr-17 A	19-Jun-22	-380.5	69.07%	-702.0						

- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ B
- ◆ M

NE/2015/02 Tseung Kwan O - Lam Tin Tunnel-Road
P2
and Associated Works

3 Monthly Rolling Programme
Update

Date	Revision	Checked	Approved
20-Jun-21			

High Level 3 Months Look Ahead Programme			
Activities	Jul -21	Aug -21	Sep-21
Trial pit			
Underground utilities detection			
Temporary traffic arrangement Setup			
Road construction			
Asphalt Paving			
Pier, Staircase and lift shaft construction			
Bridge Construction			

Table with columns: Activity ID, Activity Name, Planned Duration, Remaining Duration, Schedule % Complete, Start, Finish, Total Float, and monthly Gantt bars from May to Jan. Includes detailed task descriptions like 'Portion 1A of the Site' and 'KD1 - Stage 1A Works'.

Legend: Actual Level of Effort (blue bar), Remaining Work (green bar), Actual Work (red bar), Critical Remaining Work (red bar), Milestone (diamond symbol)

Activity ID Activity Name Planned Duration Remaining Duration Schedule % Complete Start Finish Total Float Qtr 2, 2021 (May-Jun) Qtr 3, 2021 (Jul-Sep) Qtr 4, 2021 (Oct-Jan) Gantt chart showing activity bars and critical paths across quarters.



Activity ID	Activity Name	Original Duration	Start	Finish	Jun	Jul	Aug	Sep	Oct
Tseung Kwan O Interchange and Associated Works 202106-0_20210604									
Construction Work									
Span Segment Erection									
Span Segment Erection (Including Plant Mobilisation, Erection & removal of Temp. Work)									
Bridge S300									
Span Segment S300-2									
CON-14800	[HB1-17] Erection of Span Segment@Bridge S300-2 - Span 4J (12 nos./ 6 Pairs)	24	08-Jul-21	04-Aug-21					
CON-14790	[HB2-11] Erection of Span Segment@Bridge S300-2 - Span 4K (12 nos./ 6 Pairs)	26	08-Jul-21	06-Aug-21					
CON-14810	[TB1-06] Erection of Span Segment@Bridge S300-2 - Span 4L (6 nos.- TB)	34	08-Jul-21	16-Aug-21					
Bridge S200									
Span Segment S200-1									
CON-14860	[HB1-16] [PMI061] Erection of Span Segment@Bridge S200-1 - Span 2C (12 nos./ 6 Pairs)	24	08-Jun-21	07-Jul-21					
Key Segment Erection (Including Plant Setting of Segment Erector, Segment Erection and Stitch Joint)									
Bridge S300									
CON-15200 [S300-08] Erect Key Segment,Stitching & Mid -Span Stressing @S300 4H - 4J (1 no.- Key Segment) [KB1-08]									
CON-15210 [S300-09] Erect Key Segment,Stitching & Mid -Span Stressing @S300 4J - 4K (1 no.- Key Segment) [KB1-09]									
CON-15220 [S300-10] Stitching & Mid -Span Stressing @S300 4K - 4L (Stitching)									
Bridge S200									
CON-15290 [S200-07] [PMI061] Erect Key Segment,Stitching & Mid -Span Stressing @S200 2B - 2C (1 no.- Key Segment) [KB1-06]									
CON-15280 [S200-06] [PMI061] Erect Key Segment,Stitching & Mid -Span Stressing @S200 2C - 2D (1 no.- Key Segment) [KB1-05]									
Bridge Parapet & Utility Trough									
Bridge S300									
CON-15410 Suvrey Profile Checking for Bridge S300									
CON-15420 Installation of Parapet Wall Skin for Bridge S300									
CON-15411 Installation of Movement Joint for Bridge S300									
CON-15430 Construction of RC barrier & Installation of Traffic Sign, Sign Gantry & TCSS Civil Provision for Bridge S300									
Bridge S200									
CON-15440 External Tendon Stressing for Bridge S200									
CON-15450 Suvrey Profile Checking for Bridge S200									
CON-15451 Installation of Movement Joint for Bridge S200									
CON-15460 Installation of Parapet Wall Skin for Bridge S200									
CON-15470 Construction of RC barrier for Bridge S200									
Bridge S100									
CON-15503 Construction of Utility trough - R.C. Partitions for Bridge S100 (3A to 3C)									
CON-15521 Construction of RC barrier & Installation of Traffic Sign, Sign Gantry & TCSS Civil Provision for Bridge S100 (3A to 3C)									
CON-15491 Installation of Movement Joint for Bridge S100									
CON-15500 Installation of Parapet Wall Skin for Bridge S100 (3C to 3F)									
CON-15520 Construction of RC barrier & Installation of Traffic Sign, Sign Gantry & TCSS Civil Provision for Bridge S100 (3C to 3F)									
CON-15501 Construction of Utility trough - R.C. Partitions for Bridge S100 (3C to 3F)									
CON-15510 Installation of Cable Duct/Water Main & Tray for Utility for Bridge S100									
Bridge Furniture & Road Work									
Bridge ML									
CON-15540 Installation of Steel Parapet Post and Rail for Bridge ML									
CON-15550 Installation of Road Drainage and Drain Pipe for Bridge ML									
CON-15560 Road Pavement and Road Marking for Bridge ML									
Bridge S300									
CON-15570 Installation of Steel Parapet Post and Rail for Bridge S300									
CON-15580 Installation of Road Drainage and Drain Pipe for Bridge S300									
CON-15590 Road Pavement and Road Marking for Bridge S300									
Bridge S200									
CON-15600 Installation of Steel Parapet Post and Rail for Bridge S200									
CON-15610 Installation of Road Drainage and Drain Pipe for Bridge S200									
CON-15620 Road Pavement and Road Marking for Bridge S200									
Bridge S100									
CON-15630 Installation of Steel Parapet Post and Rail for Bridge S100									
CON-15640 Installation of Road Drainage and Drain Pipe for Bridge S100									
CON-15629 Install Precast Cover for Bridge S100									
CON-15650 Road Pavement and Road Marking for Bridge S100									

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	TRA	Balance -> Finish Date	Gantt Chart (June 2021 - September 2021)											
Cross Bay Link, Tseng Kwan O Main Bridge and Associated Works												23 30 06 13 20 27 04 11 18 25 01 08 15 22 29 05 12 19 26											
Contractual Key Dates and Section of the Works												<ul style="list-style-type: none"> Contractual Key Dates and Section of the Works Contractual Key Dates Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for installation and T&C of the TCSS 											
Contractual Key Dates																							
KDS1240	Key Date 2- Completion of all Works in Bridges in Portion II of the Site necessary for installation and T&C of the TCSS	0	0	12-Jul-21	12-Jul-21	12-Jul-21	12-Jul-21	0	0%	0	0												
Access Date												<ul style="list-style-type: none"> Access Date Access To Portion I (For Pile Holes : 5B,9B) ** Assume on 2021/06/09 Access to Portion VI 											
PAD1030	Access To Portion I (For Pile Holes : 5B,9B) ** Assume on 2021/06/09	0	0	09-Jun-21*	09-Jun-21			-145	0%		0												
PAD1110	Access to Portion VI	0	0	13-Aug-21*	13-Aug-21			0	0%	0	0												
Preliminaries, Contractor's Design & Method Statement Submission & Approval																							
Contractor's Design Submission and Approval																							
CDS1140	Design of Functional lighting system, road lighting system, etc (incl. 7 days TRA)	149	111	24-Apr-20 A	01-May-21	26-Sep-21	26-Sep-21	-11	85.57%	7	45												
CDS1230	Design of cycle rack (incl. 14 days TRA)	111	111	08-Jun-21	08-Jun-21	26-Sep-21	26-Sep-21	-58	0%	14	0												
Precasting & Fabrication Works																							
Fabrication of Precast Shell and Precast Segments																							
Precast Shell																							
TKOI																							
P-PS3145	Fabrication of Precast shell for pile cap of TKOI entrustment work (total 17nos)	240	75	09-Dec-20 A	09-Jan-21	21-Aug-21	05-Sep-21	-69	68.75%	21	15												
Precast Segments (TKOI Entrustment Works)																							
P-PF1180	Fabrication and Pre-stressing of Precast segments for TKOI Viaduct (total 326nos) (incl. 21 days TRA)	276	200	05-Jan-21 A	09-Apr-21	24-Dec-21	09-Jan-22	-55	27.54%	0	16												
Section 1 of the Works- All Works within Portion I of the Site (Entrusted Works of TKOI Viaduct)																							
Bored Piling Works																							
Bored Piling Construction Group 1 - 2 Nos. Bored Piling Rig																							
Bored Piling Construction for Pile 5B (Bridge S400) - 1no. Piling Rig																							
S1-BP-10010	Piling Platform Erection for Bored Pile 5B	32	32	25-Jun-21	25-Jun-21	27-Jul-21	27-Jul-21	-145	0%		0												
S1-BP-10020	Bored Piling Construction for Pile 5B - Bridge S400 (2 Piles) - 1 Piling Rig	5	5	25-Jun-21	25-Jun-21	30-Jun-21	30-Jun-21	-145	0%		0												
S1-BP-10030	Piling Platform dismantle from Pile 5B and relocate to Pile 5C	20	20	20-Jul-21	20-Jul-21	27-Jul-21	27-Jul-21	-145	0%		0												
Bored Pile Test																							
S1-BP-10210	Group 1 Bored Pile Test and Dismantle All Platform	7	7	04-Jul-21	04-Jul-21	12-Oct-21	12-Oct-21	-116	0%		0												
Bored Piling Construction for Pile 9B (Bridge CT) - 1no. Piling Rig																							
S1-BP-10040	Piling Platform Erection for Bored Pile 9B	32	32	25-Jun-21	25-Jun-21	27-Jul-21	27-Jul-21	-145	0%		0												
S1-BP-10050	Bored Piling Construction for Pile 9B - Bridge CT (2 Piles) - 1 Piling Rig	5	5	25-Jun-21	25-Jun-21	30-Jun-21	30-Jun-21	-145	0%		0												
S1-BP-10060	Piling Platform dismantle from Pile 9B and relocate to Pile 9C	20	20	20-Jul-21	20-Jul-21	27-Jul-21	27-Jul-21	-145	0%		0												
Bored Piling Construction for Pile 5C (Bridge S400) - 1no. Piling Rig																							
S1-BP-10070	Bored Piling Construction for Pile 5C - Bridge S400 (2 Piles) - 1 Piling Rig	27	27	27-Jul-21	27-Jul-21	23-Aug-21	23-Aug-21	-145	0%		0												
S1-BP-10080	Piling Platform dismantle from Pile 5C and relocate to Pile 5H	20	20	16-Aug-21	16-Aug-21	23-Aug-21	23-Aug-21	-145	0%		0												
Bored Piling Construction for Pile 9C (Bridge CT) - 1no. Piling Rig																							
S1-BP-10090	Bored Piling Construction for Pile 9C - Bridge CT (2 Piles) - 1 Piling Rig	27	27	27-Jul-21	27-Jul-21	16-Aug-21	16-Aug-21	-145	0%		0												
S1-BP-10100	Piling Platform dismantle from Pile 9C and relocate to Pile 9H	20	20	16-Aug-21	16-Aug-21	23-Aug-21	23-Aug-21	-145	0%		0												
Bored Piling Construction for Pile 5H (Bridge S400) - 1no. Piling Rig																							
S1-BP-10120	Piling Platform dismantle from Pile 5H and relocate to Pile 1L	7	0	05-May-21 A	05-May-21	08-May-21 A	12-May-21		100%		3												
Bored Piling Construction for Pile 9H (Bridge CT) - 1no. Piling Rig																							
S1-BP-10140	Piling Platform dismantle from Pile 9H and relocate to Pile 2L	7	0	05-May-21 A	24-Jul-21	08-May-21 A	31-Jul-21		100%		83												
Bored Piling Construction for Pile 1L (Bridge ML) - 1no. Piling Rig																							
S1-BP-10150	Bored Piling Construction for Pile 1L - Bridge ML (3 Piles) - 1 Piling Rig	30	0	10-May-21 A	10-May-21	08-Jun-21 A	09-Jun-21		100%		8												
S1-BP-10160	Piling Platform Dismantle for Pile 1L	7	0	02-Jun-21 A	02-Jun-21	08-Jun-21 A	09-Jun-21		100%		1												
Bored Piling Construction for Pile 2L (Bridge S200) - 1no. Piling Rig																							
S1-BP-10170	Bored Piling Construction for Pile 2L - Bridge S200 (2 Piles) - 1 Machine	22	23	04-Jun-21 A	24-Aug-21	15-Sep-21	15-Sep-21	-116	20%		5												
S1-BP-10180	Piling Platform dismantle from 2L and relocate to 2K (2 Piles)	20	16	04-Jun-21 A	24-Aug-21	08-Sep-21	13-Sep-21	-116	0%		0												
Bored Piling Construction Group 2 - 2 Nos. Bored Piling Rig																							
Bored Piling Construction for Pile 5D (Bridge S400) - 1no. Piling Rig																							
S1-BP-10230	Bored Piling Construction for Pile 5D - Bridge S400 (2 Piles) - 1 Piling Rig	147	97	28-Apr-21 A	22-Apr-21	12-Sep-21	16-Sep-21	-92			3												
S1-BP-10240	Piling Platform dismantle from Pile 5D and relocate to Pile 5E	27	0	28-Apr-21 A	15-May-21	20-May-21 A	12-Jun-21		100%		28												
Bored Pile Test																							
S1-BP-10400	Group 2 Bored Pile Test and Dismantle All Platform	7	0	15-May-21 A	15-May-21	20-May-21 A	22-May-21		100%		2												
Bored Piling Construction for Pile 9D (Bridge CT) - 1no. Piling Rig																							
S1-BP-10260	Bored Piling Construction for Pile 9D - Bridge CT (2 Piles) - 1 Piling Rig	100	97	04-Jun-21 A	08-Jun-21	12-Sep-21	16-Sep-21	-100	3.25%		3												
S1-BP-10270	Piling Platform dismantle from Pile 9D and relocate to Pile 9E	29	0	28-Apr-21 A	22-Apr-21	20-May-21 A	20-May-21		100%		-1												
Bored Piling Construction for Pile 5E (Bridge S400) - 1no. Piling Rig																							
S1-BP-10280	Bored Piling Construction for Pile 5E - Bridge S400 (2 Piles) - 1 Piling Rig	20	0	21-May-21 A	21-May-21	05-Jun-21 A	10-Jun-21	-86	100%		5												

Remaining Level of Effort	Remaining Work	Milestone
Primary Baseline	Critical Remaining Work	Summary
Actual Work	Baseline Milestone	

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

Main project schedule table with columns: Activity ID, Activity Name, Original Duration, Remaining Duration, Start, Planned Start, Finish, Planned Finish, Total Float, Activity % Complete, TRA, Resonance Finish Date, and a Gantt chart timeline from June 2021 to September 2021.

Legend for Gantt chart: Remaining Level of Effort (green bar), Primary Baseline (yellow bar), Actual Work (blue bar), Remaining Work (light green bar), Critical Remaining Work (red bar), Baseline Milestone (yellow diamond), Milestone (black diamond), Summary (black arrow).

CRBC Three Month Rolling Programme

Summary table with columns: Date (08-Jun-21), Revision (Monthly updated on 08 June 2021), Checked, and Approved.

Contract No. NE/2017/07 Cross Bay Link, Tseng Kwan O - Main Bridge and Associated Works

Activity ID	Activity Name	Original Duration	Remaining Duration	Start	Planned Start	Finish	Planned Finish	Total Float	Activity % Complete	IRA	Balance to Finish (Days)	June 2021							July 2021							August 2021							September 2021						
												23	30	06	13	20	27	04	11	18	25	01	08	15	22	29	05	12	19	26									
S2-SS2020	Load-Out East and West Side Span Steel Bridge To Delivery Barge	6	0	23-May-21 A	23-May-21	28-May-21 A	28-May-21		100%	0	0	Load-Out East and West Side Span Steel Bridge To Delivery Barge																											
S2-SS2040	Delivery the East and West Side Span Steel Bridge from Factory to Hong Kong	10	0	29-May-21 A	29-May-21	07-Jun-21 A	07-Jun-21		100%	2.7	0	Delivery the East and West Side Span Steel Bridge from Factory to Hong Kong																											
E&M Works in Portion VI		30	30	13-Aug-21	13-Aug-21	16-Sep-21	16-Sep-21	29			0	E&M Works in Portion VI																											
S2-EW2000	100A TPN isolator, road lighting	30	30	13-Aug-21	13-Aug-21	16-Sep-21	16-Sep-21	29	0%	0	0	100A TPN isolator																											
Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)		339	118	30-Jul-20 A	07-Sep-20	28-Oct-21	28-Oct-21	14			0	Section 5 of the Works-All Works within Portion V (CBL E&M Plantroom)																											
Remianing Work		339	118	30-Jul-20 A	07-Sep-20	28-Oct-21	28-Oct-21	14			0	Remianing Work																											
S5-PR2120	External works (including lanscaping)	90	45	30-Jul-20 A	07-Sep-20	31-Jul-21	23-Dec-20	64	50%	0	-176	External works (including lanscaping)																											
S5-PR2200	Water works,pluming and drainage works	60	23	30-Jul-20 A	24-Dec-20	27-Aug-21	10-Mar-21	64	61.67%	0	-139	Water works,pluming and drainage works																											
S5-PR2290	Cable Installation Work After Access Permitted (Portion VI)	63	63	13-Aug-21	13-Aug-21	28-Oct-21	28-Oct-21	14	0%	0	0	Cable Installation Work After Access Permitted (Portion VI)																											
Major Services System		295	100	28-Sep-20 A	09-Oct-20	06-Oct-21	06-Oct-21	32			0	Major Services System																											
Electrical System		173	100	02-Oct-20 A	09-Mar-21	06-Oct-21	06-Oct-21	32			0	Electrical System																											
UPS Room		100	100	08-Jun-21	08-Jun-21	06-Oct-21	06-Oct-21	29			0	UPS Room																											
S5-PR2580	UPS Installation (Including E&M Work)	100	100	08-Jun-21	08-Jun-21	06-Oct-21	06-Oct-21	29	0%	0	0	UPS Installation (Including E&M Work)																											
Generator Room		171	98	02-Oct-20 A	09-Mar-21	04-Oct-21	04-Oct-21	34			0	Generator Room																											
S5-PR2500	Generator Installation (Including E&M Work)	90	50	02-Oct-20 A	09-Mar-21	06-Aug-21	28-Jun-21	34	44.44%	0	-33	Generator Installation (Including E&M Work)																											
S5-PR2540	Generator SAT	3	3	07-Aug-21	07-Aug-21	10-Aug-21	10-Aug-21	34	0%	0	0	Generator SAT																											
S5-PR2545	Testing and Commisioning	45	45	11-Aug-21	11-Aug-21	04-Oct-21	04-Oct-21	34	0%	0	0	Testing and Commisioning																											
Fire Services System		80	7	20-Jan-21 A	09-Mar-21	16-Jun-21	16-Jun-21	125			0	Fire Services System																											
Statutory Inspection		80	7	20-Jan-21 A	09-Mar-21	16-Jun-21	16-Jun-21	125			0	Statutory Inspection																											
S5-PR2800	WSD Inspection	14	7	21-Jan-21 A	09-Mar-21	16-Jun-21	24-Mar-21	125	50%	0	-66	WSD Inspection																											
S5-PR2820	FSD Inspection	14	0	20-Jan-21 A	09-Mar-21	11-May-21 A	24-Mar-21		100%	0	-37	FSD Inspection																											
S5-PR3020	Accomplish of FS Work	0	0			16-Jun-21	16-Jun-21	125	0%	0	0	Accomplish of FS Work																											
MVAC System		271	76	28-Sep-20 A	09-Oct-20	06-Sep-21	06-Sep-21	56			0	MVAC System																											
Installation of MVAC System		271	76	28-Sep-20 A	09-Oct-20	06-Sep-21	06-Sep-21	56			0	Installation of MVAC System																											
S5-PR2840	MVAC Installation Work	70	58	28-Sep-20 A	09-Oct-20	16-Aug-21	02-Jan-21	56	17.14%	0	-183	MVAC Installation Work																											
S5-PR2900	MVAC Testing and Commisioning	18	18	17-Aug-21	17-Aug-21	06-Sep-21	06-Sep-21	56	0%	0	0	MVAC Testing and Commisioning																											
S5-PR2920	Accomplish of MVAC Installation	0	0			06-Sep-21	06-Sep-21	56	0%	0	0	Accomplish of MVAC Installation																											

█ Remaining Level of Effort █ Remaining Work ◆ Milestone
█ Primary Baseline █ Critical Remaining Work ▶ Summary
█ Actual Work ◆ Baseline Milestone

CRBC
Three Month Rolling Programme

Date	Revision	Checked	Approved
08-Jun-21	Monthly updated on 08 June 2021		

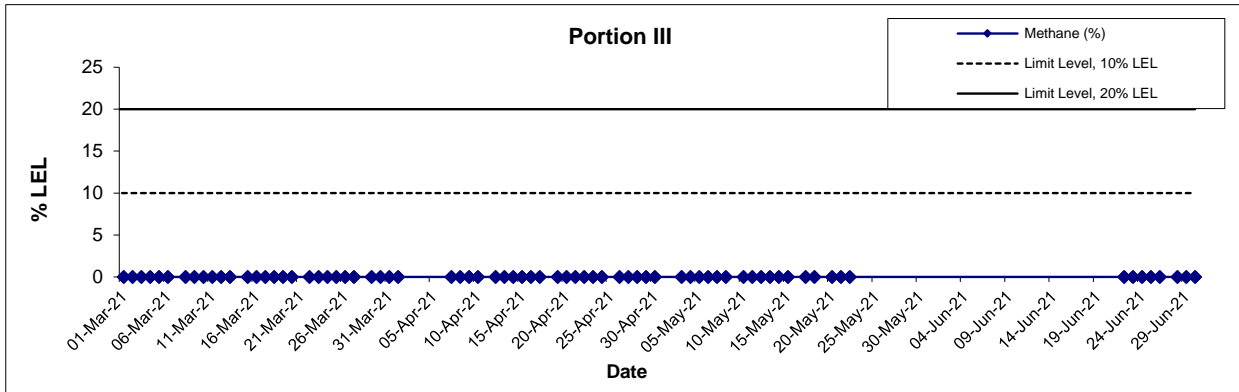
**APPENDIX R
RECORD OF LANDFILL GAS
MONITORING BY CONTRACTOR**

APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

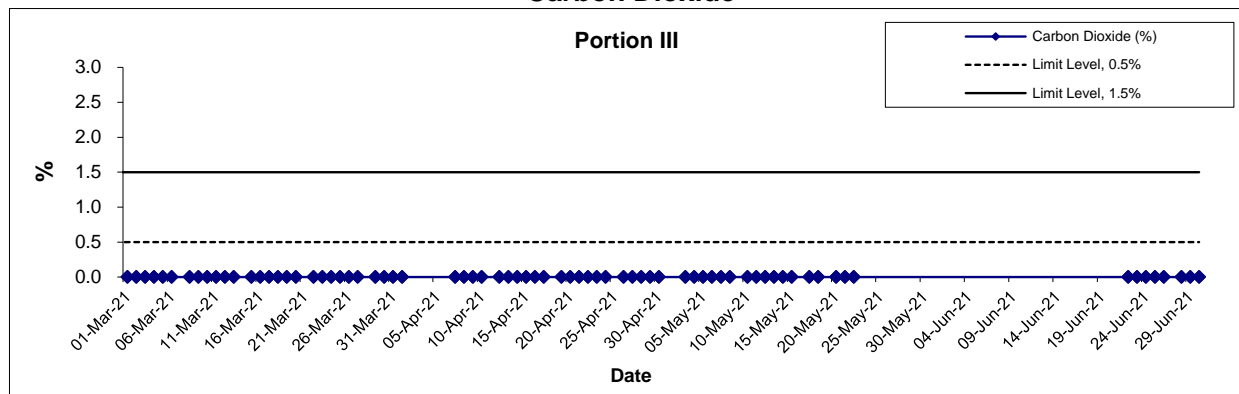
Location	Date of Measurement	Sampling time	Weather Condition	Temperature (°C)	Methane (%)	Carbon dioxide (%)	Oxygen (%)
No monitoring before 22-June-21 due to calibration of the gas detector							
Portion III	22-Jun-21	8:30	Cloudy	25	0	0	20.9
Portion III	22-Jun-21	13:02	Rainy	29	0	0	20.9
Portion III	23-Jun-21	8:25	Cloudy	25	0	0	20.9
Portion III	23-Jun-21	13:15	Rainy	28	0	0	20.9
Portion III	24-Jun-21	8:25	Cloudy	25	0	0	20.9
Portion III	24-Jun-21	13:10	Cloudy	26	0	0	20.9
Portion III	25-Jun-21	8:28	Cloudy	26	0	0	20.9
Portion III	25-Jun-21	13:05	Cloudy	27	0	0	20.9
Portion III	26-Jun-21	8:33	Rainy	26	0	0	20.9
Portion III	26-Jun-21	13:08	Rainy	28	0	0	20.9
Portion III	28-Jun-21	8:42	Rainy	24	0	0	20.9
Portion III	28-Jun-21	13:20	Rainy	28	0	0	20.9
Portion III	29-Jun-21	8:25	Cloudy	29	0	0	20.9
Portion III	29-Jun-21	13:03	Cloudy	30	0	0	20.9
Portion III	30-Jun-21	8:33	Sunny	29	0	0	20.9
Portion III	30-Jun-21	13:05	Sunny	31	0	0	20.9

APPENDIX R - RECORD OF LANDFILL GAS MONITORING BY THE CONTRACTOR

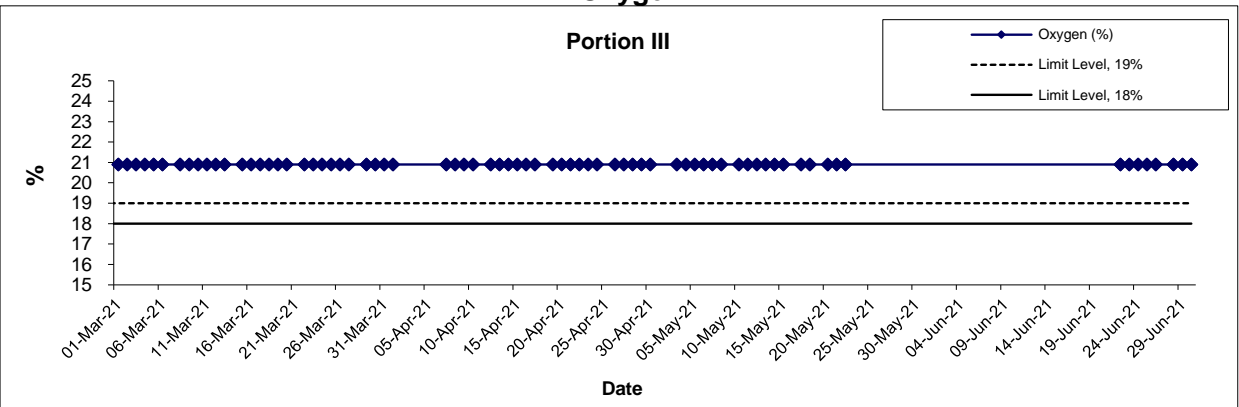
Methane




Carbon Dioxide



Oxygen



*No monitoring between 22-May-21 and 21-June-21 due to calibration of the gas detector

Agreement No. CE 59/2015 (EP) Environmental Team for Tseung Kwan O - Lam Tin Tunnel – Design and Construction	Scale	Project	
	Date	No. MA16034 Appendix R	

APPENDIX S

**UPDATED NOISE MANAGEMENT
PLAN**

Contract No.: NE/2015/02

Project Title:

Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works

Noise Mitigation Plan

Document No: CSF/0/0008E

Revision: 24

Date: 04 June 2021

Noise Mitigation Plan

Document No: CSF/0/0008E

Revision: 24

Date: 04 June 2021

Revision History

Revision No.	Description	Revised By	Date
00	First Release	Wendy NG	13 September 2016
01	Addressed EPD's comments dated on 12 October 2016	Wendy NG	09 November 2016
02	Addressed EPD's commented dated on 18 November 2016	Wendy NG	12 December 2016
03	Addressed EPD's commented dated on 27 February 2017	Gary Fung	20 March 2017
04	Addressed EPD's commented dated on 13 June 2017	Gary Fung	30 June 2017
05	Addressed EPD's commented dated on 7 September 2017	Gary Fung	2 November 2017
06	Revise PME list	Gary Fung	5 February 2018
07	Revise PME list	Gary Fung	4 April 2018
08	Revise PME list	Gary Fung	4 June 2018
09	Revise PME list	Gary Fung	28 July 2018
10	Update Construction Programme	Gary Fung	8 October 2018
11	Update Construction Programme	Gary Fung	6 April 2019
12	Update Construction Programme	Gary Fung	10 May 2019
13	Update Construction Programme and PME list	Gary Fung	9 August 2019

Revision No.	Description	Revised By	Date
14	Update Construction Programme and PME list	Gary Fung	4 September 2019
15	Update Construction Programme and PME list	Gary Fung	17 December 2019
16	Update Construction Programme and PME list	Gary Fung	7 March 2020
17	Update Construction Programme and PME list	Gary Fung	23 March 2020
18	Update Construction Programme and PME list	Gary Fung	11 June 2020
19	Update Construction Programme and PME list	Daniel Sin	17 August 2020
20	Update Construction Programme and PME list	Daniel Sin	11 September 2020
21	Update Construction Programme and PME list and Appendix A	Daniel Sin	7 October 2020
22	Update Construction Programme and PME list and Appendix A	Kevin Cheung	30 December 2020
23	Update PME list and Appendix C	Kevin Cheung	20 January 2021
24	Update PME list, Appendix B & C	Kevin Cheung	04 June 2021

Noise Mitigation Plan

Document No: CSF/0/0008E
Revision: 24
Date: 04 June 2021

Prepared by:

Endorsed by:

Kevin CHEUNG

Environmental Officer

04 June 2021

Andy YU

Site Agent

04 June 2021

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- Appendix A Site Layout and NSR Locations
- Appendix B Updated Preliminary Construction Programme
- Appendix C Proposed Mitigation Measures and Detailed Noise Assessment
- Appendix D Sample of Movable Noise Barriers, Acoustic Mat and Enclosure
- Appendix E Catalogues of On-site Plant

PART A GENERAL

1.0 Introduction

Due to the recent update of the construction programme, the PME list is revised accordingly in this Noise Mitigation Plan Revision 24 to suit with the on-site construction activities.

2.0 Background

2.1 Project Description

To cope with the anticipated transport need, “Further Development of Tseung Kwan O – Feasibility Study” (the “TKO Study”) recommended the provision of Tseung Kwan O – Lam Tin Tunnel (TKO – LT Tunnel) and Cross Bay Link (CBL) to meet the long-term traffic demand between TKO and the external areas.

The TKO-LT Tunnel, together with the proposed Trunk Road T2 in Kai Tak Development (KTD) and Central Kowloon (CKR), will form Route 6 in the strategic road network. Route 6 will provide an east-west express link between Kowloon and TKO areas. Upon completion, this strategic route will also provide the necessary relief to the existing heavily trafficked road network in the central and eastern Kowloon areas, and reduce the related environmental impacts on these areas.

CRBC - Build King Joint Venture (JV) was commissioned by Civil Engineering and Development Department (CEDD) as the appointed contractor for one of the contracts.

The Works to be executed under this Contract included, but not exclusively, the following items:

- i. Construction of about 500m long seawall structure and reclamation about 3 hectares at Tseung Kwan O;
- ii. Construction of about 200m long Road P2 Underpass including landscape deck, Road P2 Electrical Plant Room, Road P2 Underground Fixed Foam Tank Room, Road P2 Underground Sump Pit Room and Road P2 Stormwater Plant Room;
- iii. Construction of U troughs A and B of about 300m long, within the reclamation, from the abutments of the proposed viaducts to the southern end of Road P2 Underpass;
- iv. Construction of U troughs A and B of about 200m long from the northern end of Road P2 Underpass structure to CH550 of setting out line P2 including the box structure supporting existing Tong Yin Street; and U trough C with associated cycle track, footpath and amenity area;
- v. Construction of Slip Road 2 of about 156m long;
- vi. Re provisioning of Drainage Services Department (DSD) Transformer Room and
- vii. Associated roads, retaining wall, drainages, traffic aids, lighting, utilities, landscaping and electrical and mechanical work

A Site Layout showing the site boundary is shown in Appendix A.

2.2 Requirements for Noise Mitigation Plan (NMP)

According to the condition 2.5 of the EP-458/2013/C, the Permit Holder shall, no later than one month before the commencement of construction of the Project, submit to the Director of Environmental Protection (DEP) for approval three hard copies and two electronic copies of Noise Mitigation Plan (NMP) detailing the temporary and permanent mitigation measures for the construction and operation phases traffic noise impacts arising from the Project. All noise mitigation measures implemented shall be properly maintained during construction and operation phases of the Project.

The NMP shall include:

- A layout plan to show the location of major construction activities
- A layout plan to show the location of Noise Sensitive Receivers (NSRs)
- A schedule of construction works to be carried out at the works areas of the Project within 300m from the NSRs
- An updated construction methodology of the proposed construction works
- An updated powered mechanical equipment (PME) list for the proposed construction works
- An updated proposal of air-borne noise and operation traffic noise mitigation measures for the NSRs including the provision of noise barriers, enclosures and other measures
- An updated prediction of noise levels in accordance with the above updated information and mitigation proposals in place

All measures recommended in the approved NMP will be fully and properly implemented during the construction and operation phases of the Project.

The Project Manager will review the construction program and list of PMEs from time to time, which formed the basis of construction noise assessments, to be practicable and reasonable.

3.0 Description of Construction Works in the Study Area

3.1 Noise Sensitive Receivers NSRs

The 300m study areas of the identified 4 NSRs with predicted residual construction noise impacts are shown in Table 2.1. The location of NSRs and its Assessment Point (AP), works area and the notional distance between NSRs and works area are depicted in Appendix A. Refer to EIA Report Section 4.7.1, the predicted unmitigated construction noise levels of NSR ID 9 (AP ID N6101) are below 75 dB(A) and the distance between N6101 and notional sources positions of all portions are more than 300m. In addition, noise mitigation measures would therefore be required to reduce noise levels at the NSRs for compliance with the noise standard. In addition, CM6(A), CM7(A) and CM8(A) will be the noise impact monitoring station during the construction period. However, CM6, CM7 and CM8 will be still the noise sensitive receiver for the prediction of construction noise impacts.

Table 2.1 NSRs with Predicted Unmitigated Construction Noise Impacts during Normal Daytime Working Hours (Extracted from Table 4.10 of EIA Report)

NSR ID EIA	AP ID	NSR ID EM&A Manual	Name of NSR	Noise Criteria, dB(A)	Predicted Unmitigated Construction Noise Levels during Normal Daytime Working Hour (Leq _{30min}), dB(A)	Exceedance, dB(A)
8	N5012	CM6	Block 1, Ocean Shores	75	60-84	9
8	N5012	CM7	Block 7, Ocean Shores	75	59-77	2
9	N6101	N/A	Tower 1, Metro Town	75	56-73	0
10	N7603	CM8	Tower 6, Park Central	75	54-81	6

Traffic noise levels have been predicted at NSR Assessment Point (AP) including existing residential, institutional uses, and future uses on planned receivers for the scenarios of “with” and “without” Project at the assessment year. Without the noise mitigation measures in place, the predicted noise levels at the identified NSRs and its APs have been fulfilled any of the three sensitivity tests, direct mitigation measures would be required.

3.2 Construction Activities

As mentioned in Section 1.1, the construction of Road P2 and associated works is covered by this Contract. The potential construction noise impacts of the Project may arise from the following major construction activities:

- Seawall construction at TKO side
- Filling activities at TKO side
- Road and road pavement formation and associated earthworks
- Drainage culvert construction
- Reprovisioning of infrastructure, services and utilities

These construction activities will involve the use of PME including breakers, excavators, lorries, mobile cranes, concrete truck mixers, pokers, rollers, derrick barge, bulldozer, dump truck, compressor, vibratory poker, generator, piling, vibrator hammer, etc. A breakdown of the major construction activities in sequence to be carried out within the Project are provided in Appendix B.

3.3 Updated Preliminary Construction Programme

The updated preliminary construction programme prepared by CRBC – Build King Joint Venture (JV) has been used in this NMP and has been presented on a monthly basis for the duration of the construction works in corresponding worksites.

The construction schedule has been adjusted such that to minimize concurrent construction works to be carried out in the vicinity as far as practicable. The updated preliminary construction programme is provided in Appendix B.

3.4 Updated Powered Mechanical Equipment List

The updated Powered Mechanical Equipment (PME) list for the construction works is provided in Table 3.1. The Sound Power Levels (SWL) for the PMEs have been adopted from EPD's Technical Memorandum on Noise from Construction Work Other than Percussive Piling (GW-TM), list of SWLs of other commonly used PME or British Standard BS 5228-1:2009. It should be noted that the PMEs to be adopted for individual construction activities are provided in Appendix C.

3.5 Operation Phase Fixed Plant Noise

The maximum allowable sound power levels for the proposed pumping station to meet the relevant noise criteria are determined. Table 2.2 shows the required sound power level for the nearest affected NSRs to achieve noise compliance and Table 2.3 shows the predicted noise levels at representative NSR AP.

Table 2.2 Predicted Maximum Allowable Sound Power Levels for Fixed Noise Sources

Fixed Plant Noise Source	Sound Power Level (SWL, dB(A)) required at source in order to meet the criteria	
	Daytime / Evening Time	Night Time
P2 Pumping Station	106	96

Table 2.3 Summary of Predicted Operation Noise Levels

NSR AP	NSR Description	Predicted Noise Level, dB(A) / Criteria, dB(A)		
		Day time	Evening time	Night time
N5012	Block 1, Ocean Shores	60/60	60/60	50/50
N5031	Block 3, Ocean Shores	60/60	60/60	50/50

All representative NSR APs are predicted to meet their own respective daytime, evening time and night time noise criterion.

4.0 Noise Assessment and Assumptions

4.1 Assessment Methodology and Assumptions

The construction noise assessment has been carried out in accordance with the methodology used in the approved EIA Report (Register No. AEIAR-173/2013). The individual work sites and relative distance from the NSRs are the same as that adopted in the EIA Report.

The methodology outlined in the GW-TM was used for the assessment of construction noise (excluding percussive piling) and the Sound Power Levels (SWLs) of the equipment were taken from Table 3 of GW-TM. Where no SWL is provided in the GW-TM, reference was made to BS 5228 or other previous similar studies or from measurements taken at other sites in Hong Kong. In determine the distance from the source position to the NSR and in cases where the NSR is a building, a positive 3 dB(A) shall be applied to the predicted noise level (PNL). The percentage on-time for each PME has been estimated individually for each construction activity to ensure practicality and is consistent with the assumptions made in the EIA Report.

For the TKO side, the separation distance between the CBL and the nearest NSR (Ocean Shores) would be more than 600m. In addition, the distance of the nearest NSR (Ocean Shores) to Area 68, and from the nearest NSR (Ocean Shores) to Area GIC (4) would be more than 300m. No cumulative impacts would be expected during the construction phase.

All mitigation measures and their effectiveness proposed in the EIA Report including the use of temporary movable noise barrier, acoustic mat and quiet plant have been considered as shown in Table 3.1. The use of quiet plant associated with construction work is prescribed in British Standard "Code of practice for noise and vibration control on construction and open sites, BS5228" which contains the SWLs for specific quiet PME.

Movable temporary noise barriers that can be located close to noisy plant and be moved iteratively with the plant along a worksite can be very effective for screening noise from NSRs. A typical design which has been used locally is a wooden/steel framed barrier with a small cantilevered upper portion of superficial density no less than 14 kg/m² on a skid footing. A cantilevered top cover would be required to achieve screening benefits at upper floors of NSRs and it could achieve at least 5-10 dB(A) reduction. In addition, use of full enclosure can provide about 10 dB(A) noise reduction.

SilentUp barrier at Portion IV and Portion V and Portion IX

According to Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig, the noise insertion loss of the SilentUp barrier demonstrated that when a drilling rig is located 1.5m away

from the sound barrier, noise level at the NSR (CM6) can be reduced by 11.7 dB(A) up to a height of 39m. For use of SilentUp barrier in Portion IV, the drill rig will be located at an angle of 45 degrees so that the distance from sound barrier will be approx. 5.1m (refer to schematic diagram in Appendix D).

For Portion V, when the drill rig is located 1.5m away from the sound barrier, noise reduction of 11.7 dB(A) can be covered up to a height of 102m of the NSR (CM6) (refer to schematic diagram in Appendix D).

Table 3.1 PME List with Proposed Mitigation Measures

Location	PME Type	TM Ref. / Other Ref / BS5228 Ref	Type of Noise Mitigation Measures	Noise Level Reduction dB(A)
Portion VIII	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
	Water Pump, submersible (Electric)(Dewatering Well)	CNP 283	Full enclosure	-10
	Piling, large diameter bored, grab and chisel	CNP 164	Noise Barrier	-5
	Piling, large diameter bored, oscillator	CNP 165	Noise Barrier	-5
	Piling, Vibration Hammer	CNP 172	Noise Barrier	-5
Portion IX	Drill Rig, Rotary Type (Diesel)	CNP 072	Noise Barrier	-5
	Breaker, excavator mounted (hydraulic)	CNP 028	Acoustic box / Noise Barrier (SilentUp)	-10 / -11.7
	Water Pump, submersible (Electric)(Dewatering Well)	CNP 283	Full enclosure	-10

4.2 Proposed Mitigation Strategy and Noise Assessment Results

The air-borne construction noise impacts for the construction activities under Contract NE/2015/02 have been assessed and summarised in Table 3.2.

The detail assessment result for NE/2015/02 is presented in Appendix C. The proposed mitigation measures described above are included in the assessment and, as such only the mitigation scenario has been presented.

The predicted cumulative noise levels and the exceedances of the daytime construction noise criteria are summarised in the following Table 3.2.

From the calculation of construction noise assessment of using the SilentUp barrier at Portion IV shown that there will be no exceedance of 75 dB(A) up to 39m of the NSR (CM6). For the level of above 39m of the NSR (CM6), the calculation of construction noise assessment without using the SilentUp barrier shown that there is also no exceedance of 75 dB(A) of the NSR(CM6).

Contractor will consider the mini – excavator for the future noise enhancement work when it is possible.

Given that the recent / upcoming population intake for the new development in the surrounding area, contractor will consider the nearest NSR in the noise assessment when it is necessary.

The predicted cumulative noise level at above 39m without SilentUp barrier at Portion IV demonstrated that there is the same result of the schematic diagram of Portion V (refer to Appendix D).

Table 3.2 Predicted mitigated cumulative noise levels summary

NSR ID EIA Report	NSR ID EM&A Report	Name of NSR	Noise Criteria, dB(A)	Predicted Mitigated Construction Noise Levels during Normal Daytime Working Hour (Leq _{30min}), dB(A))	Exceedance, dB(A)
N5012	CM6	Block 1, Ocean Shores	75	72.6 - 74.6	No
N5072	CM7	Block 7, Ocean Shores	75	69.7 - 73.2	No

A summary of the range of noise levels for both mitigated and unmitigated scenarios are presented Table 3.3.

Table 3.3 Summary table of noise levels during operation phase

Scenario	Operation Phase Traffic Noise Level Range dB(A)
Unmitigated	31 - 79
Mitigated	31 - 78

Direct mitigation measures should be considered or proposed on road project under the subject Designated Project (DP) such that the noise from the “new” road would be reduced to a level that fulfil the EIAO requirements. The proposed direct mitigation measures are summarized below with total length of the mitigation measures rounded off to the nearest 10m and show in Appendix C:

- Fully Enclosure 4 (FE4) about 200m of Landscape Deck provided on Road P2
- Low Noise Surfacing 1 about 190m of Low Noise Surfacing on North and South Bound P2 Road

Regarding the fixed plant noise sources, sound attenuators, noise barriers and acoustic enclosures can be installed to ensure the specified maximum SWLs in Table 2.2 are achieved.

4.3 Concurrent Project Assessment

Construction noise impacts from the NE/2015/03 Tseung Kwan O – Lam Tin Tunnel Northern Footbridge project has been incorporated in the noise assessment refer to the Appendix C. NMP will be regularly revised to assess the concurrent project’s construction noise impacts on NSRs.

5.0 Conclusion

The noise mitigation plan summarized different construction work activities in different stage during the whole construction period. The potential construction noise impacted of various noise mitigation measures from the selected PME will be minimized the cumulative noise level to the NSRs practically. With the implementation of the proposed noise mitigation measures, updated construction programme and PME list Table 3.1, construction noise impacts at all identified NSRs would comply with the noise criteria of 75 dB(A) for residential premises.

With the proposed noise mitigation measures in PME list Table 3.1, the type of PME should be adopted with the noise enclosure or barrier for the relatively direct noise mitigation to minimize the construction noise to the NSRs.

Where necessary, further review and updated will be performed during the construction and operation phases and liaison with affected parties is recommended to minimize the construction and operation phases traffic noise impacts as far as practicable.

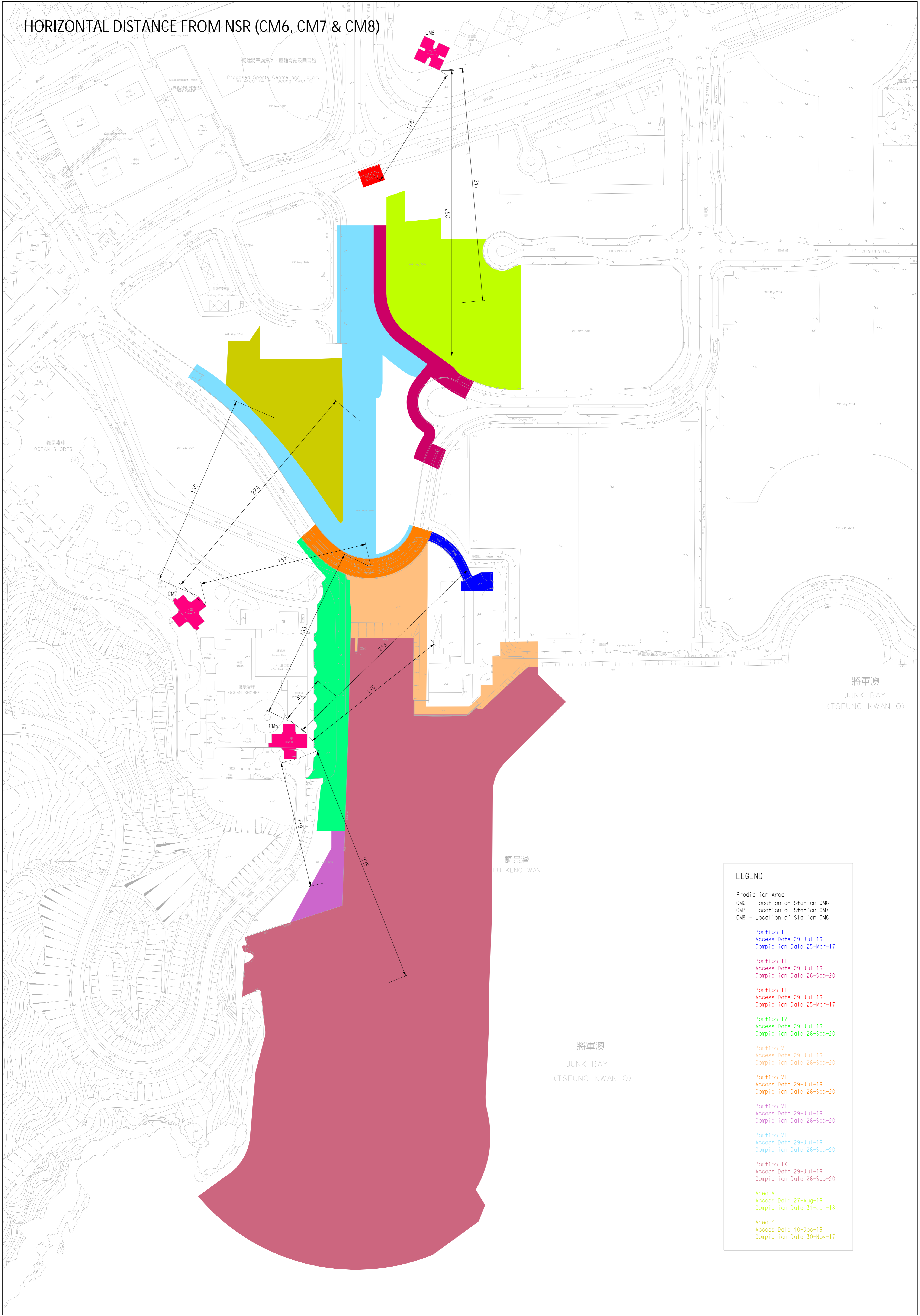
The proposed noise mitigation measures of the PME list in Table 3.1 will also apply to the other NSRs with the affected area. Since the NSR CM6, CM7 & CM8 have been represented the closest noise sensitive receiver of the construction site, the cumulative noise level of other NSRs would also comply with the noise criteria of 75 dB(A).

The traffic noise impact assessment is the same as that presented in the latest environmental permit (i.e. EP-458/2013/C) and there is no update/revision.

Appendix A

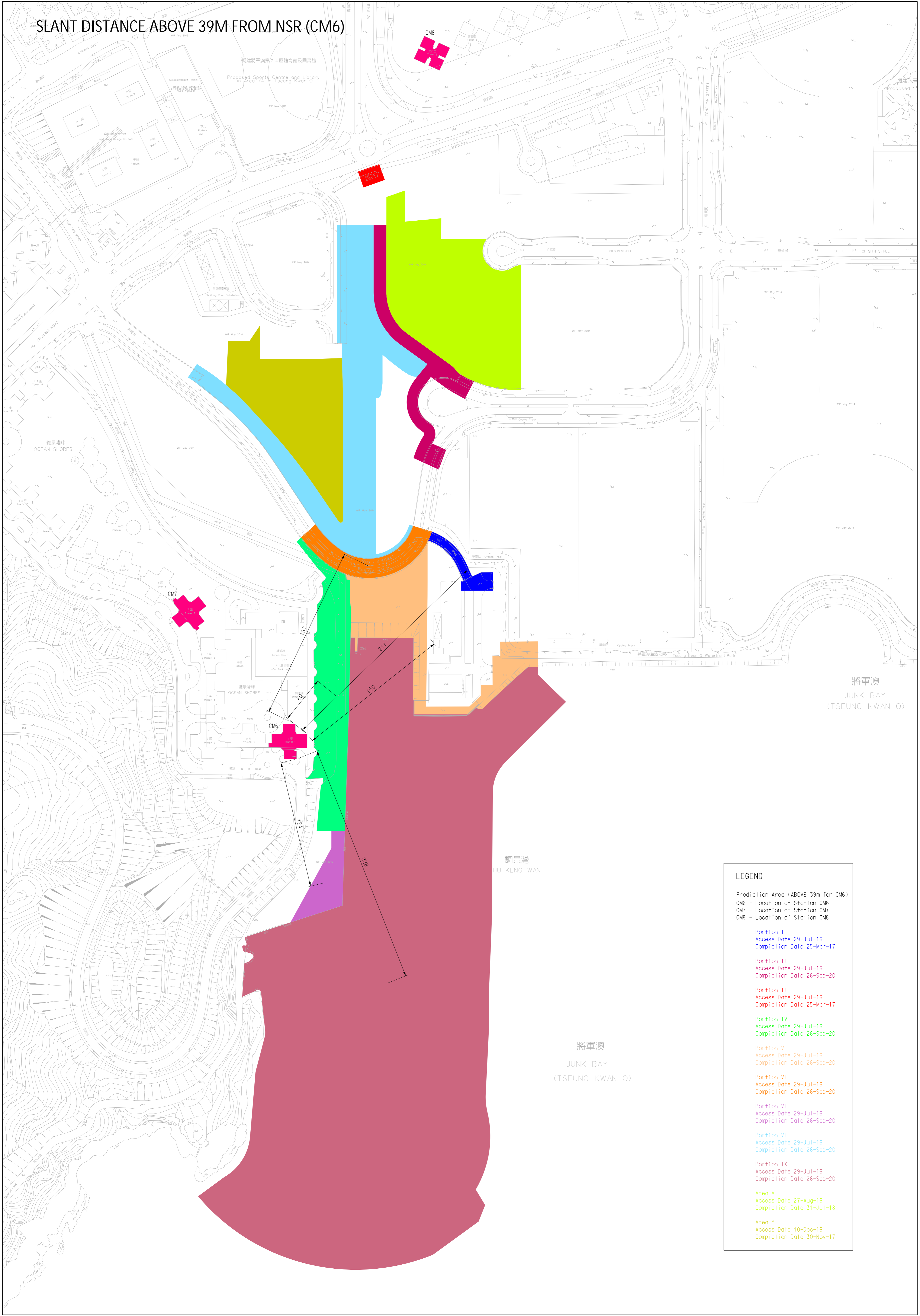
Site Layout and NSR Locations

HORIZONTAL DISTANCE FROM NSR (CM6, CM7 & CM8)



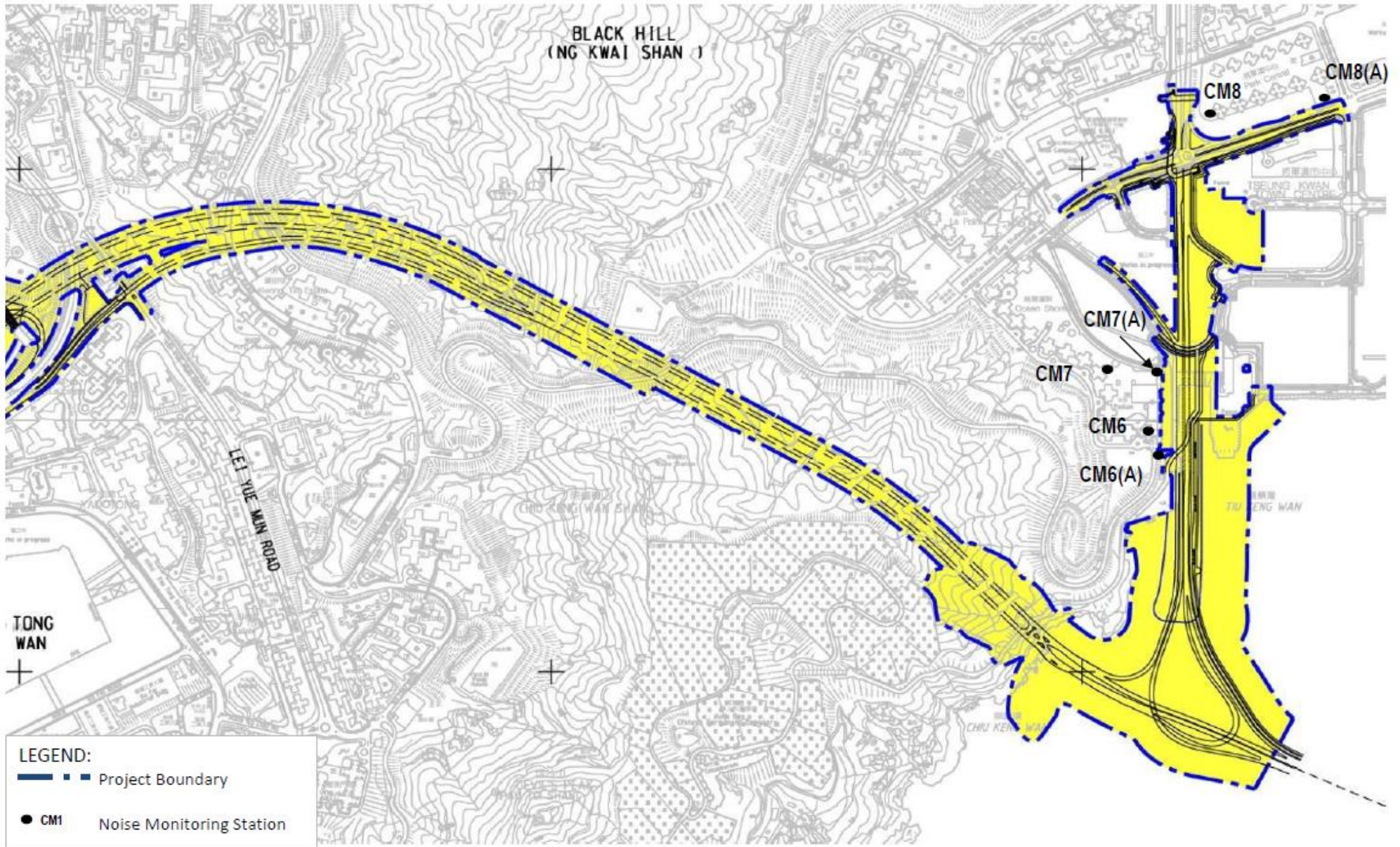
LEGEND	
Prediction Area	
CM6	- Location of Station CM6
CM7	- Location of Station CM7
CM8	- Location of Station CM8
Portion I	
Access Date	29-Jul-16
Completion Date	25-Mar-17
Portion II	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion III	
Access Date	29-Jul-16
Completion Date	25-Mar-17
Portion IV	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion V	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion VI	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion VII	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion VIII	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Portion IX	
Access Date	29-Jul-16
Completion Date	26-Sep-20
Area A	
Access Date	27-Aug-16
Completion Date	31-Jul-18
Area Y	
Access Date	10-Dec-16
Completion Date	30-Nov-17

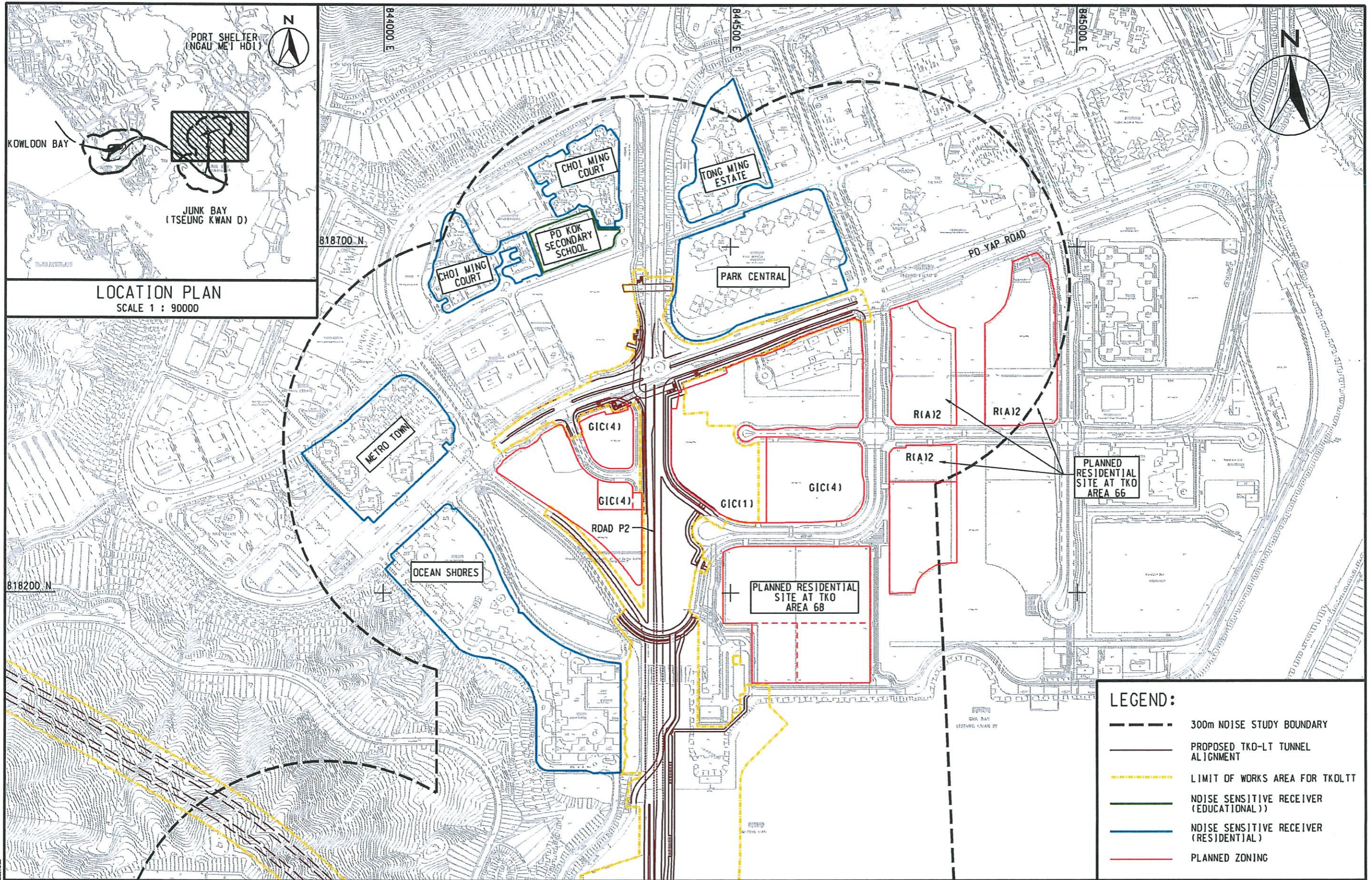
SLANT DISTANCE ABOVE 39M FROM NSR (CM6)



LEGEND	
Prediction Area (ABOVE 39m for CM6)	
CM6 - Location of Station CM6	
CM7 - Location of Station CM7	
CM8 - Location of Station CM8	
Portion I	Access Date 29-Jul-16 Completion Date 25-Mar-17
Portion II	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion III	Access Date 29-Jul-16 Completion Date 25-Mar-17
Portion IV	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion V	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion VI	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion VII	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion VIII	Access Date 29-Jul-16 Completion Date 26-Sep-20
Portion IX	Access Date 29-Jul-16 Completion Date 26-Sep-20
Area A	Access Date 27-Aug-16 Completion Date 31-Jul-18
Area Y	Access Date 10-Dec-16 Completion Date 30-Nov-17

Impact Monitoring Location





LOCATION PLAN
SCALE 1 : 90000

LEGEND:

- 300m NOISE STUDY BOUNDARY
- PROPOSED TKD-LT TUNNEL ALIGNMENT
- LIMIT OF WORKS AREA FOR TKOLTT
- NOISE SENSITIVE RECEIVER (EDUCATIONAL)
- NOISE SENSITIVE RECEIVER (RESIDENTIAL)
- PLANNED ZONING

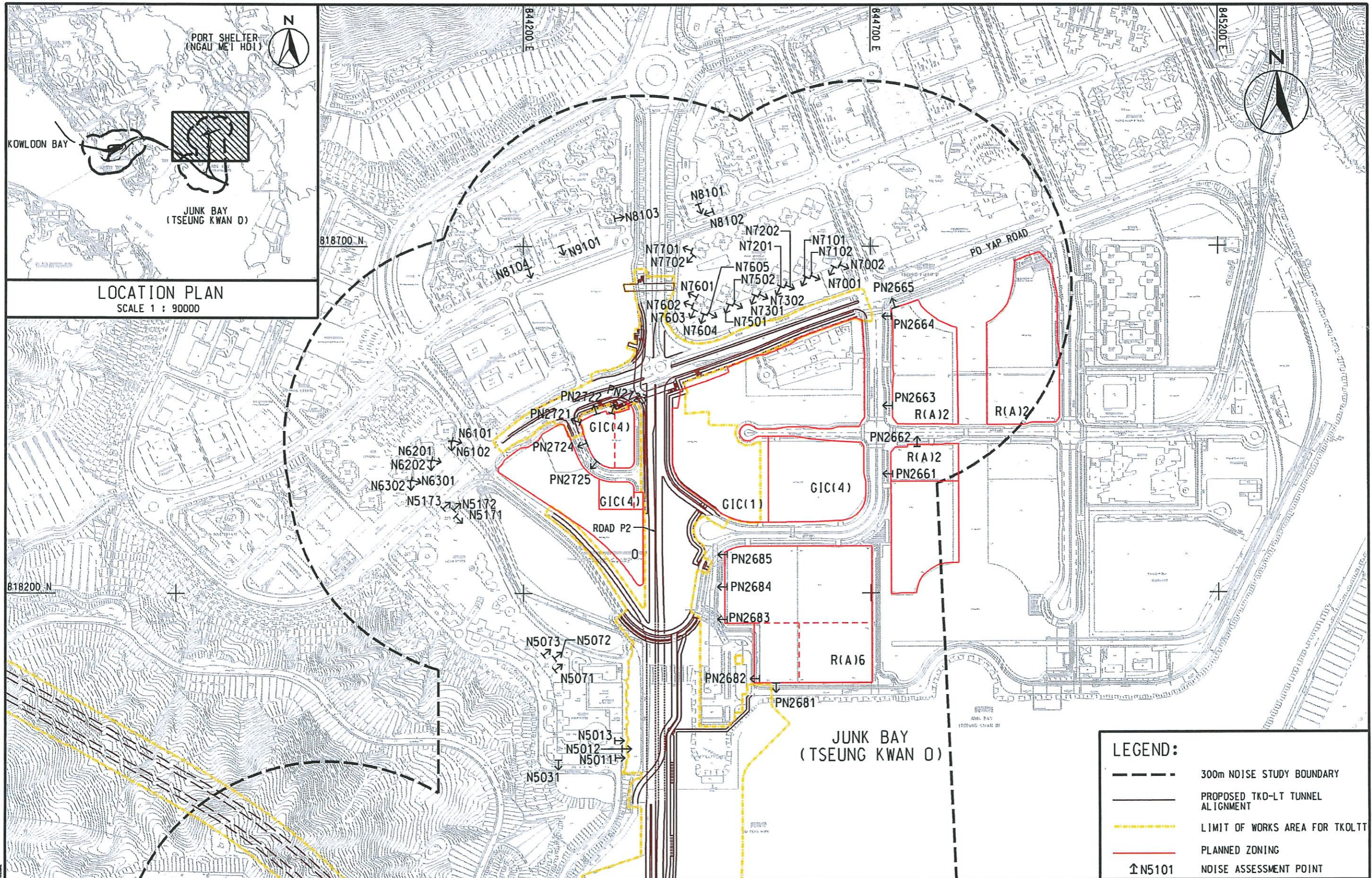


AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION
LOCATIONS OF NOISE SENSITIVE RECEIVERS

SHEET 4 OF 4

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLLS
JOB NO.	60097677	DRAWING No.	FIGURE 4.1
		REV	--

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AGREEMENT NO. CE 42/2008 (CE)
TSEUNG KWAN O - LAM TIN TUNNEL AND ASSOCIATED WORKS - INVESTIGATION

LOCATIONS OF NOISE ASSESSMENT POINTS

SHEET 4 OF 4

SCALE	A3 1 : 5000	DATE	JAN. 2013
CHECK	--	DRAWN	HLS
JOB No.	60097677	DRAWING No.	FIGURE 4.2
		REV	--

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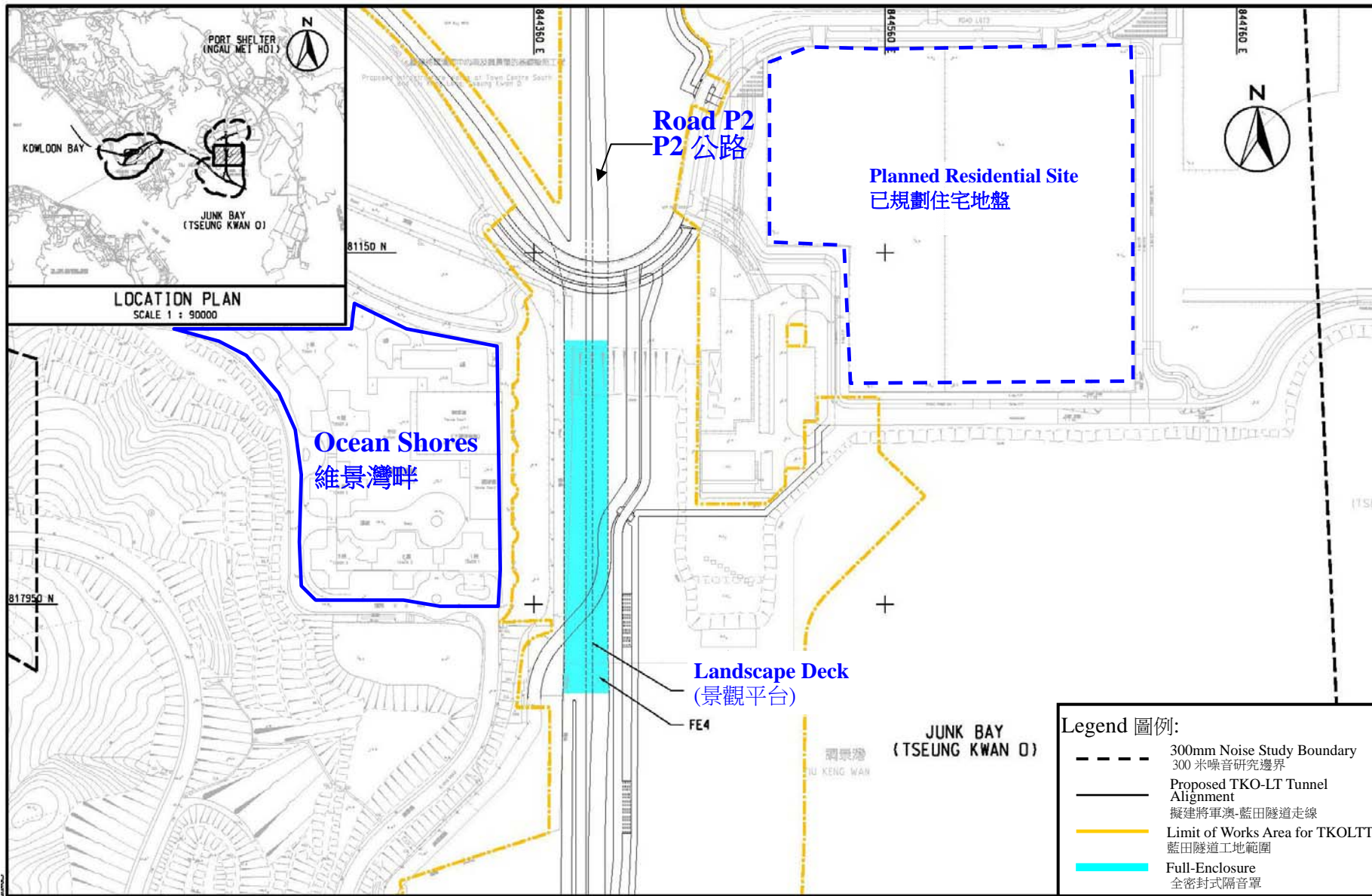
Appendix B

Updated Construction Programme

Section	Activity Name	Start	Finish
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works		Jul-16	Jun-22
Existing Land Section			
Portion VIII	Road P2-A CH500-650 (Road Works)	Apr-21	Jun-21
Portion VIII	Road P2 CH363-411 (ELS and Structural Works)	Nov-21	Jan-22
Portion VIII	Road P2 CH411-500 (Structual Works)	Jun-21	Aug-21
Portion VIII	Road P2 Remaining Works	Aug-21	Feb-22
Portion VIII	SR2 CH110-170 (ELS and Structural Works)	Nov-20	Dec-21
Portion VIII	SR2 CH170-250 (Structural Works)	Feb-19	Dec-21
Reclaimed Land Section			
Portion IX	Concrete Coping (Structural Works)	Apr-20	Dec-21
Portion IX	Amour Protection	Jan-20	Apr-21
Portion IX	Road P2 Underpass CH105-318 (Structural Works)	Jan-21	May-22
Portion IX	Road P2 Cycle Track & Footpath (Road and Drainage Works)	Jan-22	May-22
Portion IX	Road P2 Underpass CH105-318 (E&M Works)	Sep-21	Jun-22
Portion IX	U-Trough A and B (Structural Works)	Nov-20	Feb-22
Portion IX	U-Trough C (Structural Works)	Nov-20	Mar-22
Portion IX	Associated Works	Jan-22	May-22
NE/2015/02 Tseung Kwan O - Lam Tin Tunnel - Road P2 and Associated Works		Executive Summary Programme (Forecast)	

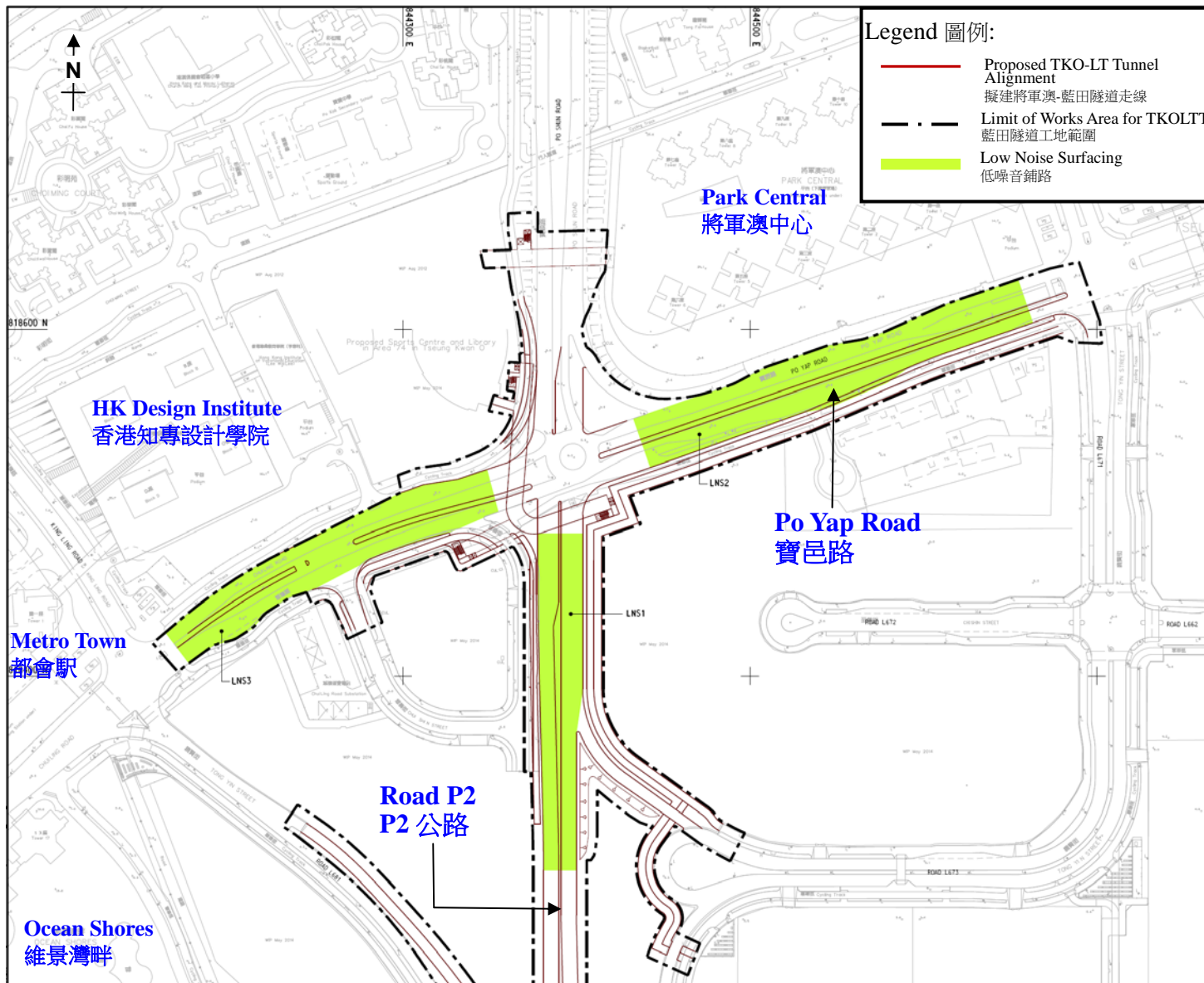
Appendix C

Proposed Mitigation Measures and Detailed Noise Assessment



Project Title: Tseung Kwan O – Lam Tin Tunnel and Associated Works
 工程項目名稱: 將軍澳 - 藍田隧道及相關工程
 Noise Mitigation Measure at Road P2
 P2公路的噪音緩解措施

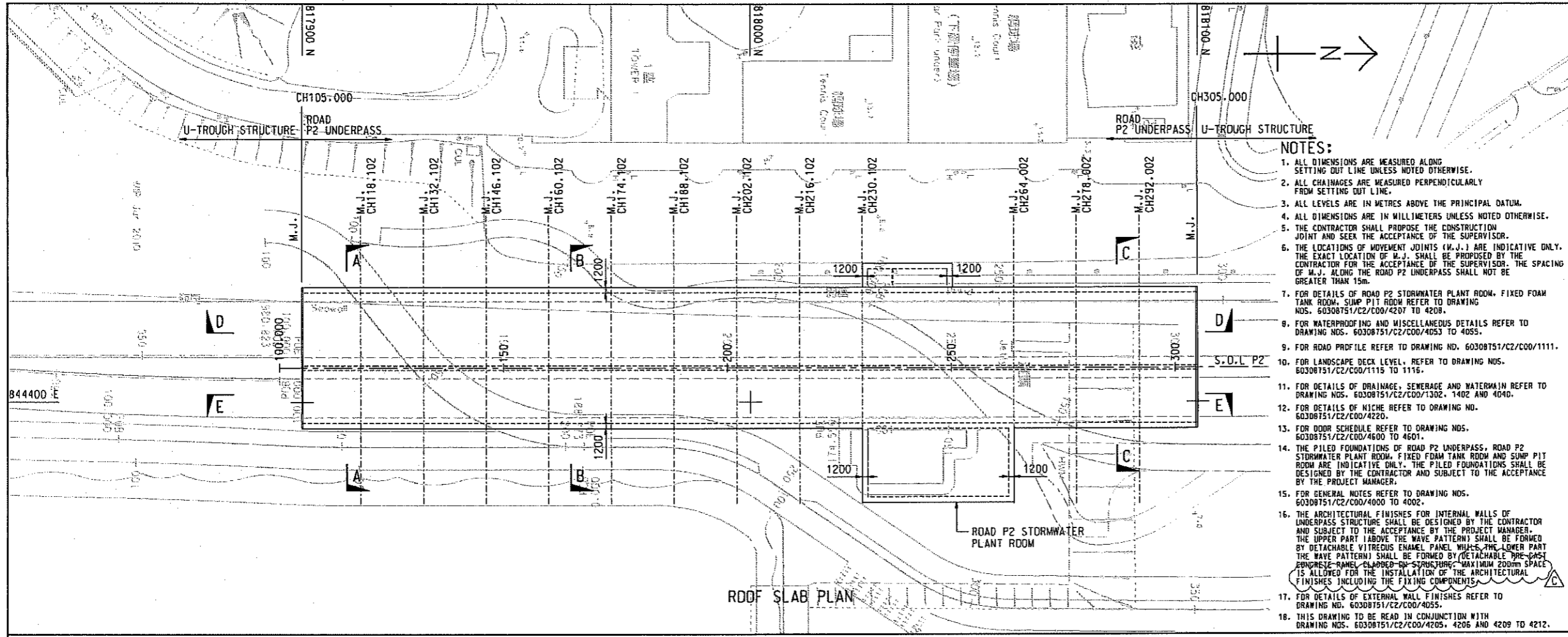
(to be read in conjunction with the Noise Mitigation Plan for Road P2 and Associated Works submitted under Condition 2.5)
 (要與根據條件 2.5 提交的 P2 路及相關工程的噪音影響緩解計劃一併閱讀)
 (Plan originated from the Figure 4.6 (sheet 4 of 4) of approved EIA Report: AEIAR-173/2013)
 (圖則源自已批准環評報告-AEIAR-173/2013 內的圖 4.6(版 4 of 4))



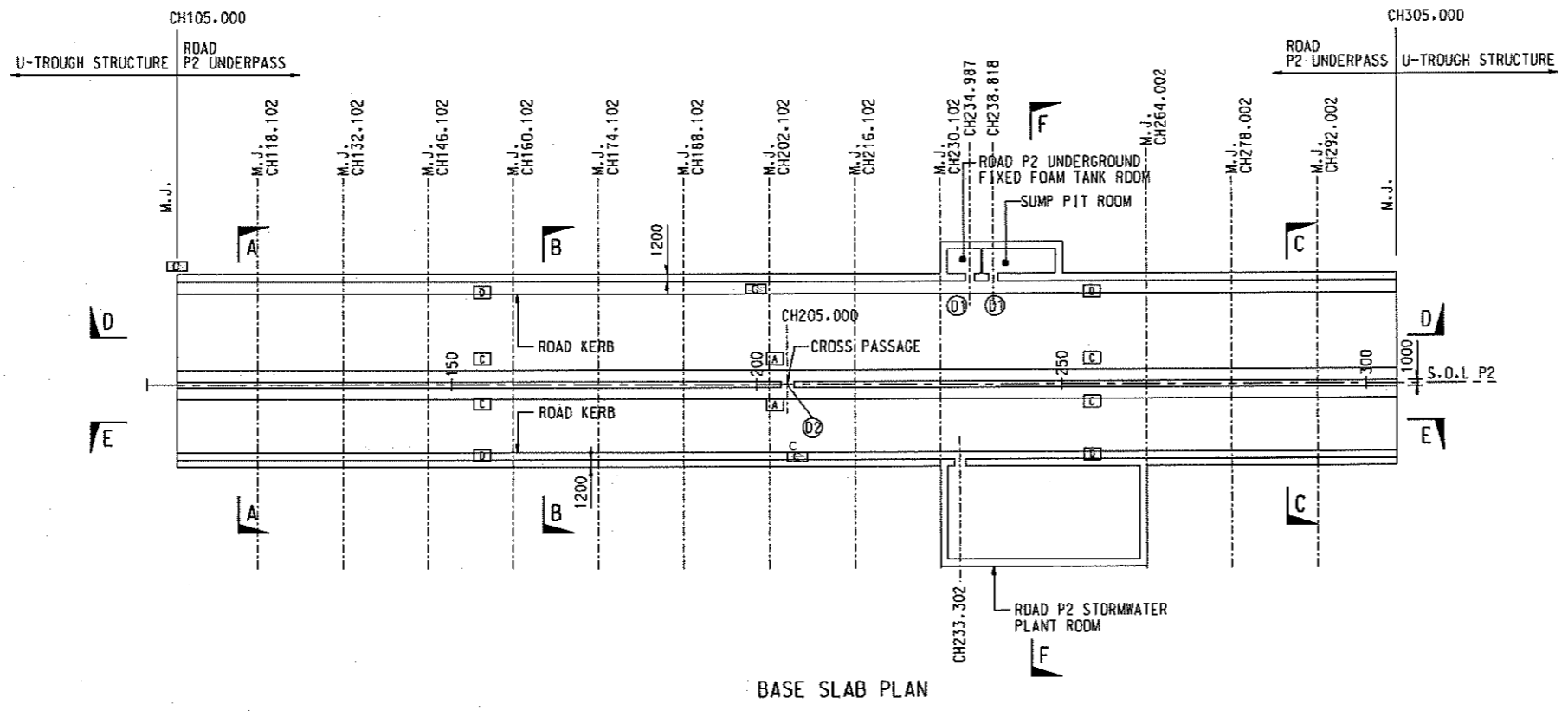
Project Title: Tseung Kwan O – Lam Tin Tunnel and Associated Works
 工程項目名稱：將軍澳 - 藍田隧道及相關工程
 Noise Mitigation Measure at Road P2 and Po Yap Road
 P2公路及寶邑路的噪音緩解措施

(to be read in conjunction with the Noise Mitigation Plan for Road P2/D4 and Associated Works and the Noise Mitigation Plan for Road P2 and Associated Works submitted under Condition 2.5)
 (要與根據條件 2.5 提交的 P2/D4 路及相關工程的噪音影響緩解計劃及 P2 路及相關工程的噪音影響緩解計劃一併閱讀)
 (This figure was prepared based on Figure 4 of the ER Report submitted under VEP Application (VEP-472/2015)
 (本圖是根據更改環境許可證申請文件 - 申請書編號：VEP-472/2015 所提交的環境檢討報告圖 4 編制)





- NOTES:**
- ALL DIMENSIONS ARE MEASURED ALONG SETTING OUT LINE UNLESS NOTED OTHERWISE.
 - ALL CHAINAGES ARE MEASURED PERPENDICULARLY FROM SETTING OUT LINE.
 - ALL LEVELS ARE IN METRES ABOVE THE PRINCIPAL DATUM.
 - ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
 - THE CONTRACTOR SHALL PROPOSE THE CONSTRUCTION JOINT AND SEEK THE ACCEPTANCE OF THE SUPERVISOR.
 - THE LOCATIONS OF MOVEMENT JOINTS (M.J.) ARE INDICATIVE ONLY. THE EXACT LOCATION OF M.J. SHALL BE PROPOSED BY THE CONTRACTOR FOR THE ACCEPTANCE OF THE SUPERVISOR. THE SPACING OF M.J. ALONG THE ROAD P2 UNDERPASS SHALL NOT BE GREATER THAN 15m.
 - FOR DETAILS OF ROAD P2 STORMWATER PLANT ROOM, FIXED FOAM TANK ROOM, SUMP PIT ROOM REFER TO DRAWING NOS. 60308751/C2/C00/4207 TO 4208.
 - FOR WATERPROOFING AND MISCELLANEOUS DETAILS REFER TO DRAWING NOS. 60308751/C2/C00/4053 TO 4055.
 - FOR ROAD PROFILE REFER TO DRAWING NO. 60308751/C2/C00/1111.
 - FOR LANDSCAPE DECK LEVEL, REFER TO DRAWING NOS. 60308751/C2/C00/1115 TO 1116.
 - FOR DETAILS OF DRAINAGE, SEWERAGE AND WATERMAIN REFER TO DRAWING NOS. 60308751/C2/C00/1302, 1402 AND 4040.
 - FOR DETAILS OF NICHE REFER TO DRAWING NO. 60308751/C2/C00/4220.
 - FOR DOOR SCHEDULE REFER TO DRAWING NOS. 60308751/C2/C00/4600 TO 4601.
 - THE PILED FOUNDATIONS OF ROAD P2 UNDERPASS, ROAD P2 STORMWATER PLANT ROOM, FIXED FOAM TANK ROOM AND SUMP PIT ROOM ARE INDICATIVE ONLY. THE PILED FOUNDATIONS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBJECT TO THE ACCEPTANCE BY THE PROJECT MANAGER.
 - FOR GENERAL NOTES REFER TO DRAWING NOS. 60308751/C2/C00/4000 TO 4002.
 - THE ARCHITECTURAL FINISHES FOR INTERNAL WALLS OF UNDERPASS STRUCTURE SHALL BE DESIGNED BY THE CONTRACTOR AND SUBJECT TO THE ACCEPTANCE BY THE PROJECT MANAGER. THE UPPER PART (ABOVE THE WAVE PATTERN) SHALL BE FORMED BY DETACHABLE VITREOUS ENAMEL PANEL WHILE THE LOWER PART (THE WAVE PATTERN) SHALL BE FORMED BY DETACHABLE PRE-PAST ZINC-PLATE PANEL-GLAZED-TO-STRUCTURE. MAXIMUM 200MM SPACE IS ALLOWED FOR THE INSTALLATION OF THE ARCHITECTURAL FINISHES INCLUDING THE FIXING COMPONENTS.
 - FOR DETAILS OF EXTERNAL WALL FINISHES REFER TO DRAWING NO. 60308751/C2/C00/4055.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4205, 4206 AND 4209 TO 4212.



LEGEND:

A	TYPE A FS NICHE
B	TYPE B FS NICHE
C	TYPE C FS NICHE
D	TYPE D FS NICHE
DOOR	DOOR TYPE
TCSS	TCSS CABINETS

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NO	DATE	DESCRIPTION	CHK.	APP.
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B	APR.16	TENDER ADDENDUM NO. 3	RPCM	
A	FEB.16	TENDER ADDENDUM NO. 1	RPCM	
-	JAN.16	TENDER DRAWING	RPCM	
1/1	DATE	DESCRIPTION	CHK.	APP.

STATUS

SCALE
 1/20
 A1 1: 500

DIMENSION UNIT
 公制
 MILLIMETRES

KEY PLAN
 A1/1

PROJECT NO. 60308751	CONTRACT NO. NE/2015/02
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SHEET TITLE
ROAD P2 UNDERPASS - ROOF AND BASE SLAB PLAN

SHEET NUMBER
 60308751/C2/C00/4201C

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 Scale: 1/20
 Date: 2016/4/18
 Project: TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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Project Management Initials: Designer: AT/HI Checked: R/C/M Approved: C/WN
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Plot File by: WANGPT2_20160226
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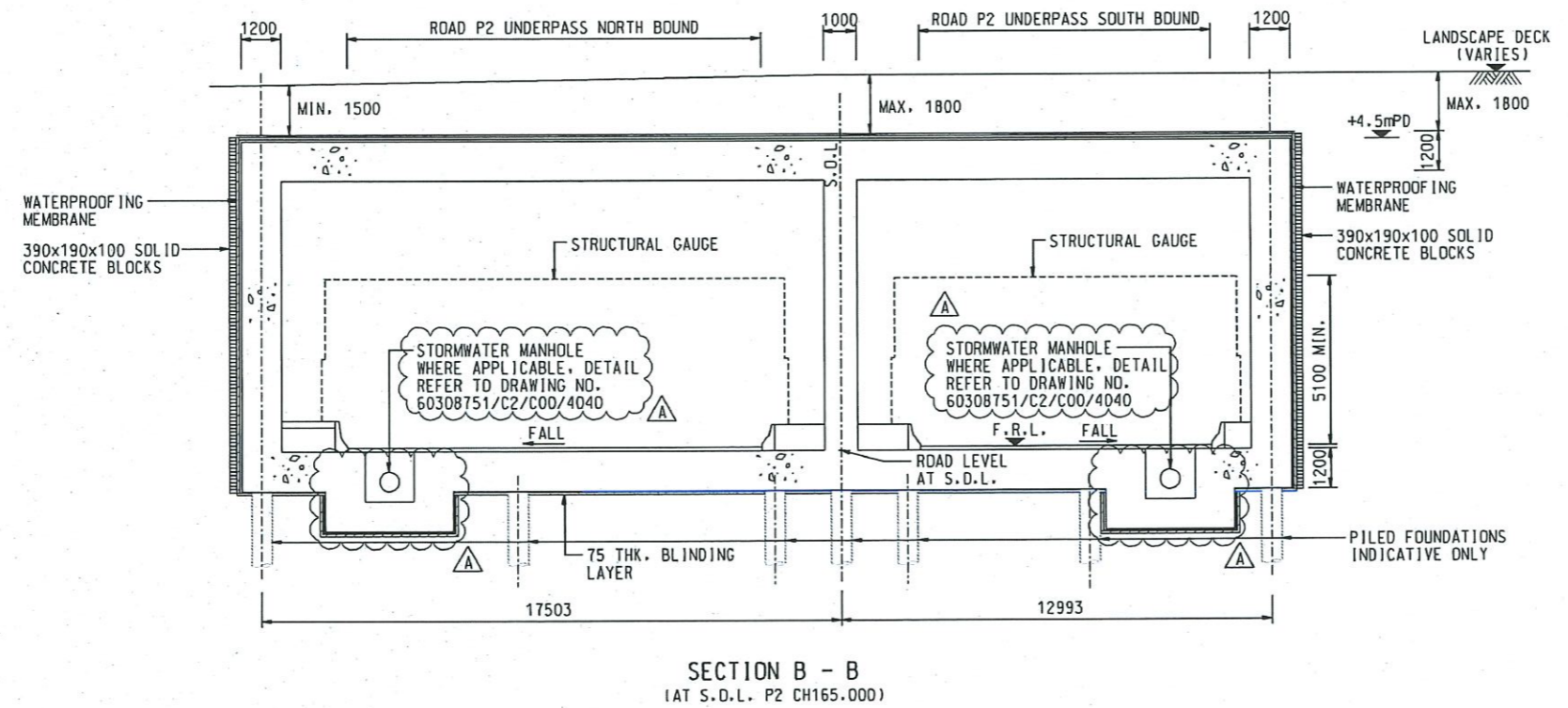
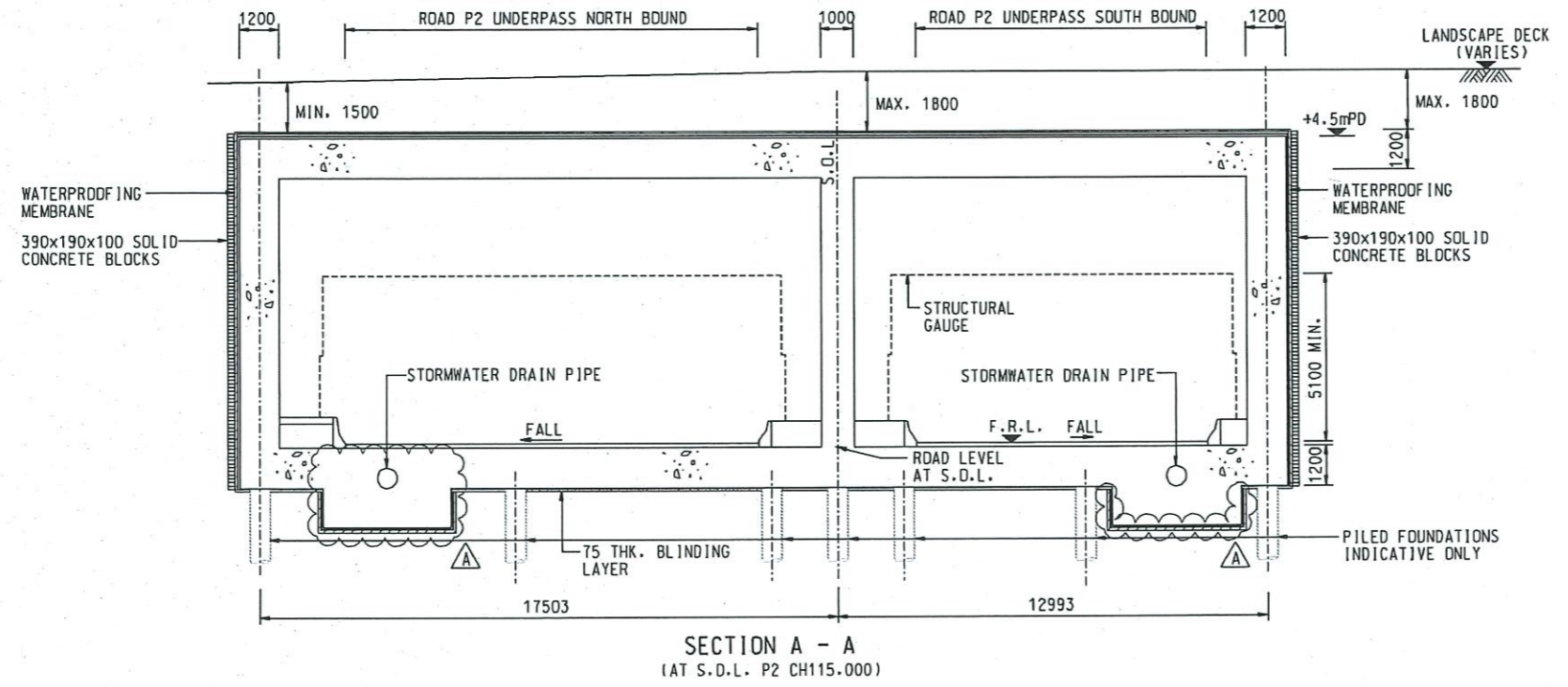
PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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KEY PLAN

PROJECT NO.	CONTRACT NO.
60308751	NE/2015/02

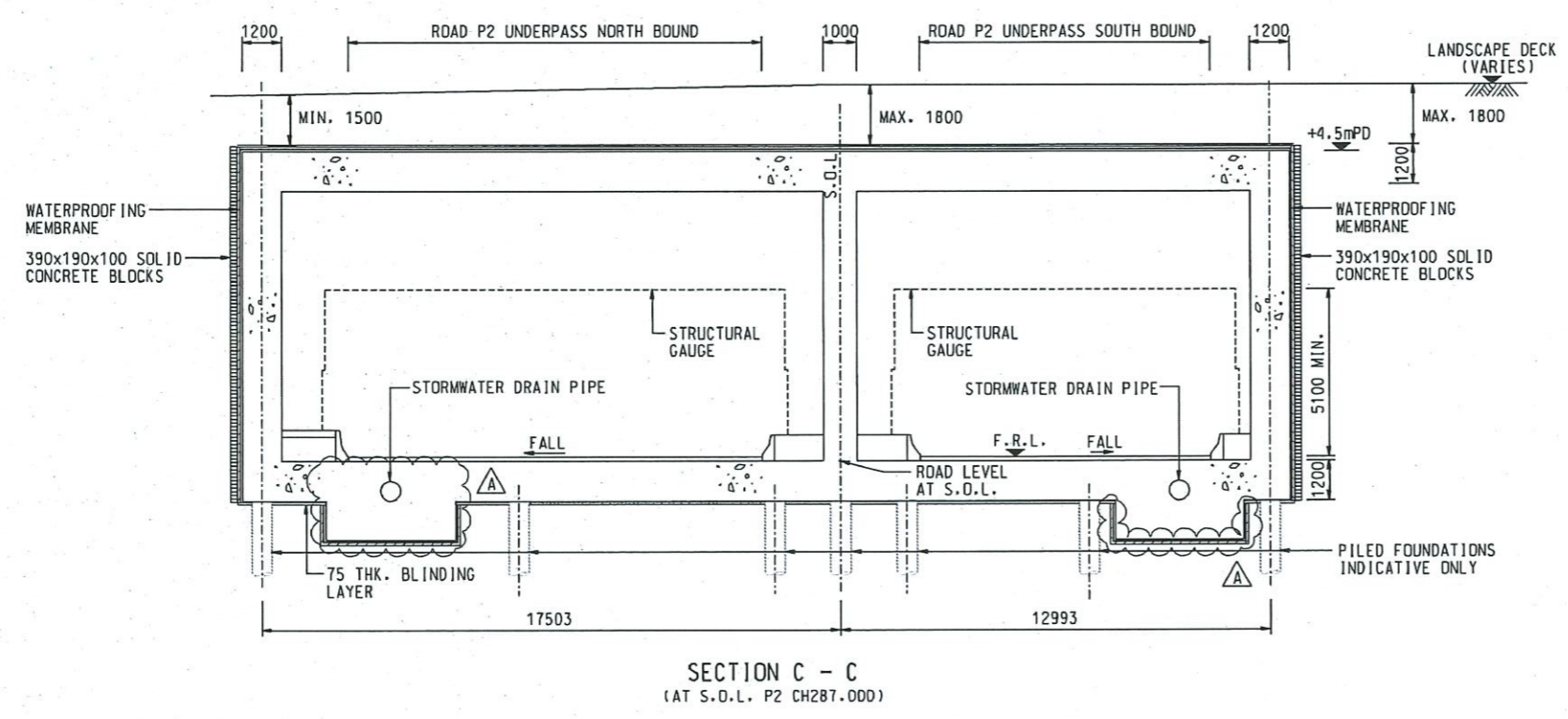
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SHEET 1 OF 2

SHEET NUMBER
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KEY PLAN

PROJECT NO.
 60308751
 CONTRACT NO.
 NE/2015/02

SHEET TITLE
 ROAD P2 UNDERPASS - SECTION

SHEET NUMBER
 60308751/C2/C00/4208A
 SHEET 2 OF 2

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PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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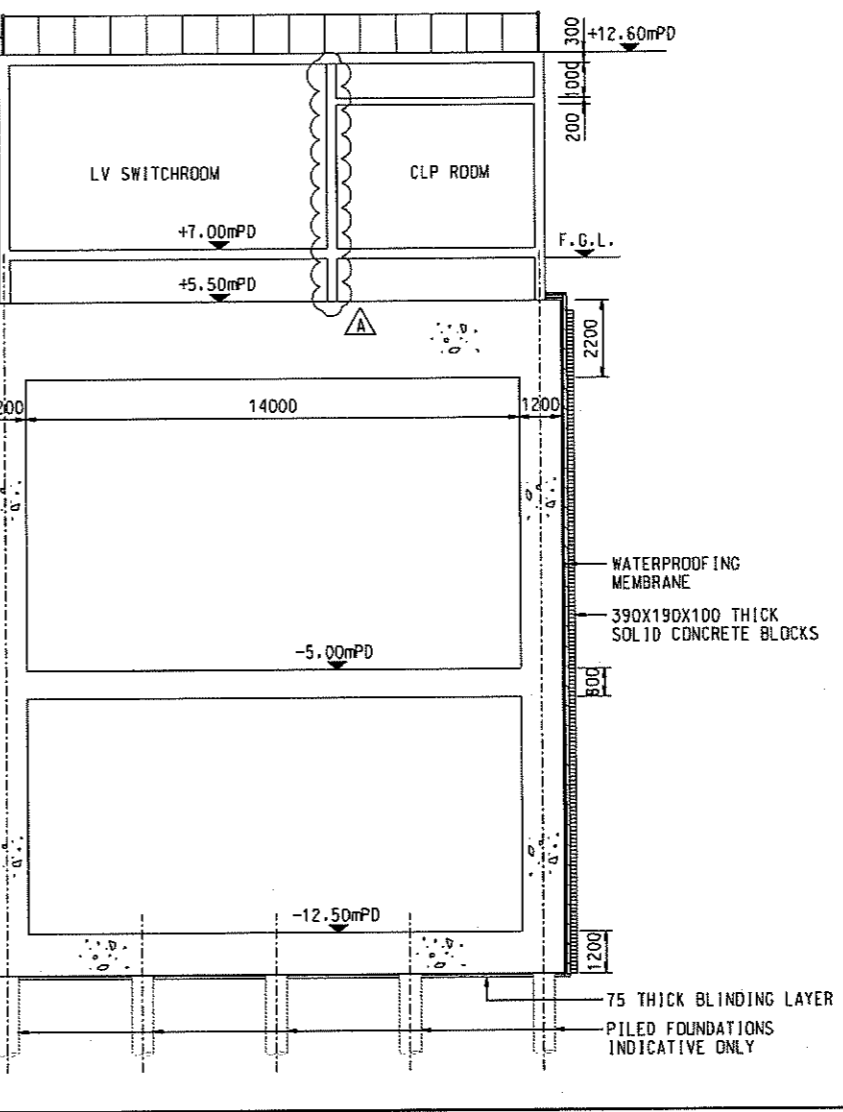
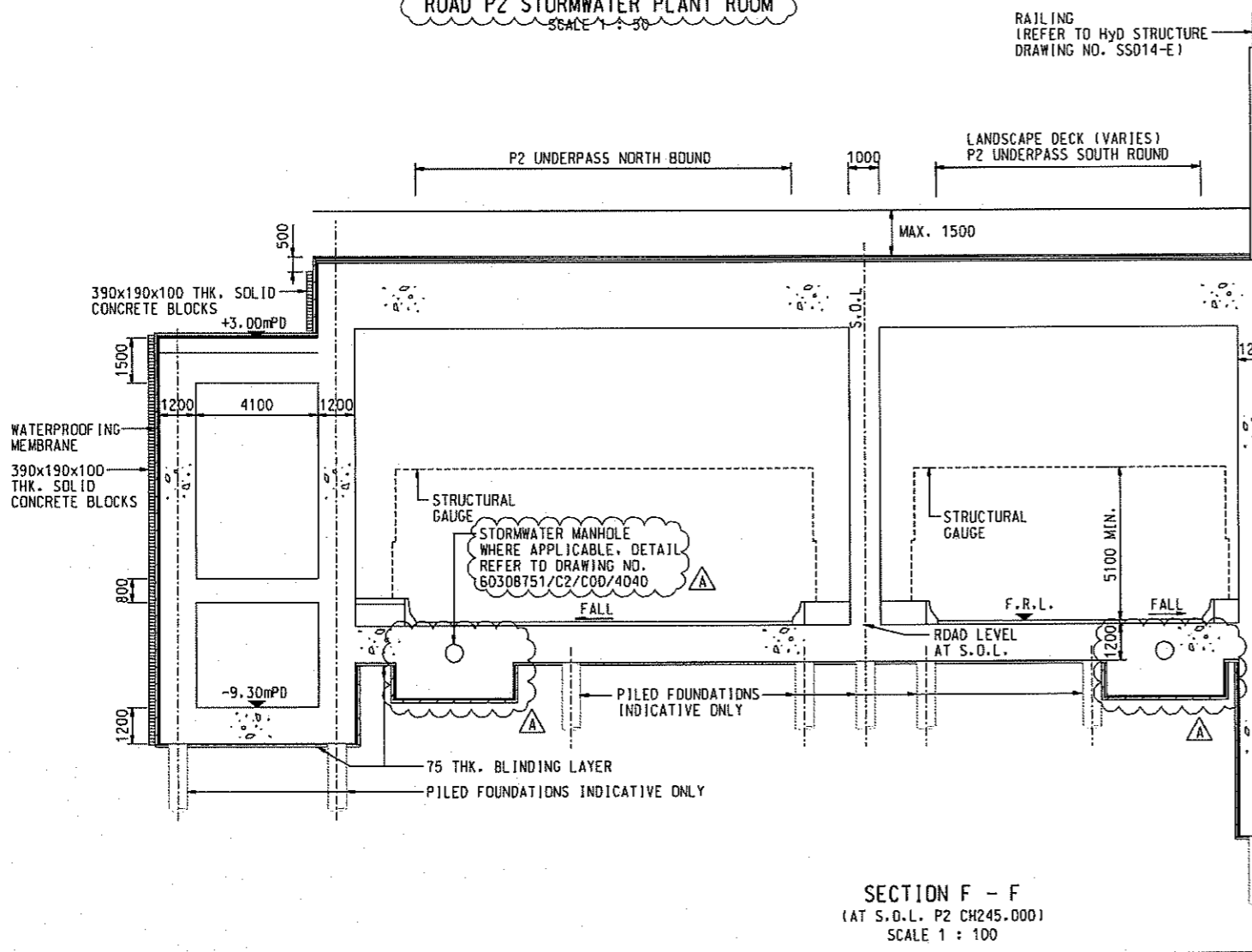
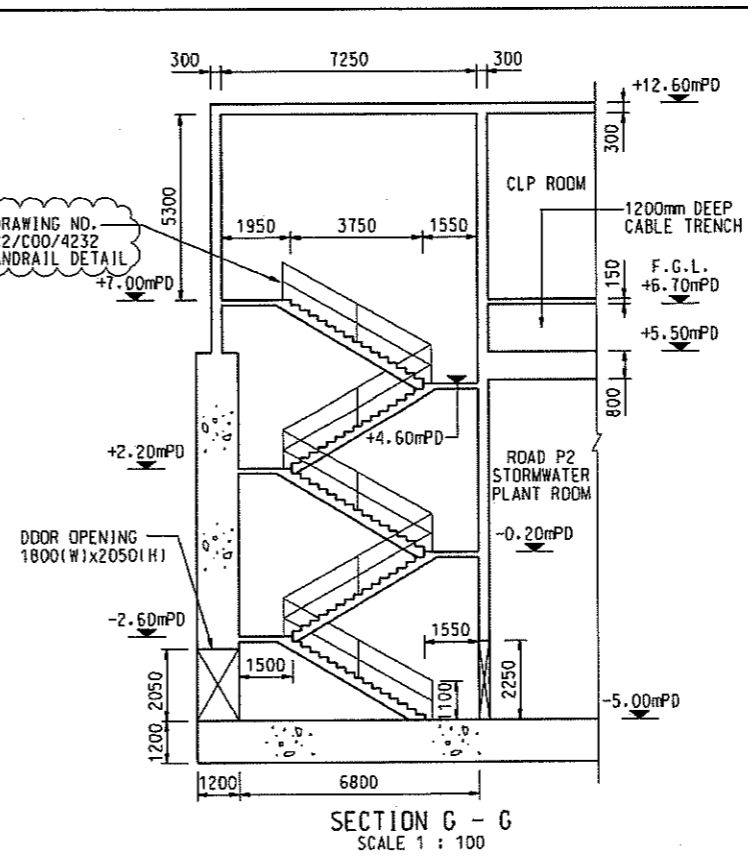
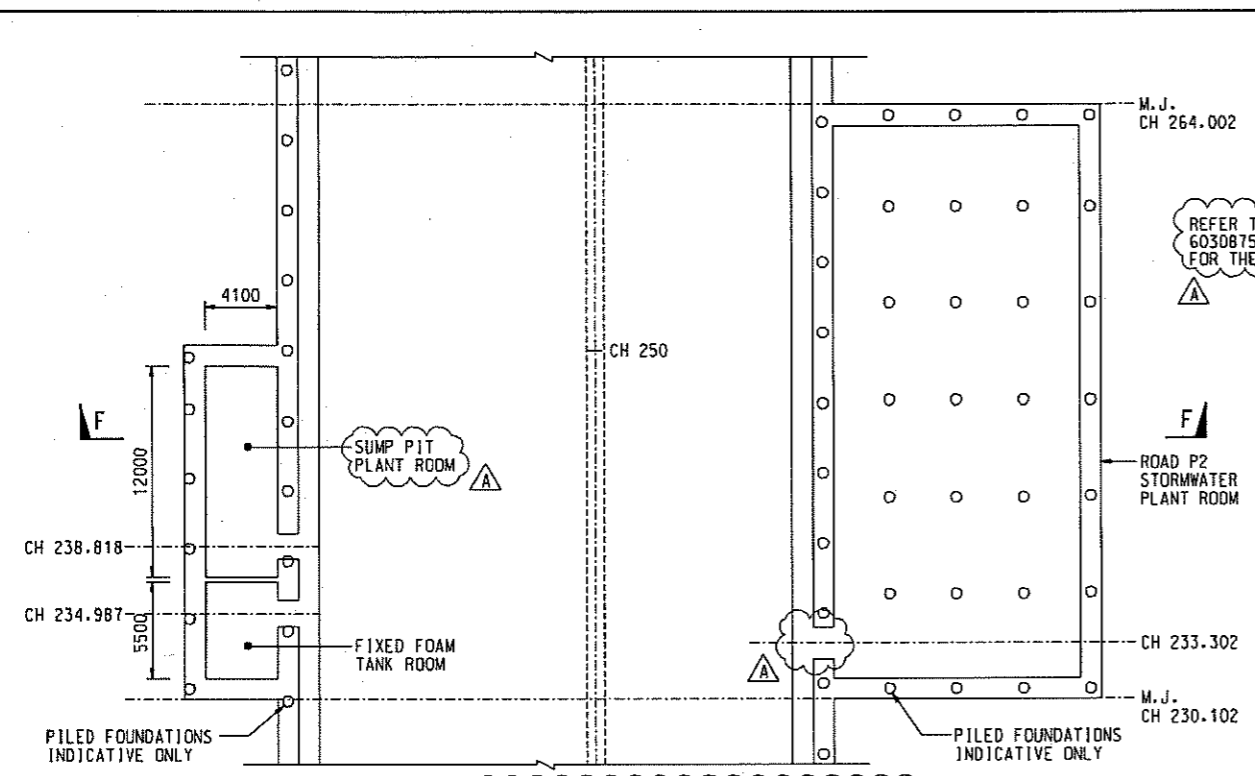
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PROJECT NO.
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CONTRACT NO.
NE/2015/02

SHEET TITLE
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SHEET NUMBER
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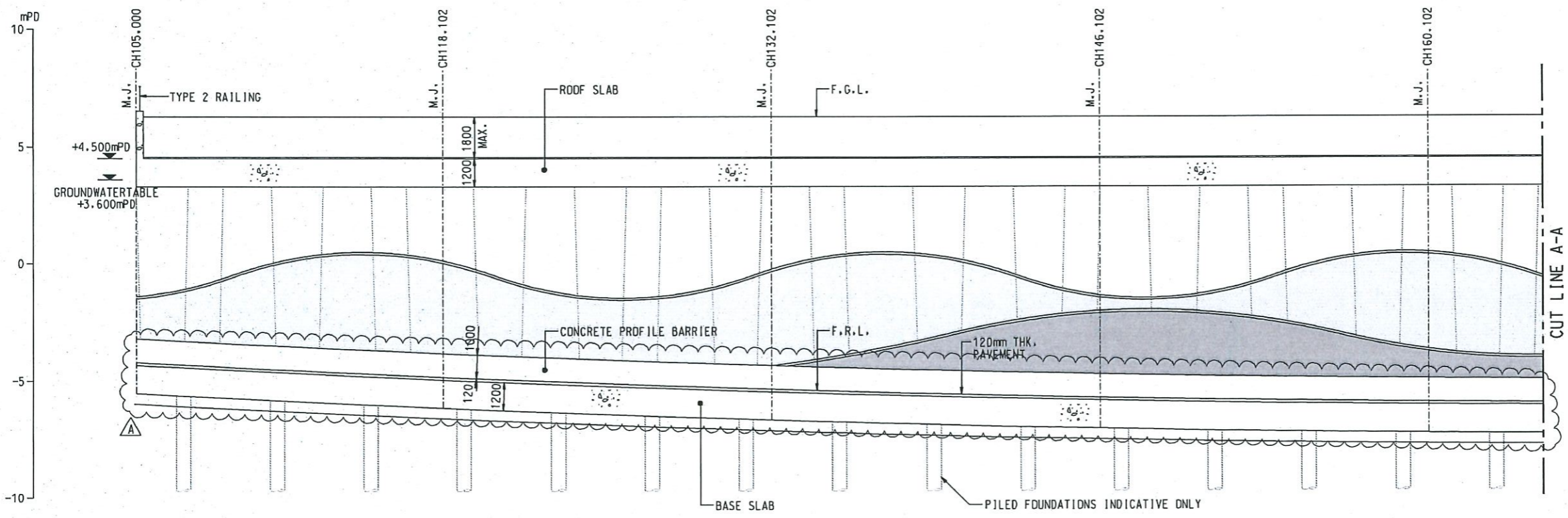
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TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

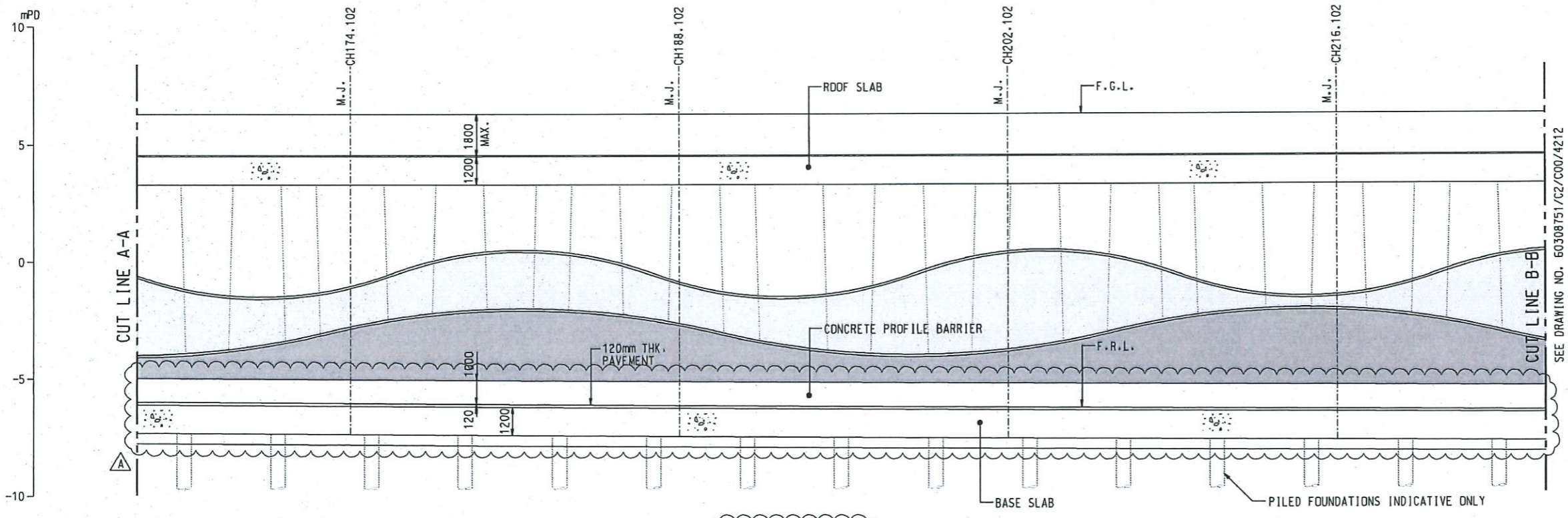
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ELEVATION D - D



ELEVATION D - D

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A	FEB.10	TENDER ADDENDUM NO.1	RPCM
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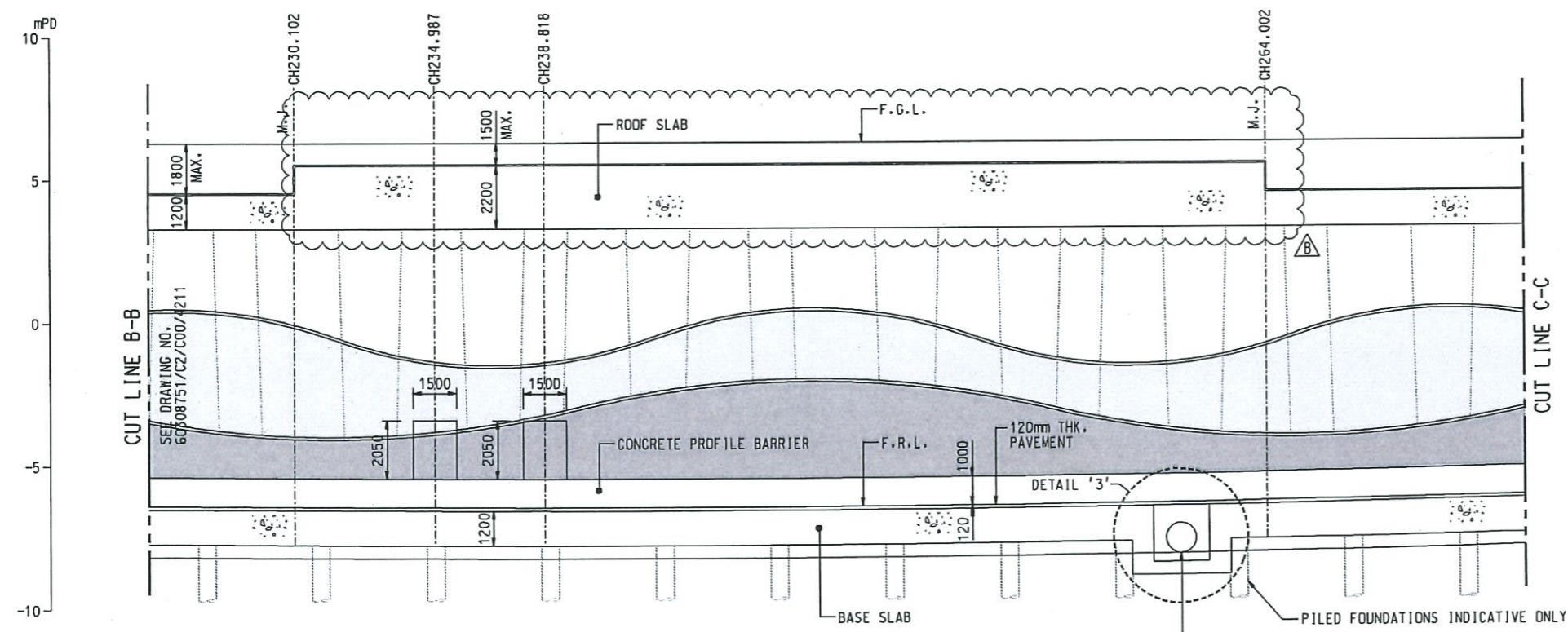
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PROJECT NO.
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CONTRACT NO.
 NE/2015/02

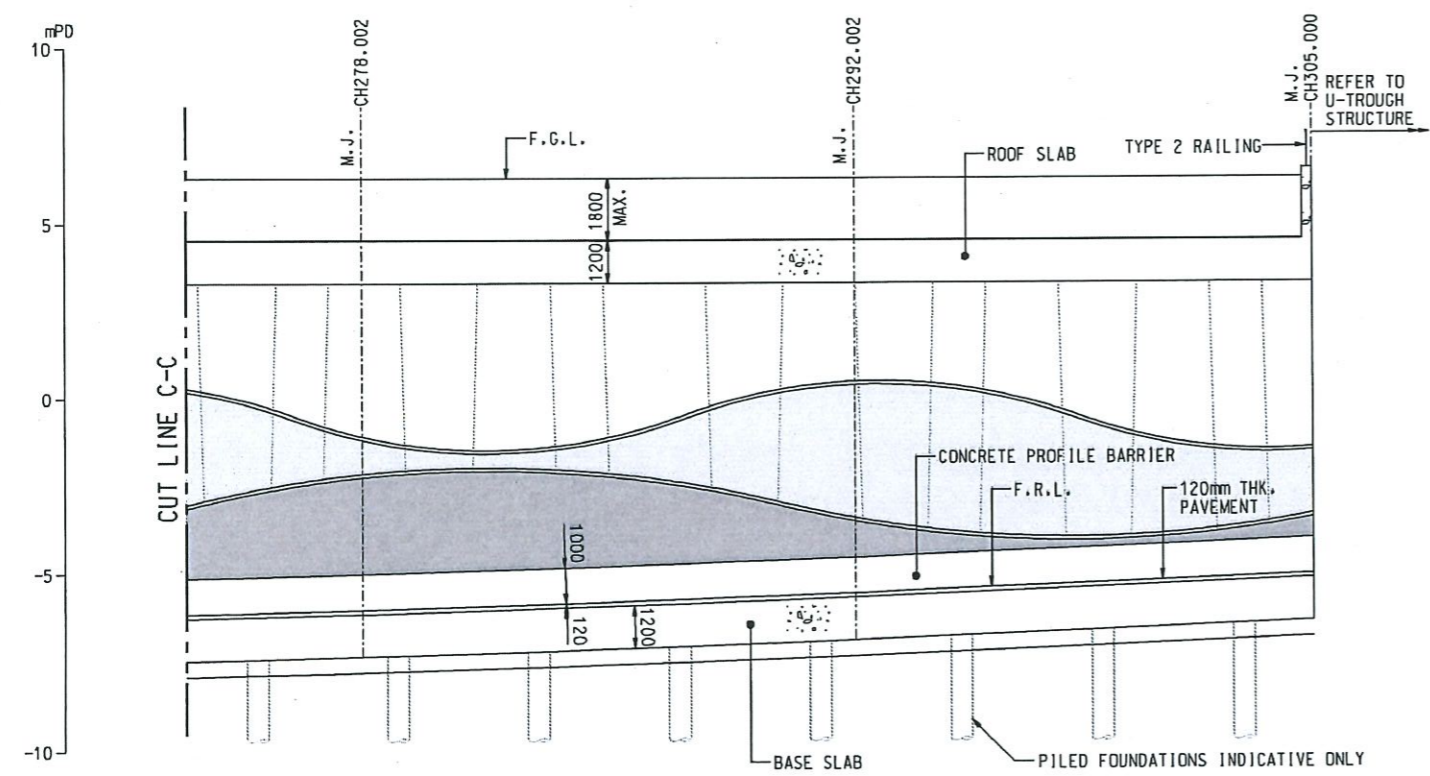
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 ROAD P2 UNDERPASS - NORTHBOUND ELEVATION

SHEET NUMBER
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ELEVATION D - D

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STATUS

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DIMENSION UNIT
 MILLIMETRES

KEY PLAN

PROJECT NO.
 60308751

CONTRACT NO.
 NE/2015/02

SHEET TITLE
 ROAD P2 UNDERPASS - NORTHBOUND ELEVATION

SHEET NUMBER
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NOTES:
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 2. THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/4201 AND 4212.

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CONTRACT TITLE
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-	JAN.16	TENDER DRAWING	RPCM	

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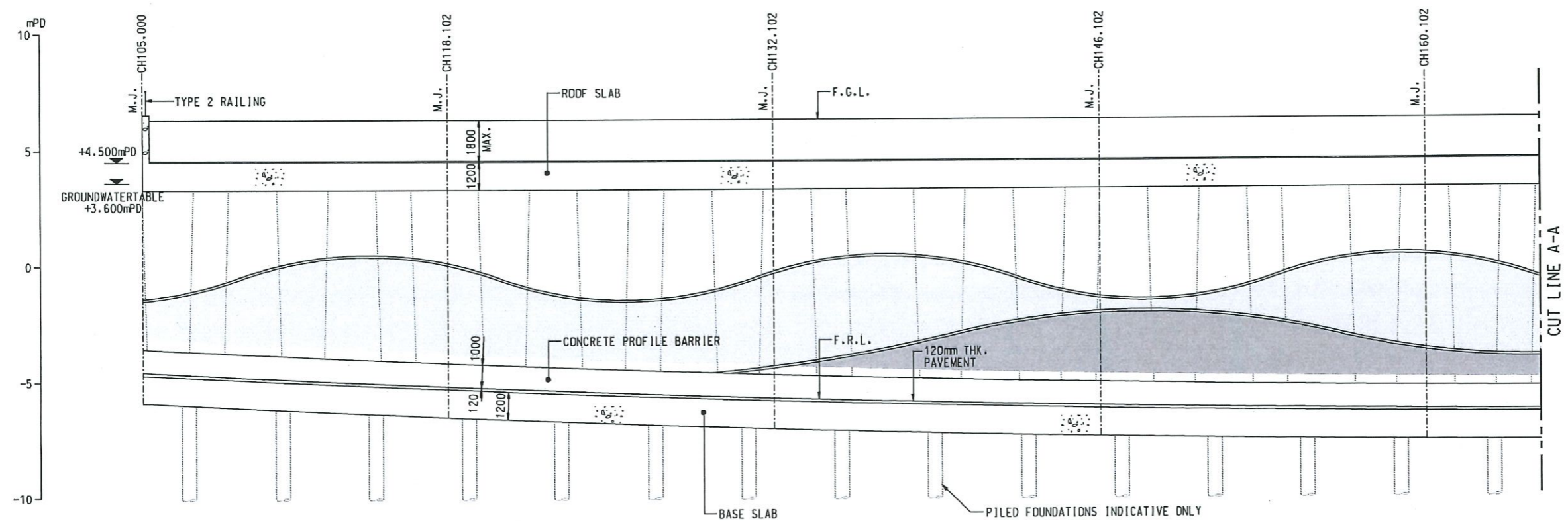
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KEY PLAN

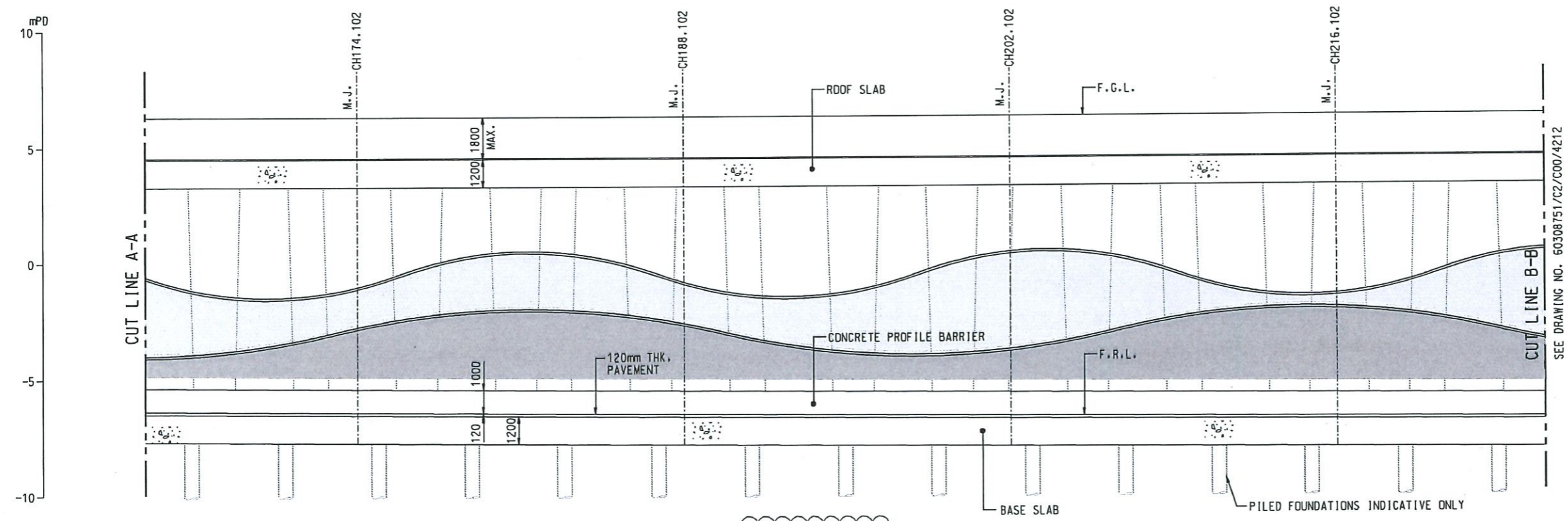
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CONTRACT NO.
 NE/2015/02

SHEET TITLE
 ROAD P2 UNDERPASS - SOUTHBOUND AND CROSS PASSAGE ELEVATION
 SHEET 1 OF 2

SHEET NUMBER
 60308751/C2/C00/4211A

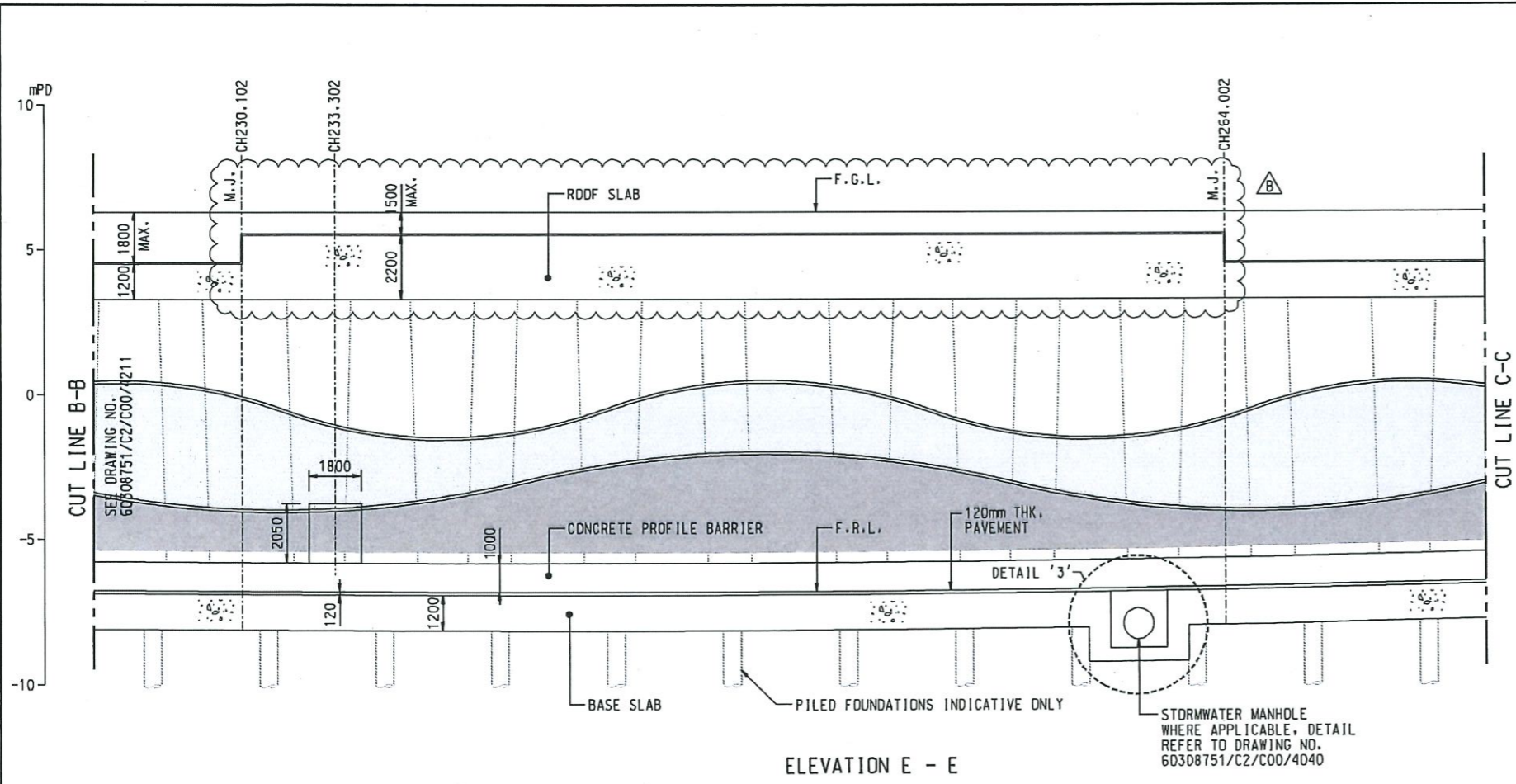


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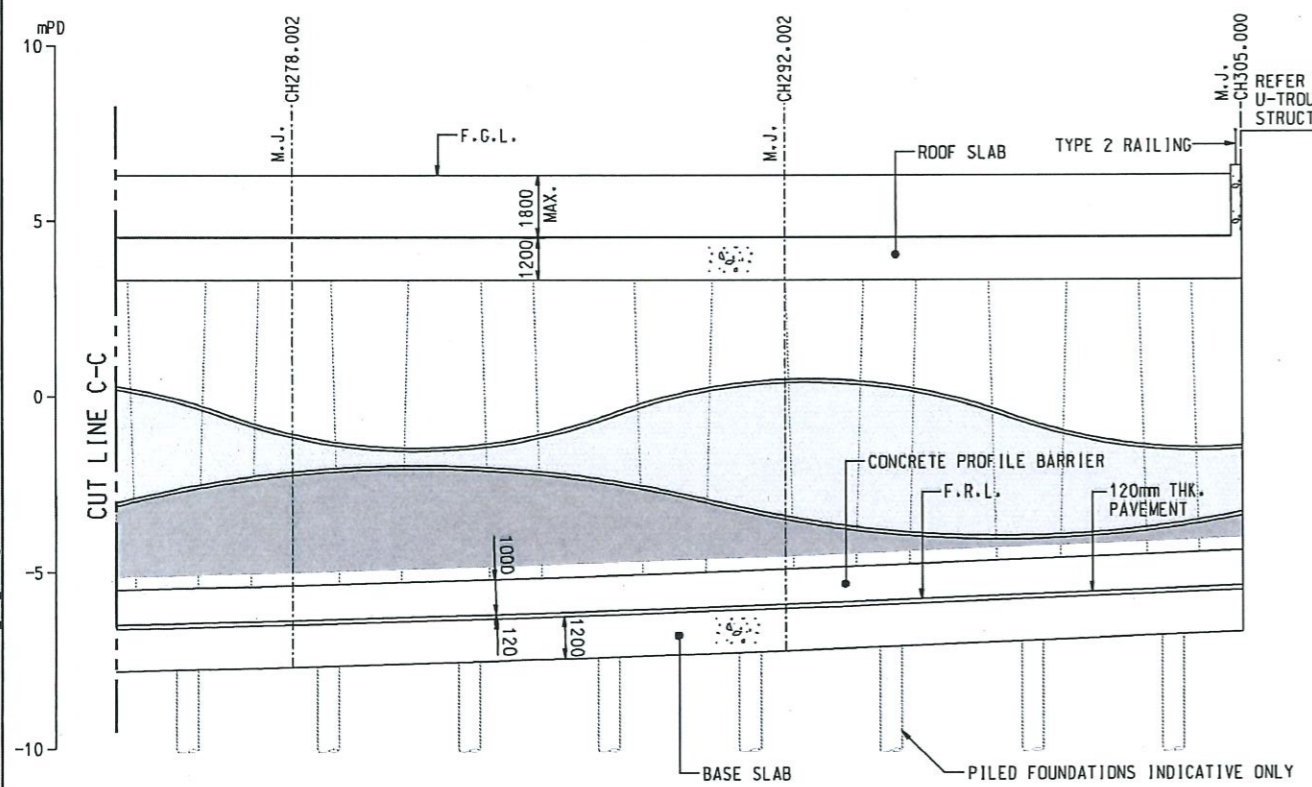


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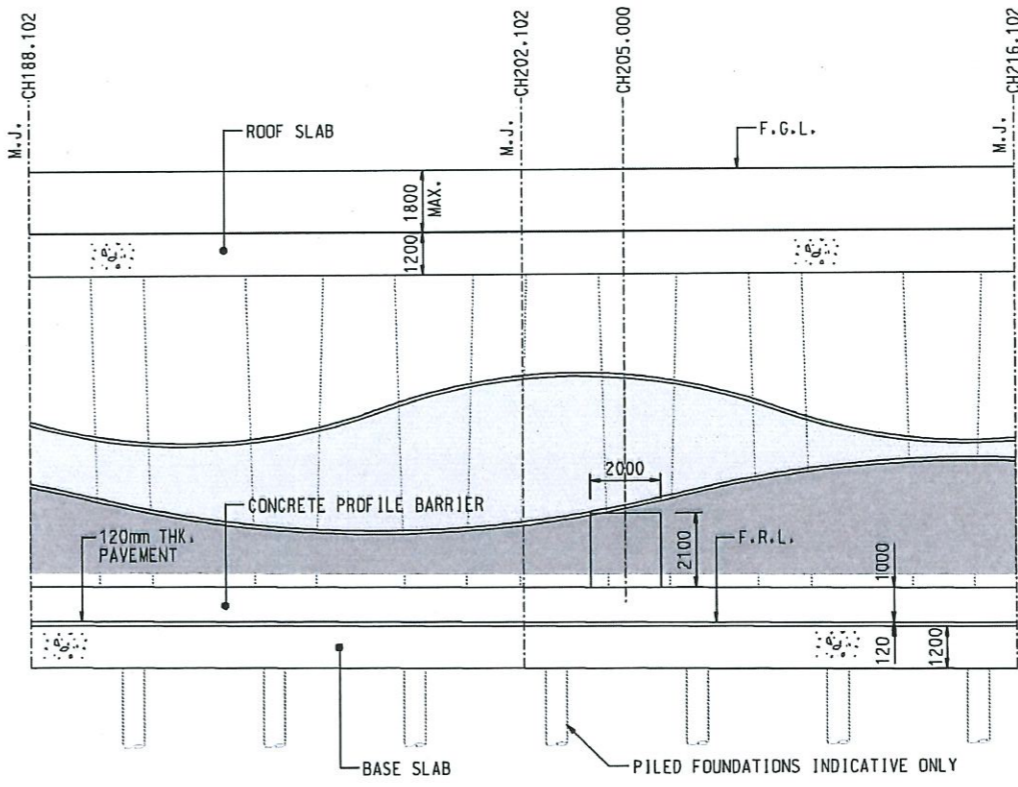
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ELEVATION E - E



ELEVATION E - E



ELEVATION FOR CROSS PASSAGE
 (AT S.D.L ROAD P2 UNDERPASS CH 205.00)

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PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHK.
B	MAR.16	TENDER ADDENDUM NO.2	RPCM
A	FEB.16	TENDER ADDENDUM NO.1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

STATUS

SCALE
 1:100

DIMENSION UNIT
 MILLIMETRES

KEY PLAN

PROJECT NO.
 60308751

CONTRACT NO.
 NE/2015/02

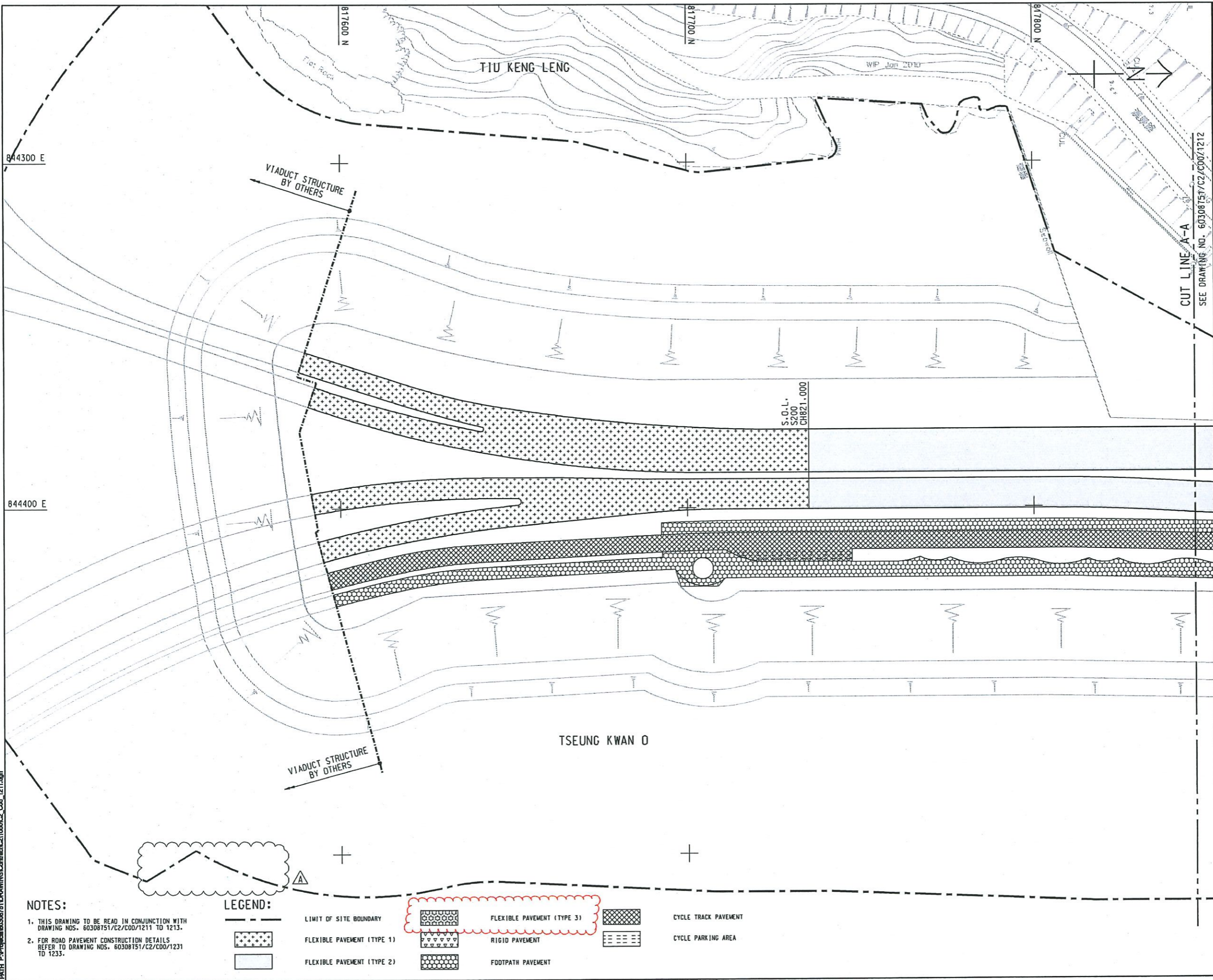
SHEET TITLE
 ROAD P2 UNDERPASS - SOUTHBOUND AND CROSS PASSAGE ELEVATION

SHEET 2 OF 2

SHEET NUMBER
 60308751/C2/C00/4212B

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Project Management Initials: Designer: ATTH Checked: RPCM Approved: CHW
 Scale: 1:500
 Date: 2016/02/18
 File Path: L:\CIP\2016\02\18\20160218\0308751\DRAWINGS\Comment\210091C2_C00_1211A.dgn



NOTES:

- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1211 TO 1213.
- FOR ROAD PAVEMENT CONSTRUCTION DETAILS REFER TO DRAWING NOS. 60308751/C2/C00/1231 TO 1233.

LEGEND:	
	LIMIT OF SITE BOUNDARY
	FLEXIBLE PAVEMENT (TYPE 1)
	FLEXIBLE PAVEMENT (TYPE 2)
	FLEXIBLE PAVEMENT (TYPE 3)
	RIGID PAVEMENT
	FOOTPATH PAVEMENT
	CYCLE TRACK PAVEMENT
	CYCLE PARKING AREA

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
 TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
 AECOM Aela Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

NO.	DATE	DESCRIPTION	CHKD
A	FEB.16	TENDER ADDENDUM NO. 1	RPCM
-	JAN.16	TENDER DRAWING	RPCM

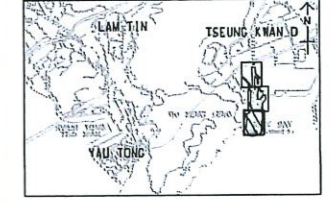
STATUS

ISSUED FOR TENDER

SCALE
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DIMENSION UNIT
 METRES

KEY PLAN A1:50000



PROJECT NO.
 60308751

CONTRACT NO.
 NE/2015/02

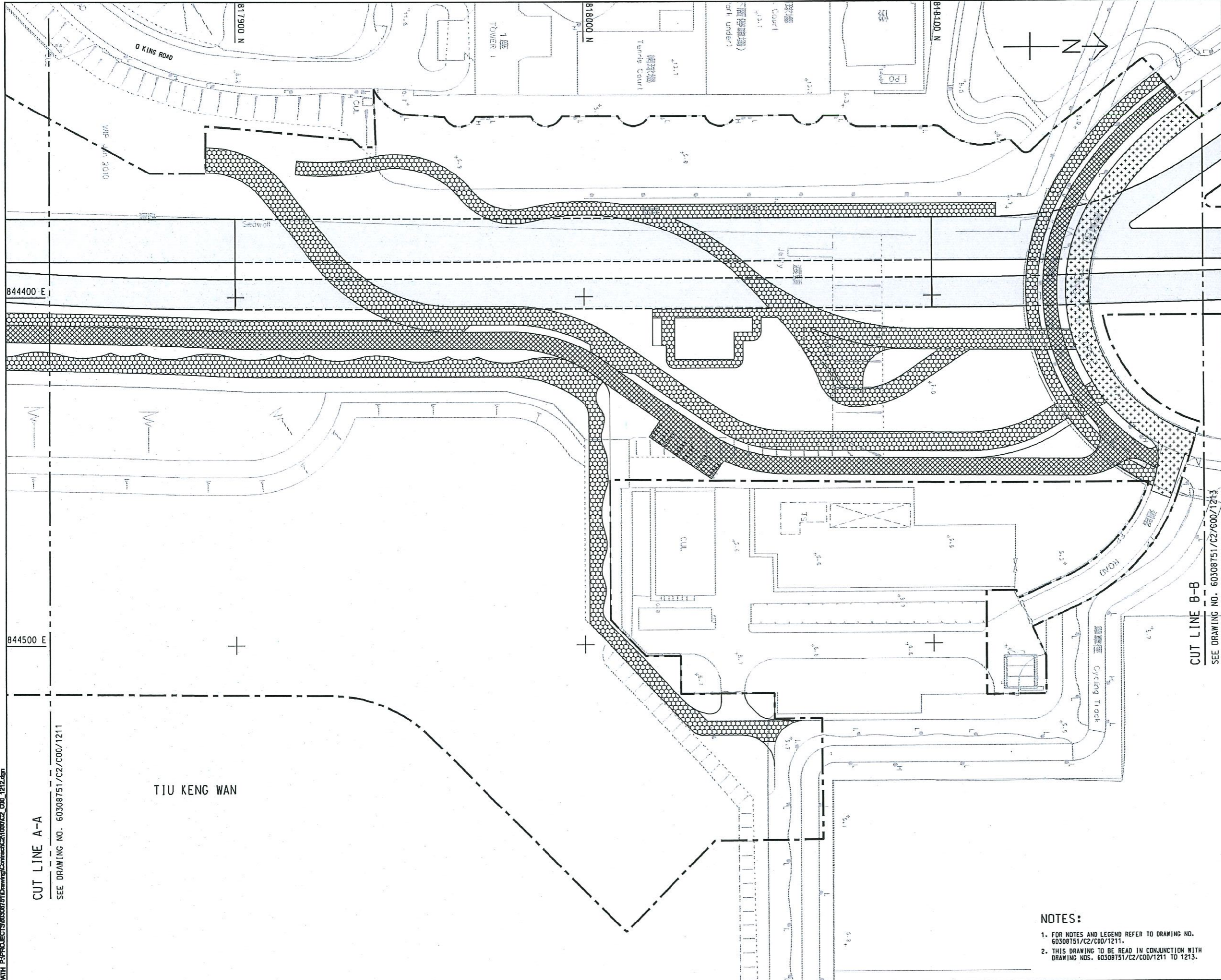
SHEET TITLE
 ROAD PAVEMENT LAYOUT

SHEET NUMBER
 60308751/C2/C00/1211A

SHEET 1 OF 3

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File Path: P:\PROJECTS\60308751\Drawing\Contract\60308751\1000\C2_C00_1212.dgn
 Project Management Initials: Designer: ATHH, Checker: RPCM, Approver: CWN
 ISO A1 841mm x 641mm



CUT LINE A-A
 SEE DRAWING NO. 60308751/C2/C00/1211

CUT LINE B-B
 SEE DRAWING NO. 60308751/C2/C00/1213

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
 AECOM Asia Company Ltd.
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ISSUE/REVISION

NO.	DATE	DESCRIPTION	BY	CHK
1	JAN 16	TENDER DRAWING	RPCM	CWN

STATUS

SCALE
 A1 1:500
DIMENSION UNIT
 METRES

KEY PLAN A1 1:80000



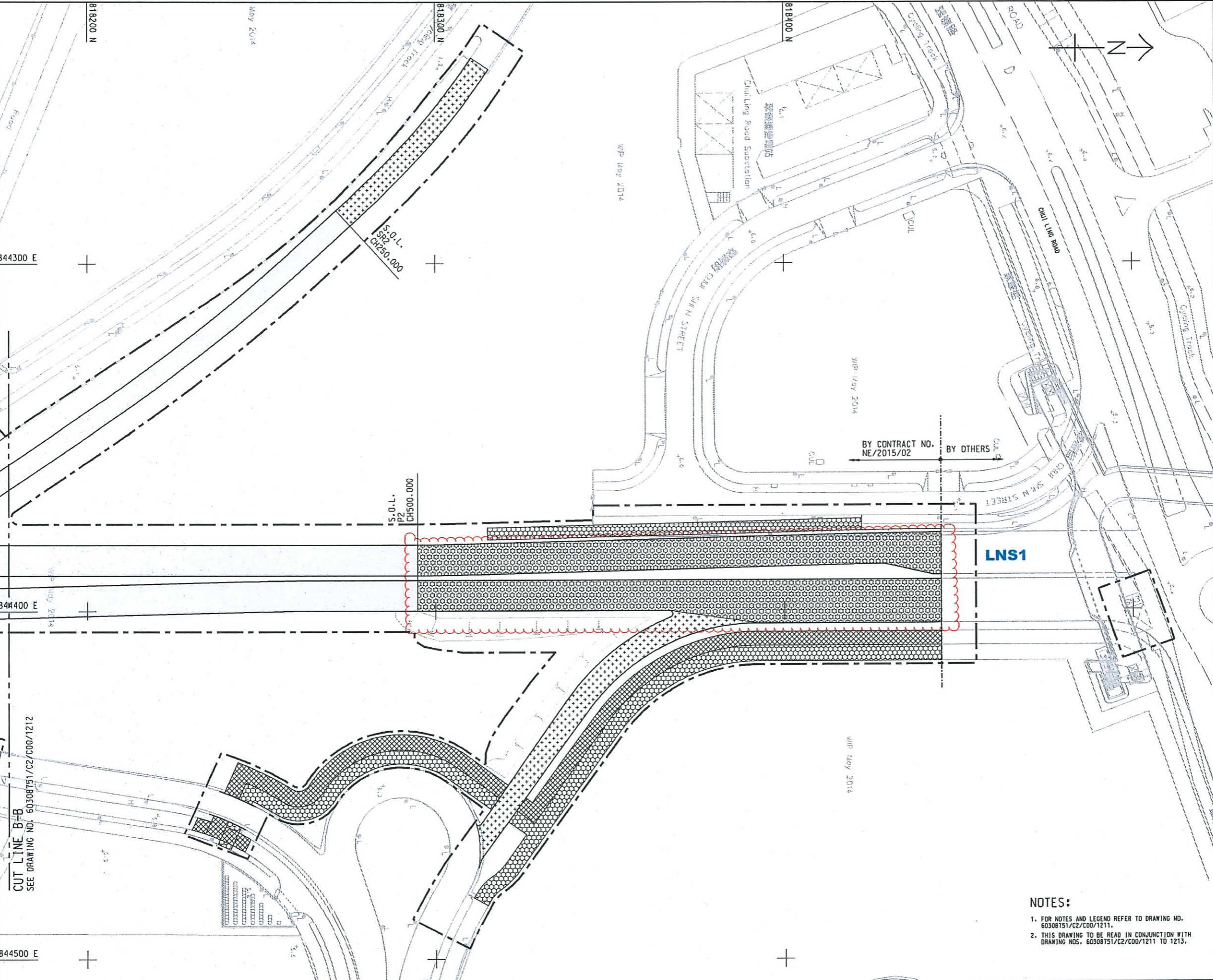
PROJECT NO.
 60308751
CONTRACT NO.
 NE/2015/02

SHEET TITLE
 ROAD PAVEMENT LAYOUT

SHEET NUMBER
 60308751/C2/C00/1212

- NOTES:**
- FOR NOTES AND LEGEND REFER TO DRAWING NO. 60308751/C2/C00/1211.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1211 TO 1213.

2016/1/28
 Plot File by: DUW
 PATH: P:\projects\60308751\DWG\Contract\251000\25_C00_1213.dgn
 Project Management Initials: Designer: ATHH Checked: RPKM Approved: CWN
 ISO A1 (594mm x 841mm)



AECOM

PROJECT
 TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
 TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
 AECOM Asia Company Ltd.
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SUB-CONSULTANTS
 PAC CONSULTANTS

ISSUE/REVISION

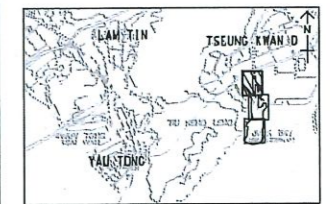
NO.	DATE	DESCRIPTION	CHKD.
-	JAN.10	TENDER DRAWING	RPCM
01			CHC

STATUS

FOR ISSUE

SCALE
 A1 1:500
DIMENSION UNIT
 METRE

KEY PLAN
 A1 1:50000



PROJECT NO.
 60308751
CONTRACT NO.
 NE/2015/02

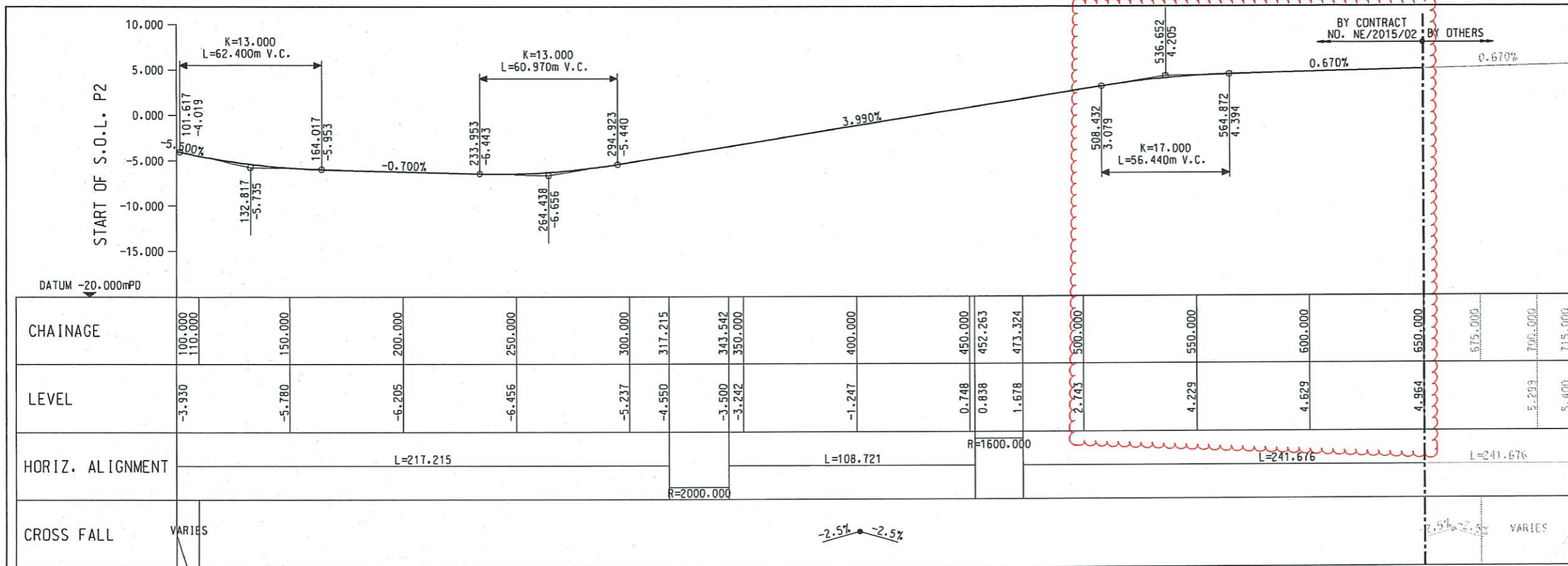
SHEET TITLE
 ROAD PAVEMENT LAYOUT

SHEET NUMBER
 60308751/C2/C00/1213
 SHEET 3 OF 3

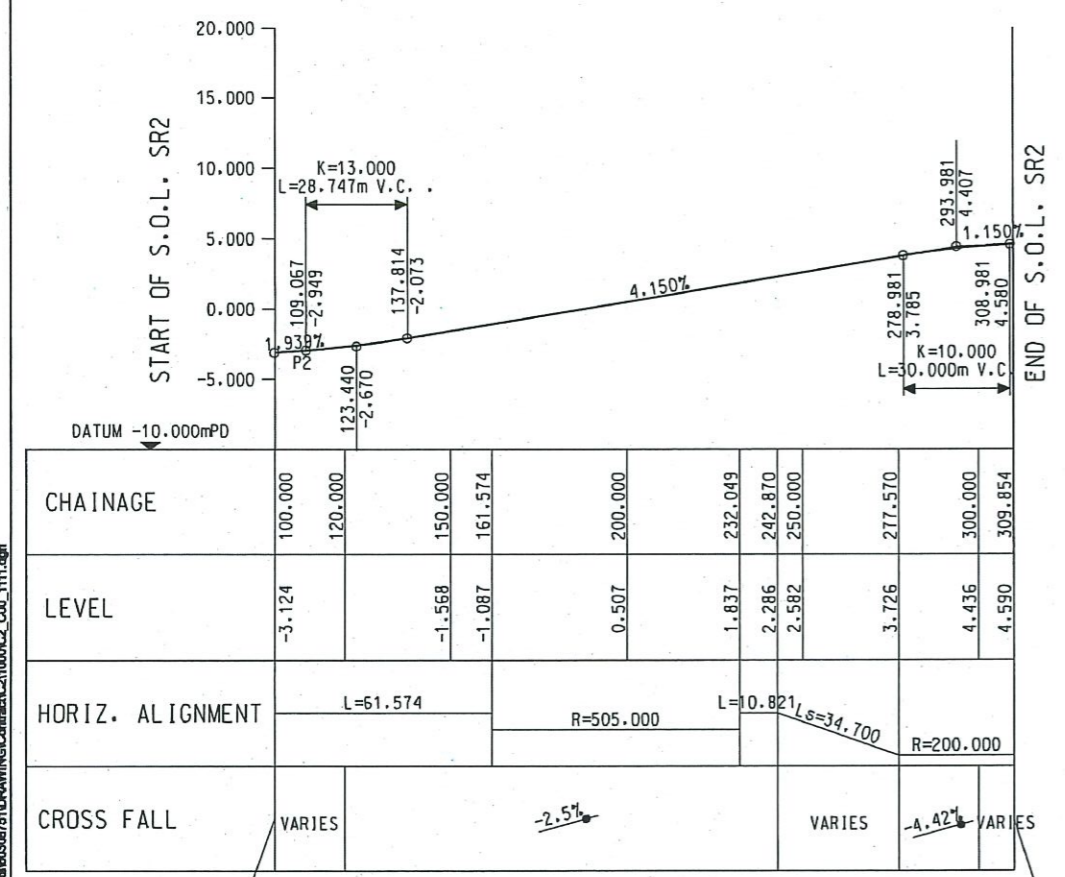
- NOTES:**
- FOR NOTES AND LEGEND REFER TO DRAWING NO. 60308751/C2/C00/1211.
 - THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1211 TO 1213.

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Project Management Initials: Designer: ATHH Checked: RPCM Approval: CWN
 City: 9p
 Scale: 190 A1 80mm x 84mm



VERTICAL PROFILE ALONG THE SETTING OUT LINE P2
 HORIZONTAL SCALE A1 1 : 1000
 VERTICAL SCALE A1 1 : 250



VERTICAL PROFILE ALONG THE SETTING OUT LINE SR2 SLIP ROAD
 MATCH WITH P2 PAVEMENT HORIZONTAL SCALE A1 1 : 1000
 MATCH WITH EXISTING PAVEMENT VERTICAL SCALE A1 1 : 250

NOTES:
 1. THIS DRAWING TO BE READ IN CONJUNCTION WITH THE SETTING OUT PLAN, DRAWING NOS. 60308751/C2/C00/1101 TO 1103.
 2. ALL LEVELS SHOWN ON THE VERTICAL PROFILE ARE IN METRES ABOVE PRINCIPAL DATUM AND REFER TO THE FINISHED ROAD LEVEL ALONG SETTING OUT LINE.
 3. CROSS FALL SHOWN IN THIS DRAWING IS TAKEN IN THE DIRECTION OF INCREASING CHAINAGES.
 4. VERTICAL CURVE OF 20m LONG SHALL BE APPLIED AT ALL CHANGES OF GRADIENT ALONG THE CARRIAGEWAY KERB UNLESS L<20m, FOR CHANGES OF GRADIENT ALONG THE CARRIAGEWAY KERB WITH L<20m, THE VERTICAL CURVE SHALL BE L(m) LONG.
 CROSS FALL "VARIES" AS GIVEN ON VERTICAL PROFILE (L)
 20 v.d. | 20 v.d.
 PROFILE ALONG KERB
 PROFILE ALONG S.D.L.
 5. CROSS FALL IN HARD SHOULDER/MARGINAL STRIP SHALL BE THE SAME AS THAT OF THE ADJOINING CARRIAGEWAY UNLESS OTHERWISE SPECIFIED OR INSTRUCTED BY THE SUPERVISOR.

ABBREVIATION:
 K CONSTANT WHERE BY VERTICAL RADIUS=100 x K
 R RADIUS (METRES)
 V.C. VERTICAL CURVE (METRES)
 LS SPIRAL LENGTH (METRES)
 L STRAIGHT LINE (METRES)

AECOM
 PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS

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

CONSULTANT
AECOM Asia Company Ltd.
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SUB-CONSULTANTS

NO.	DATE	DESCRIPTION	CHK.

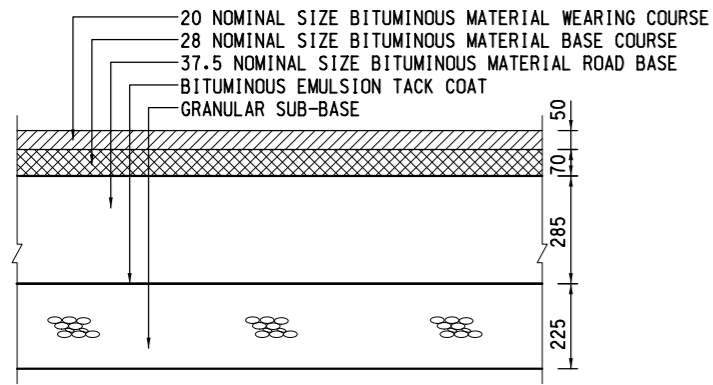
SCALE
 A1 AS SHOWN
 DIMENSION UNIT
 METRES

PROJECT NO.
 60308751
 CONTRACT NO.
 NE/2015/02

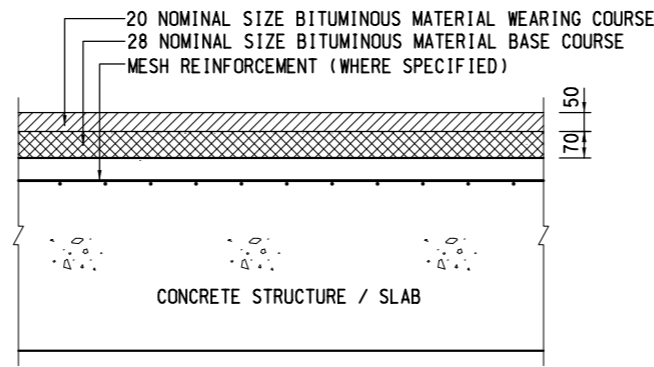
SHEET TITLE
ROAD WORKS - VERTICAL PROFILES
 SHEET NUMBER
 60308751/C2/C00/1111

START OF S.O.L. P2
 END OF S.O.L. P2
 MATCH WITH EXISTING PAVEMENT APPROX. 0.5%
 MATCH WITH S200 AND S300 PAVEMENT
 MATCH WITH P2 PAVEMENT
 MATCH WITH EXISTING PAVEMENT
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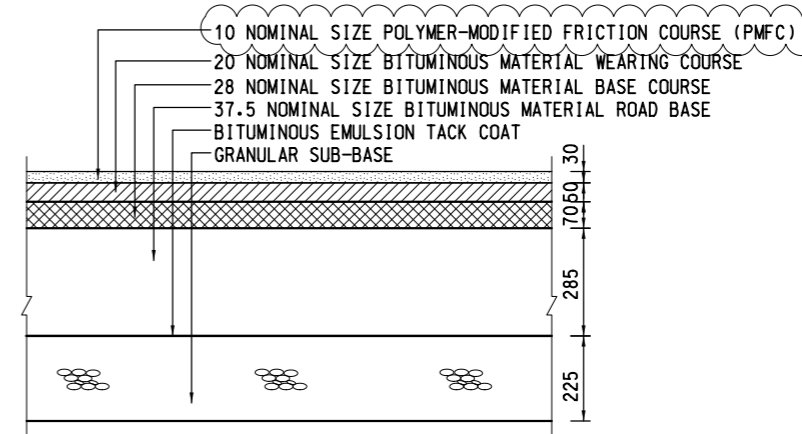
Plot File by: RONGYI 2015/1/26
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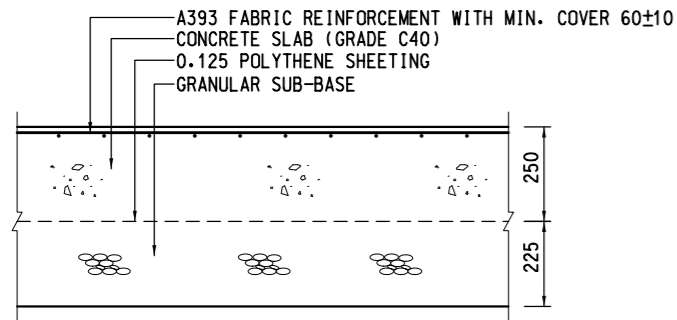
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 1)



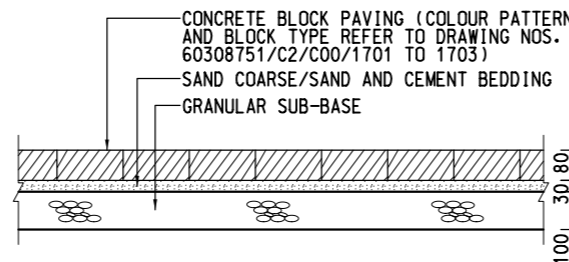
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 2)



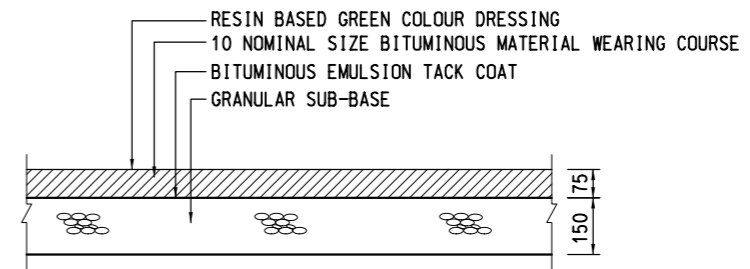
TYPICAL DETAILS FOR FLEXIBLE PAVEMENT (TYPE 3)



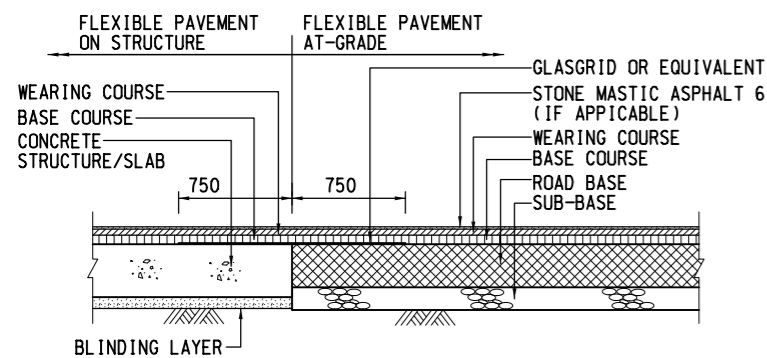
TYPICAL DETAILS FOR RIGID PAVEMENT



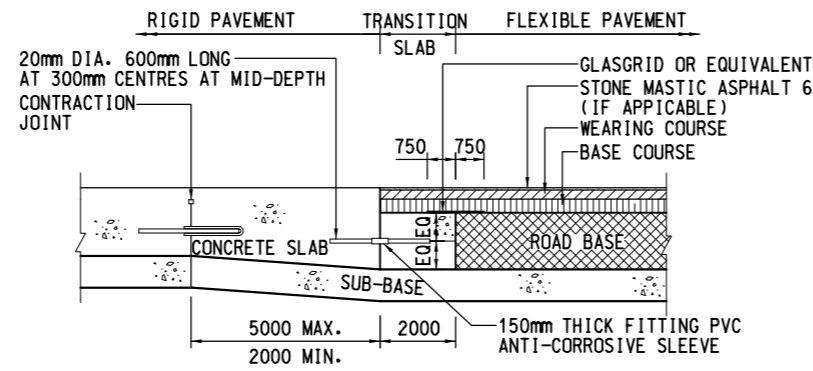
TYPICAL DETAILS FOR FOOTPATH PAVEMENT



TYPICAL DETAILS FOR CYCLE TRACK PAVEMENT



TRANSITION DETAILS BETWEEN FLEXIBLE PAVEMENT ON STRUCTURE AND FLEXIBLE PAVEMENT AT-GRADE
N.T.S.



TRANSITION DETAILS BETWEEN RIGID PAVEMENT AND FLEXIBLE PAVEMENT
N.T.S.

NOTES:

- THIS DRAWING TO BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1231 TO 1233.
- THIS DRAWING TO BE READ IN CONJUNCTION WITH THE LATEST REVISION OF HIGHWAYS DEPARTMENT STANDARD DRAWINGS INCLUDING BUT NOT LIMITED TO DRAWING NOS. H1101 TO H1134.
- FOR MESH REINFORCEMENT DETAILS REFER TO HIGHWAYS DEPARTMENT STANDARD DRAWING NO. H1102.
- WHERE A CAPPING LAYER IS REQUIRED, IT SHALL BE CONSTRUCTED TO GIVE A MINIMUM CBR VALUE OF 15%.
- AT JOINTS, THE FIRST SLAB SHALL BE CAST BEFORE THE SECOND SLAB.
- RESIN BASED COLOUR DRESSING APPROVED BY THE SUPERVISOR IN ACCORDANCE WITH PS SECTION 11 SHALL BE APPLIED ON CYCLE TRACK.
- THE CONTRACTOR MAY SUBMIT ALTERNATIVE SUPPORT DETAILS FOR DOWEL AND TIE BARS FOR THE SUPERVISOR'S ACCEPTANCE.
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.

REV.	DATE	DESCRIPTION	DRAWN	PRE.	APP.
-	10-OCT-17	-	DKSS	JJL	YYL SHMY

AECOM

KEY PLAN	
CONTRACT NO.	NE/2015/02
TSEUNG KWAN O - LAM TIN TUNNEL - ROAD P2 AND ASSOCIATED WORKS	
ROAD WORKS DETAILS	
SKETCH NO.	REV.
60308751/C2/SSK0256	-
EXTRACTED FROM DRG. NO.	SCALE
60308751/C2/C00/1231	1:20 (A3)

Portion	Activity	PME	TM Ref. / other Ref.	No. of plants	SWL	Total SWL	On-time, %	Time Factor	Distance from Notional Sources, m	Distance Attenuation*, dB (A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)	
VIII	Group 1 - General	Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	163	-52.24	0	3	56.77	68.9	
		Generator, Silenced, <=75 dB(A) at 7m	CNP 102	4	100	106	50	-3	163	-52.24	0	3	56.78		
		Air Compressor	CNP 002	4	102	108	50	-3	163	-52.24	0	3	58.78		
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	163	-52.24	-10	3	62.76		
		Dump Truck	CNP 068	2	105	108	50	-3	163	-52.24	0	3	58.77		
		Water pump, submersible (electric)(surface)	CNP 283	8	85	94	50	-3	163	-52.24	0	3	44.79		
		Water pump, submersible (electric)(Dewatering Well)	CNP 283	40	70	86	100	0	163	-52.24	-10	3	26.78		
		Excavator (223 kw) (40T)	BS C4/63	4	105	111	50	-3	163	-52.24	0	3	61.78		
		Saw, Circular Wood	CNP 201	1	108	108	50	-3	163	-52.24	0	3	58.76		
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	163	-52.24	0	3	54.77		
		Welding Machine	CNP 107	4	99	105	50	-3	163	-52.24	0	3	55.78		
		Air Blower	CNP 006	4	95	101	50	-3	163	-52.24	0	3	51.78		
		Bar Bender and Cutter	CNP 021	2	90	93	50	-3	163	-52.24	0	3	43.77		
		Aerial Platform	-	4	95	101	50	-3	163	-52.24	0	3	51.78		
		Crane Lorry	BS D7/101	3	94	99	50	-3	163	-52.24	0	3	49.53		
		Lorry	BS D8/25	2	96	99	50	-3	163	-52.24	0	3	49.77		
		Group 2 - Foundation	Crane (240 kw) (105T)	BS C4/52	3	103	108	50	-3	163	-52.24	0	3		58.53
	Drill Rig, Rotary Type (Diesel)		CNP 072	3	110	115	50	-3	163	-52.24	-5	3	60.53		
	Air Compressor		CNP 002	4	102	108	50	-3	163	-52.24	0	3	58.78		
	Piling, large diameter bored, grab and chisel		CNP164	1	114	114	50	-3	163	-52.24	-5	3	59.76		
	Piling, large diameter bored, oscillator		CNP165	1	114	114	50	-3	163	-52.24	-5	3	59.76		
	Welding Machine		CNP 107	4	99	105	50	-3	163	-52.24	0	3	55.78		
	Group 3 - Sheetpiling	Piling, Vibration Hammer	CNP 172	3	115	120	50	-3	163	-52.24	-5	3	65.53	66.3	
		Power pack (diesel)	CNP 174	2	100	103	50	-3	163	-52.24	0	3	53.77		
		Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	163	-52.24	0	3	56.77		
	Group 4 - Earth Works	Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	163	-52.24	-5	3	63.77	68.6	
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	163	-52.24	0	3	54.77		
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	163	-52.24	-10	3	62.76		
		Loader, Tracked	CNP 081	1	112	112	50	-3	163	-52.24	0	3	62.76		
	Group 5 - Road Works	Dump Truck	CNP 068	2	105	108	50	-3	163	-52.24	0	3	58.77	59.5	
		Asphalt Paver	BS DB/24	1	101	101	50	-3	163	-52.24	0	3	51.76		
	Group 6 - Concreting Works	Power Rammer Petrol	CNP 169	1	108	108	50	-3	163	-52.24	0	3	58.76	64.2	
		Concrete Pump	CNP 047	2	109	112	50	-3	163	-52.24	0	3	62.77		
	Group 7 - Grouting Works	Crawler Crane	BS C4/52	2	103	106	50	-3	163	-52.24	0	3	56.77		
		Concrete Lorry Mixer	BS D6/33	2	96	99	50	-3	163	-52.24	0	3	49.77		
	IX	Group 8 - Reclaimed Section Works	Poker, Vibratory, Handheld	BS D6/40	2	98	101	50	-3	163	-52.24	0	3	51.77	69.7
			Grout Pump	-	2	105	108	50	-3	163	-52.24	0	3	58.77	
Grout Mixer			-	2	90	93	50	-3	163	-52.24	0	3	43.77		
Crane (240 kw) (105T)			BS C4/52	6	103	111	50	-3	225	-55.06	0	3	58.72		
Generator, Silenced, <=75 dB(A) at 7m			CNP 102	6	100	108	50	-3	225	-55.06	0	3	55.72		
Concrete Lorry Mixer			BS D6/33	6	96	104	50	-3	225	-55.06	0	3	51.72		
Breaker, excavator mounted (hydraulic)			CNP 028	1	122	122	50	-3	225	-55.06	-10	3	59.94		
Dump Truck			CNP 068	6	105	113	50	-3	225	-55.06	0	3	60.72		
Water pump, submersible (electric)(surface)			CNP 283	12	85	96	50	-3	225	-55.06	0	3	43.73		
Water pump, submersible (electric)(Dewatering Well)			CNP 283	65	70	88	100	0	225	-55.06	-10	3	26.07		
Concrete Pump			CNP 047	3	109	114	50	-3	225	-55.06	0	3	61.71		
Excavator (223 kw) (40T)			BS C4/63	6	105	113	50	-3	225	-55.06	0	3	60.72		
Poker, Vibratory, Handheld			BS D6/40	4	98	104	50	-3	225	-55.06	0	3	51.96		
Roller, Vibratory			BS D8/30	4	101	107	50	-3	225	-55.06	0	3	54.96		
Welding Machine			CNP 107	4	99	105	50	-3	225	-55.06	0	3	52.96		
Air Blower			CNP 006	8	95	104	50	-3	225	-55.06	0	3	51.97		
Aerial Platform			-	4	95	101	50	-3	225	-55.06	0	3	48.96		
Air Compressor			CNP 002	4	102	108	50	-3	225	-55.06	0	3	55.96		
Drill Rig, Rotary Type (Diesel)			CNP 072	2	110	113	50	-3	225	-55.06	-5	3	55.95		
Crane Lorry			BS D7/101	4	94	100	50	-3	225	-55.04	0	3	47.98		
Grout Pump			-	2	105	108	50	-3	225	-55.04	0	3	55.97		
Grout Mixer			-	2	90	93	50	-3	225	-55.04	0	3	40.97		
Bar Bender and Cutter			CNP 021	4	90	96	50	-3	225	-55.04	0	3	43.98		
Derrick Barge			CNP 061	2	104	107	50	-3	225	-55.04	0	3	54.97		
Tug Boat			CNP 221	1	110	110	20	-3	225	-55.04	0	3	57.96		
Lorry			BS D8/25	2	96	99	50	-3	225	-55.06	0	3	46.95		

CRBC - Build King Joint Venture

Construction Noise Assessment

Period: 0700 to 1900 (except general holidays)

Noise Sensitive Receiver: CM7(0-39m)

Mitigation Measures Scenario

Noise Criteria:

75dB(A)

Portion	Activity	PME	TM Ref. / other Ref.	No. of plants	SWL	Total SWL	On-time, %	Time Factor	Distance from Notional Sources, m	Distance Attenuation*, dB(A)	Barrier Correction, dB(A)	Façade Correction, dB(A)	Predicted Noise Level, dB(A)	Total Predicted Noise Level for each group, dB(A)		
VIII	Group 1 - General	Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	157	-51.92	0	3	57.09	69.3		
		Generator, Silenced, <=75 dB(A) at 7m	CNP 102	4	100	106	50	-3	157	-51.92	0	3	57.10			
		Air Compressor	CNP 002	4	102	108	50	-3	157	-51.92	0	3	59.10			
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	157	-51.92	-10	3	63.08			
		Dump Truck	CNP 068	2	105	108	50	-3	157	-51.92	0	3	59.09			
		Water pump, submersible (electric)(surface)	CNP 283	8	85	94	50	-3	157	-51.92	0	3	45.11			
		Water pump, submersible (electric)(Dewatering Well)	CNP 283	40	70	86	100	0	157	-51.92	-10	3	27.10			
		Excavator (223 kw) (40T)	BS C4/63	4	105	111	50	-3	157	-51.92	0	3	62.10			
		Saw, Circular Wood	CNP 201	1	108	108	50	-3	157	-51.92	0	3	59.08			
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	157	-51.92	0	3	55.09			
		Welding Machine	CNP 107	4	99	105	50	-3	157	-51.92	0	3	56.10			
		Air Blower	CNP 006	4	95	101	50	-3	157	-51.92	0	3	52.10			
		Bar Bender and Cutter	CNP 021	2	90	93	50	-3	157	-51.92	0	3	44.09			
		Aerial Platform	-	4	95	101	50	-3	157	-51.92	0	3	52.10			
		Crane Lorry	BS D7/101	3	94	99	50	-3	157	-51.92	0	3	49.85			
		Lorry	BS D8/25	2	96	99	50	-3	157	-51.92	0	3	50.09			
		Group 2 - Foundation	Crane (240 kw) (105T)	BS C4/52	3	103	108	50	-3	157	-51.92	0	3		58.85	67.2
			Drill Rig, Rotary Type (Diesel)	CNP 072	3	110	115	50	-3	157	-51.92	-5	3		60.85	
			Air Compressor	CNP 002	4	102	108	50	-3	157	-51.92	0	3		59.10	
			Piling, large diameter bored, grab and chisel	CNP164	1	114	114	50	-3	157	-51.92	-5	3		60.08	
	Piling, large diameter bored, oscillator		CNP165	1	114	114	50	-3	157	-51.92	-5	3	60.08			
	Welding Machine	CNP 107	4	99	105	50	-3	157	-51.92	0	3	56.10				
	Group 3 - Sheetpiling	Piling, Vibration Hammer	CNP 172	3	115	120	50	-3	157	-51.92	-5	3	65.85	66.6		
		Power pack (diesel)	CNP 174	2	100	103	50	-3	157	-51.92	0	3	54.09			
	Group 4 - Earth Works	Crane (240 kw) (105T)	BS C4/52	2	103	106	50	-3	157	-51.92	0	3	57.09	68.8		
		Piling, Vibration Hammer	CNP 172	2	115	118	50	-3	157	-51.92	-5	3	64.09			
		Roller, Vibratory	BS D8/30	2	101	104	50	-3	157	-51.92	0	3	55.09			
		Breaker, excavator mounted (hydraulic)	CNP 028	1	122	122	50	-3	157	-51.92	-10	3	63.08			
		Loader, Tracked	CNP 081	1	112	112	50	-3	163	-52.24	0	3	62.76			
	Dump Truck	CNP 068	2	105	108	50	-3	157	-51.92	0	3	59.09				
	Group 5 - Road Works	Asphalt Paver	BS DB/24	1	101	101	50	-3	157	-51.92	0	3	52.08	59.9		
		Power Rammer Petrol	CNP 169	1	108	108	50	-3	157	-51.92	0	3	59.08			
	Group 6 - Concreting Works	Concrete Pump	CNP 047	2	109	112	50	-3	157	-51.92	0	3	63.09	64.5		
		Crawler Crane	BS C4/52	2	103	106	50	-3	157	-51.92	0	3	57.09			
		Concrete Lorry Mixer	BS D6/33	2	96	99	50	-3	157	-51.92	0	3	50.09			
		Poker, Vibratory, Handheld	BS D6/40	2	98	101	50	-3	157	-51.92	0	3	52.09			
	Group 7 - Grouting Works	Grout Pump	-	2	105	108	50	-3	157	-51.92	0	3	59.09	59.2		
		Grout Mixer	-	2	90	93	50	-3	157	-51.92	0	3	44.09			

Sound power levels of other commonly used PME

Very often, applicants for Construction Noise Permit (CNP) would use some items of Powered Mechanical Equipment (PME) not appearing in Table 3 of the “Technical Memorandum on Noise from Construction Work other than Percussive Piling”. Under section 2.8 of the said Technical Memorandum, the Authority may make use of such sound power level as it considers appropriate for the purpose of CNP application assessment. Here below are some sound power levels of a number of commonly used PME which have been used by the Authority for processing CNP application.

Identification Code	Description	Sound power level dB(A)
--	Aerial work platform, working height \leq 13m	95
--	Agitator (electric)	90
--	Air blower (electric)	95
--	Breaker, electric hand-held, 10kg < mass < 18kg	103
--	Breaker, electric hand-held, 18kg \leq mass \leq 35kg	108
--	Breaker, mini-robot mounted	115
--	Concrete burster	90
--	Concrete crusher mini-robot mounted	94
--	Concrete crusher, hand-held	97
--	Concrete pump (electric)	109
--	Concrete crusher, excavator mounted	103
--	Cutter, circular, steel (electric)	112
--	Dredger, suction	103
--	Drill, hand-held (battery)	89
--	Drill rig, rotary type (diesel)	110
--	Excavator, mini-robot mounted	94
--	Excavator, hybrid and tracked (with QPME label)	98
--	Forklift, LPG, output power \leq 32kW, speed \leq 10km/hr	104
--	Forklift, LPG, output power \leq 32kW, 10km/hr < speed \leq 15km/hr	116
--	Forklift, LPG, 32kW < output power \leq 57kW, speed \leq 15km/hr	122
--	Grout mixer	90
--	Grout pump	105
--	Generator, portable	100
--	Jig-saw, hand-held, wood (electric)	99
--	Loader, mini-wheeled, output power \leq 41kW, speed \leq 15km/hr	103
--	Piling, vibrating hammer	115
--	Poker, vibratory, hand-held (electric)	102
--	Power pack (diesel)	100
--	Power swivel	100

--	Paint line marker (low pressure)	87
--	Paint line remover	104
--	Road grinder (petrol)	108
--	Road sweeper	107
--	Road ripper, mini-robot mounted	97
--	Road ripper, excavator mounted	105
--	Saw, wire	101
--	Soil pump	103
--	Water jetting unit (diesel), silenced	94
--	Water jetting unit (diesel), standard	107
--	Light goods vehicle, gross vehicle weight \leq 5.5 tonne	101
--	Lorry, gross vehicle weight $>$ 38 tonne	112
--	Lorry, 5.5 tonne $<$ gross vehicle weight \leq 38 tonne	105
--	Lorry, with crane/grab, gross vehicle weight $>$ 38 tonne	112
--	Lorry, with crane/grab, 5.5 tonne $<$ gross vehicle weight \leq 38 tonne	105
--	Dump truck, gross vehicle weight $>$ 38 tonne	117
--	Dump truck, 5.5 tonne $<$ gross vehicle weight \leq 38 tonne	105
--	Dump truck, with grab, 5.5 tonne $<$ gross vehicle weight \leq 38 tonne	105

Remarks :

This table is to facilitate the construction industry in CNP application to find out the most appropriate sound power levels for some commonly used powered mechanical equipment which do not appear in Table 3 of the “Technical Memorandum on Noise from Construction Work other than Percussive Piling”. The information contained in this table may not be exhaustive and EPD reserves the right to update this table at any time without prior notice.

As the issue of a CNP is a privilege rather than a right, applicants should as far as possible minimize the number of PME involved and make full use of Quality Powered Mechanical Equipment (QPME) under the administrative QPME system in enhancing the chance of carrying out the proposed construction work during the restricted period. Details of the QPME system can be found in the website.

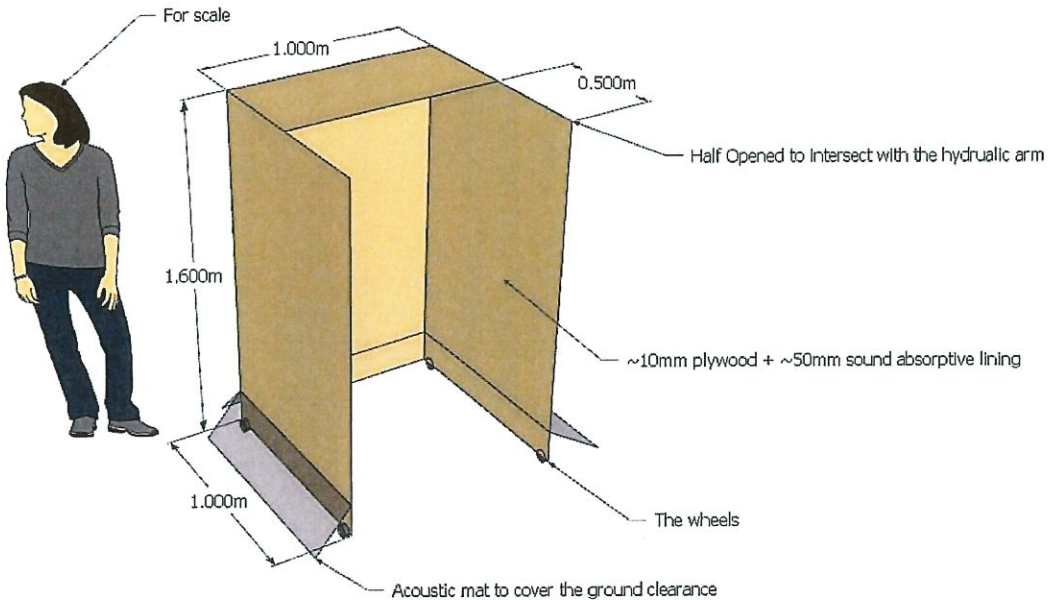
Appendix D

Sample of Movable Noise Barriers, Acoustic Mat and Enclosure

Noise Enclosure for generator & air compressor



Acoustic Box



Noise Barrier (3.5 m)



Acoustic Mat 3.5m



Test Report

No. SDHG1408012625RP

Date: Aug.19, 2014

Page 1 of 3

CHEUNG KEE CANVAS LTD.
G/F, 352, RECLAMATION ST, KLN. HK

The following sample(s) was / were submitted and identified on behalf of the client as:

Sample Description : PVC TARPAULIN
Item : CK 2009 SOUND PROOF CANVAS(1.6M)
Sample Receiving Date : Aug.13, 2014
Test Performing Date : Aug.13, 2014 to Aug.19, 2014
Test Required : In accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
Test Result(s) : For further details, please refer to the following page(s)

Signed for and on behalf of
SGS-CSTC Co., Ltd.



Irvette Zhang
Approved signatory



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SDHG 072326

I. Test conducted

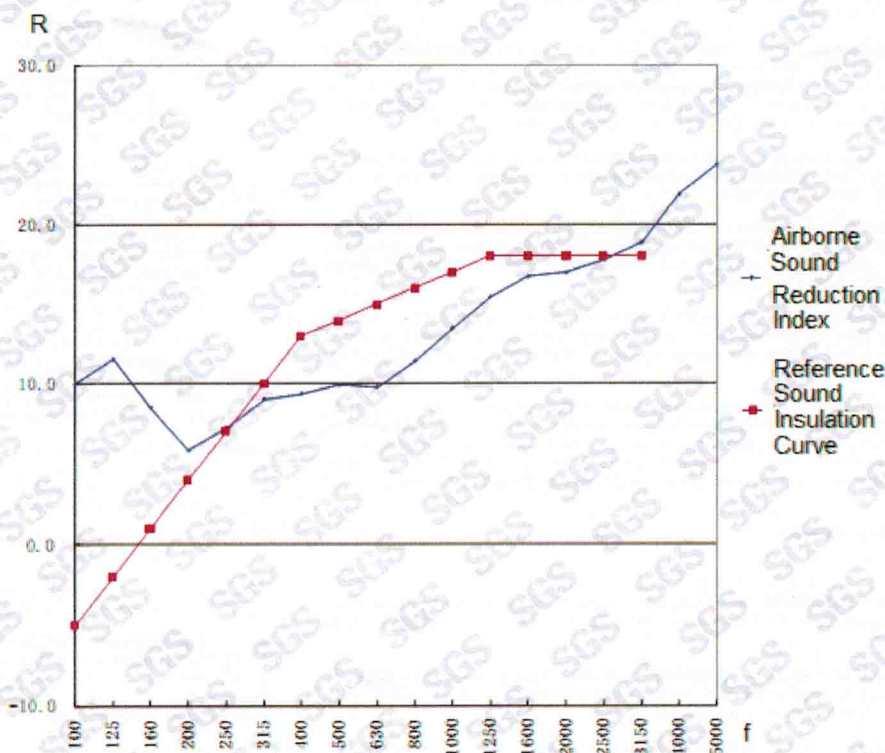
The test is performed in accordance with ISO 10140-2-2010 Acoustics -- Laboratory measurement of sound insulation of building elements -- Part 2: Measurement of airborne sound insulation
 The evaluation of the single-number rating from the results in one-third octave bands is done in accordance with ISO 717-1:1996 Acoustics - Rating of sound insulation in buildings and of building elements - Part 1: Airborne sound insulation

II. Sample Description and Conditioning

Sample name(provided by sponsor): PVC Tarpaulin
 Color: Gray
 Mass per unit area : 958 g/m²
 Area, S, of test element : 3.8 m²
 Air temp. in the test rooms : 27°C
 Relative humidity in the test rooms : 58%
 Receiving room volume : 67.9 m³

III. Test results

f Hz	R dB
100	10.1
125	11.6
160	8.6
200	5.9
250	7.3
315	9.1
400	9.4
500	10.0
630	9.9
800	11.5
1000	13.5
1250	15.5
1600	16.7
2000	17.0
2500	17.8
3150	18.9
4000	21.9
5000	23.9
Rw (C;Ctr)	14(-1;-2)



Key
 R-- sound reduction index, in dB
 f--frequency, in Hz

To be continued...

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STATEMENTS:

For laboratory measurements using sound pressure, the sound reduction index is calculated using:

$$R = L_1 - L_2 + 10 \lg \frac{S}{A} (dB)$$

where

L_1 is the energy average sound pressure level in the source room, in decibels;

L_2 is the energy average sound pressure level in the receiving room, in decibels;

S is the area of the free test opening in which the test element is installed, in square metres;

A is the equivalent sound absorption area in the receiving room, in square metres.

Photo Appendix:



Remark: This test was subcontracted to qualified subcontractor.

End of Report



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SDHG 072324

CEDD Contract No. NE/2015/02

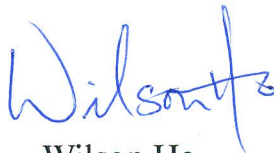
Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works

**Insertion Loss (IL) Measurement Report of Movable Noise Barrier
for Drilling Rig**

Report No.: 17351-3

For
CRBC-Build King JV

Approved by:



Wilson Ho

MIOA, MHKIOA, MHKIEIA, AFCHKRI, PMHKIQEP

Prepared by: MY



26 October 2017



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1. Measurement Date, Personnel and Standard

- Date** : 24 October 2017 10:30-15:30 hours
- Personnel** : Conducted by Joanne Shi and Chris Ng, supervised by Wilson Ho of Wilson Acoustics Limited (WAL), assisted by Karen Chiu of CRBC-Build King JV.
- Site** : Construction site of Tseung Kwan O - Lam Tin Tunnel near the junction of O King Road and Tong Yin St.
- Standard** : *ISO 10847:1997 - In-situ determination of insertion loss of outdoor noise barriers of all types.*

2. Introduction

A 5m (H) x 7m (W) U-shape movable noise barrier (total length of 10m, **Photo 1, Appendix A**) is used to provide barrier effect for drilling rig towards nearby NSRs. Drilling rig are used for retaining wall construction during daytime (0700-1900 hours) at the construction site (**Figure 1**) near Ocean Shores of the subjected project. Ocean Shores Tower 1 is identified as the critical NSR. The movable noise barrier will be always facing the NSRs and the drilling rig will be placed 1.5m away from the barrier (**Figure 1**).

Wilson Acoustics Limited is commissioned by CRBC-Build King JV to conduct an Insertion Loss (IL) measurement for the movable noise barrier. This document presents the measurement results of the IL measurement at the worst-case location.



Photo 1. Noise Barrier (front view)

**CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig**

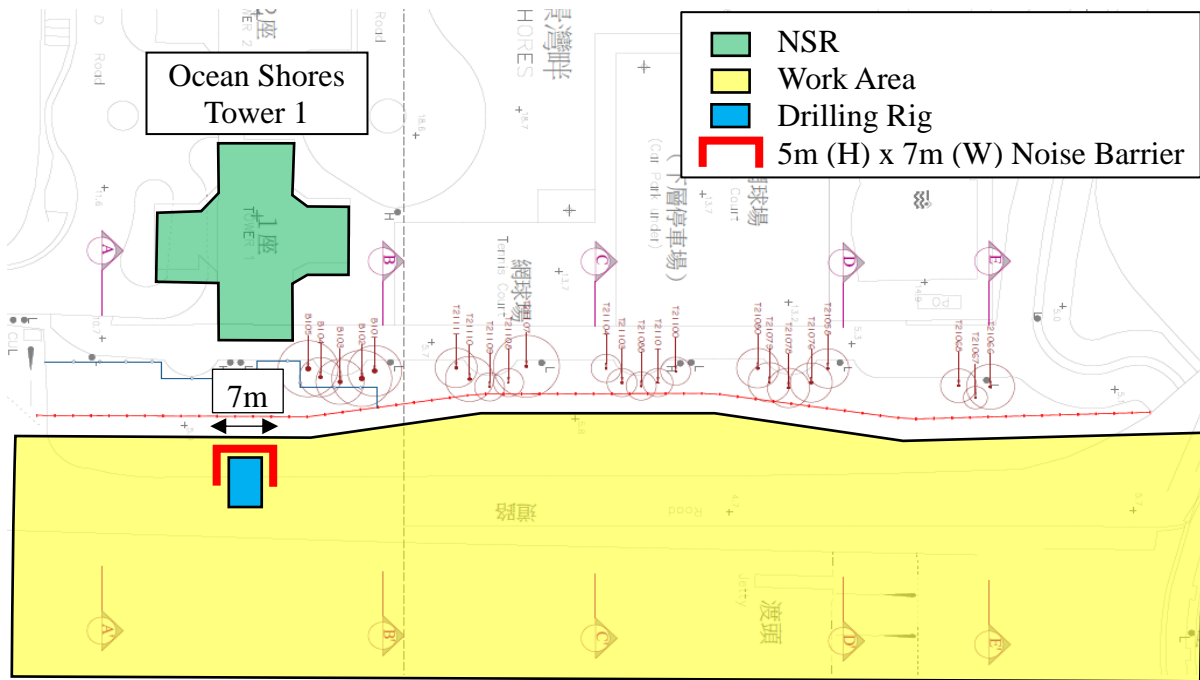


Figure 1. Site Plan with NSR of Noise Barrier Worst-case Location (Top View)

3. Instrumentation

Field calibration of sound level meter was conducted using an acoustic calibrator before and after measurements (**Table 1**). The field calibration confirmed that there was no shift on the sensitivity of the sound level meters at the calibration frequency.

Table 1: Measurement Equipment

Equipment	Brand Name & Model No.	Serial No.	Calibration Expiry
Sound level meter	Svantek - SVAN958	20890	22 Jun 2019
Sound level meter	Svantek - SVAN958	23412	12 Mar 2019
Acoustics calibrator	Svantek - SV30A	10814	14 Jun 2018
Loudspeaker	QSC – K12	GDD541208	N/A

4. Insertion Loss (IL) Testing Methodology

4.1 Testing Standard and Calculation of Insertion Loss (IL)

ISO 10847- In-situ determination of insertion loss of outdoor noise barriers of all types was used. The IL of the noise barrier was determined by comparison of the measured noise levels with and without the noise barrier. Based on the measured noise levels at the receiver and reference microphone (1m from loudspeakers) locations, the IL is given by:



CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

IL = L (with) - L (without)

Where $L(\text{with}) = L(\text{ref, with}) - L(\text{rec, with})$

$L(\text{without}) = L(\text{ref, without}) - L(\text{rec, without})$

L (ref, with) is the noise level of reference microphone with noise barrier installed between the drilling rig and the receiver.

L (rec, with) is the noise level of receiver microphone with noise barrier installed between the drilling rig and the receiver.

L (ref, without) is the noise level of reference microphone without noise barrier.

L (rec, without) is the noise level of receiver microphone without noise barrier.

4.2 Loudspeaker and Receiver Microphone Locations

As the NSR, Ocean Shores Tower 1, is not accessible, noise measurement was conducted next to the NSR. The measurement results would not be affected due to the similar measurement conditions.

A schematic concept of measurement methodology is presented in **Figure 2** and **3**. A loudspeaker was located at ground level (major noise source of drilling rig, the drilling interfaces between the ground and pipe pile, is at ground level) in the site area with horizontal distance of ~23m from the receiver microphone. The receiver microphone was located 2m above the ground level of that location (there is a level difference of ~6m between the ground level of site area and ground level of receiver microphone).

For the 'with noise barrier' scenario, a noise barrier was placed at the closest to the receiver microphone. The loudspeaker is placed 1.5m from the noise barrier.

The noise barrier was removed for measurement of the 'without noise barrier' scenario. The distance between the loudspeaker and receiver microphone location was remain unchanged for both scenarios.

4.3 Playback of Drilling Rig Noise

Drilling rig noise, major noise source, was recorded and played back by loudspeaker to simulate real operation. The loudspeaker provided steady continuous noise source for accurate measurement. Reference noise measurement was conducted 1m from the loudspeaker throughout the measurement to monitor the loudspeaker output variation.

4.4 Site Conditions

During the noise measurement, all other noisy activities were stopped.

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Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

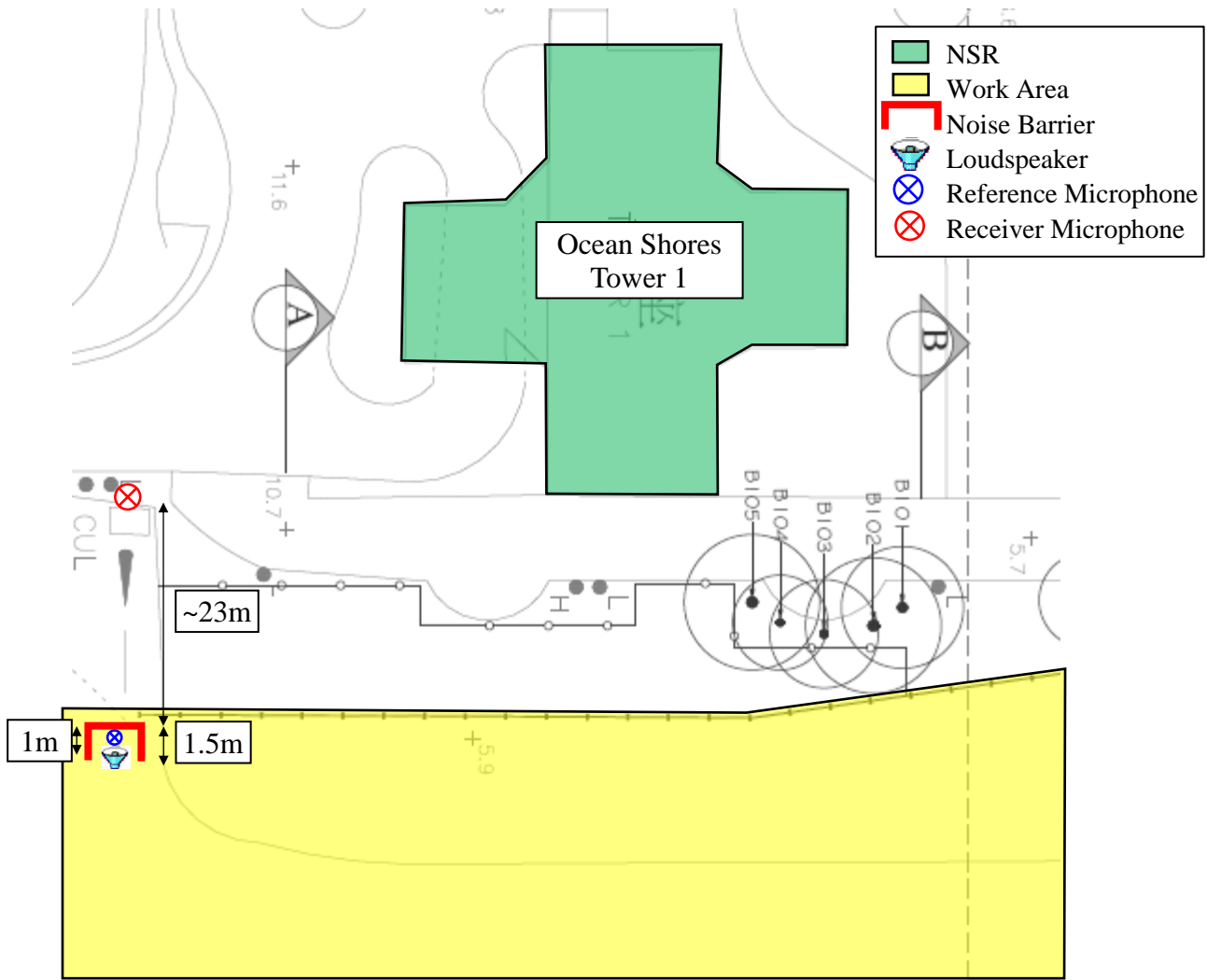


Figure 2. Schematic Concept of IL Measurement (Plan View)

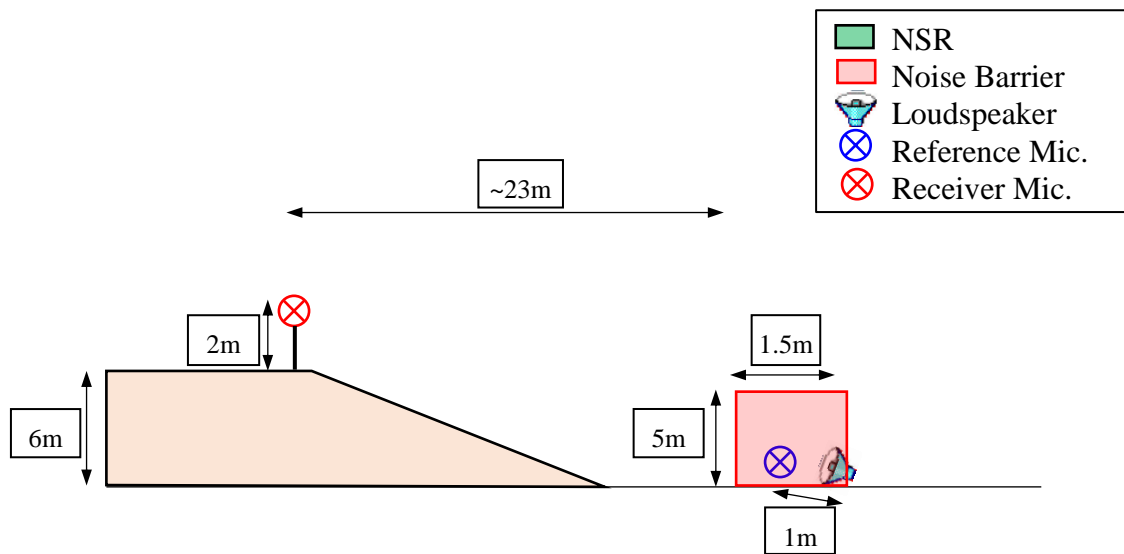


Figure 3. Schematic Concept of IL Measurement (Side View)



5. Measurement Results

5.1 Background Noise Measurement Results

Background noise measurements were conducted when all PMEs were switched off. For conservative approach, background noise correction was conducted with the minimum background $L_{eq,15s}$ (**Table 2**).

Table 2: Background (B/G) Noise Measurement Results, $L_{eq,15s}$, dB(A)

B/G Noise, $L_{eq,30s}$, dB(A)				Minimum B/G, dB(A)
58.0	57.6	57.0	57.4	57.0

5.2 Insertion Loss Measurement Results

The IL measurement results of the noise barrier were measured to be **11.7dB(A)** for drilling rig noise as shown in **Table 3**. Measurement photos are shown in **Appendix A**.

Table 3: IL Measurement Results for the Noise Barrier

Receiver Mic. Location	Loudspeaker without Noise Barrier				Loudspeaker with Noise Barrier				IL, dB(A)
	Ref. Mic. Noise Level	Receiver Mic. Noise Level			Ref. Mic. Noise Level	Receiver Mic. Noise Level			
		$L_{eq,30s}$	B/G	B/G Corrected		$L_{eq,30s}$	B/G	B/G Corrected	
R1	111.6	78.0	57.0	78.0	112.8	67.8	57.0	67.4	
	111.7	78.2	57.0	78.2	112.7	67.8	57.0	67.4	
	111.9	78.2	57.0	78.2	112.7	67.7	57.0	67.3	
	111.7	78.0	57.0	78.0	112.6	67.7	57.0	67.3	
Average	111.7			78.1	112.7			67.4	
IL =									11.7

6. Conclusion

The Insertion loss measurement for the Movable Noise Barrier was conducted according to *ISO 10847:1997* for Drilling Rig noise. Insertion loss was measured to be 11.7dB(A). IL of **12dB(A)** is proposed for the Movable Noise Barrier for Drilling Rig.

Appendix A: Measurement Photos



Photo A1. Receiver Microphone



Photo A2. Loudspeaker, Reference Microphone and Enclosure for with Noise Barrier Scenario



Photo A3. Loudspeaker and Reference Microphone for without Noise Barrier Scenario



Appendix B: Noise Spectrum

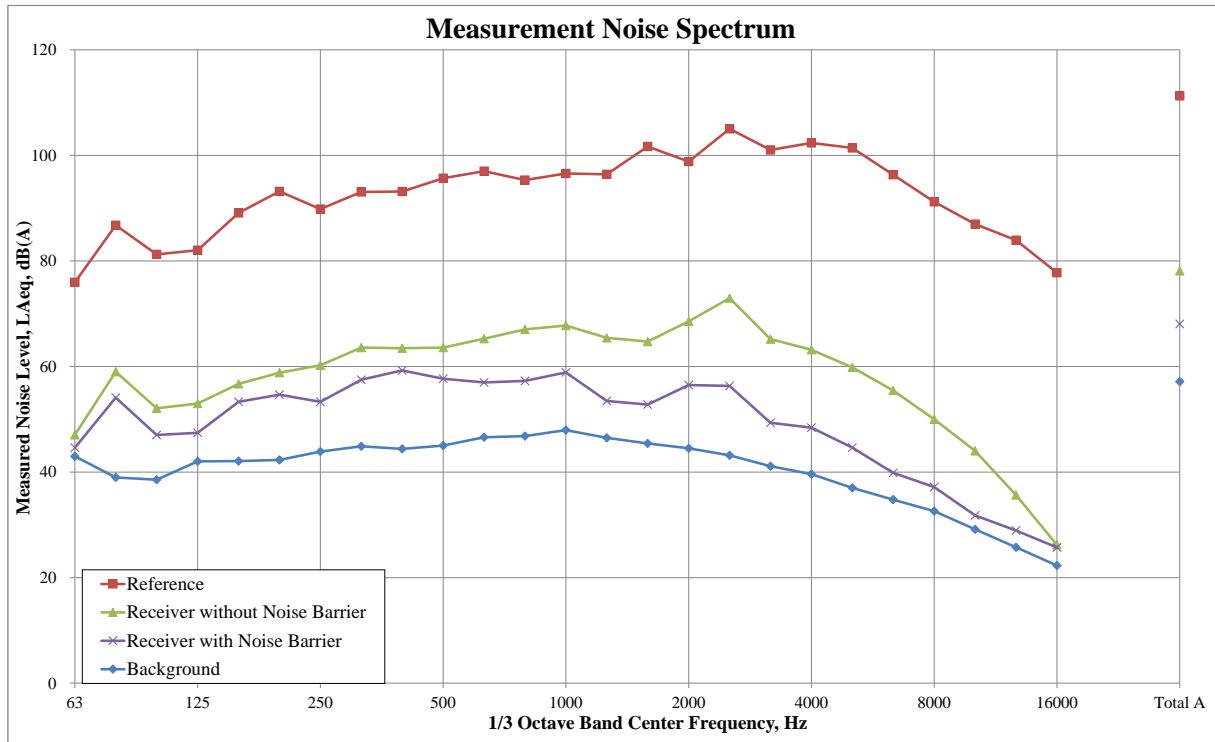


Figure B1: Measurement Noise Spectrum



CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Appendix C: Equipment Calibration Certificate

Figure C1: SVAN 958 (20890) Calibration Certificate, Page 1



CALIBRATION CERTIFICATE

Certificate Information				
Date of Issue	23-Jun-2017		Certificate Number	MLCN171137S
Customer Information				
Company Name	Wilson Acoustics Limited			
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong			
Equipment-under-Test (EUT)				
Description	Sound & Vibration Analyser			
Manufacturer	Svantek			
Model Number	SVAN 958			
Serial Number	20890			
Equipment Number	--			
Calibration Particular				
Date of Calibration	23-Jun-2017			
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-2018			
Calibration Procedure	MLCG00, MLCG15			
Calibration Conditions	Laboratory	Temperature	23 °C ± 5 °C	
		Relative Humidity	55% ± 25%	
	EUT	Stabilizing Time	Over 3 hours	
		Warm-up Time	10 minutes	
		Power Supply	Internal battery	
Calibration Results	Calibration data were detailed in the continuation pages.			
Approved By & Date				
		K.O. Lo	23-Jun-2017	
Statements				
<ul style="list-style-type: none"> * Calibration equipment used for this calibration are traceable to national / international standards. * The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement. * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT. * The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited. 				

Page 1 of 2



CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Figure C2: SVAN 958 (20890) Calibration Certificate, Page 2



Certificate No.MLCN171137S

Calibration Data						
Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.1 dB	94.0 dB	0.1 dB	0.2 dB
			114.1 dB	114.0 dB	0.1 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	C / SLOW (1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
		105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
		105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
		105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB
		105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
LIN / IMPULSE (1 kHz Input)	130 dB	114.1 dB	114.0 dB	0.1 dB	0.2 dB	
	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB	

- END -

Calibrated By : Patrick
Date : 23-Jun-2017

Checked By : K.O. Lo
Date : 23-Jun-2017

Page 2 of 2

萬儀校正中心有限公司
MaxLab Calibration Centre Limited

香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室

Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk




CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Figure C3: SVAN 958 (23412) Calibration Certificate, Page 1



MAXLAB

CALIBRATION CERTIFICATE

<i>Certificate Information</i>																
Date of Issue	13-Mar-2017															
Certificate Number	MLCN170405S															
<i>Customer Information</i>																
Company Name	Wilson Accoustics Limited															
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong															
<i>Equipment-under-Test (EUT)</i>																
Description	Sound & Vibration Analyser															
Manufacturer	Svantek															
Model Number	SVAN 958															
Serial Number	23412															
Equipment Number	--															
<i>Calibration Particular</i>																
Date of Calibration	13-Mar-2017															
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-2018															
Calibration Procedure	MLCG00, MLCG15															
Calibration Conditions	<table border="1"> <tr> <td>Laboratory</td> <td>Temperature</td> <td>23 °C ± 5 °C</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>55% ± 25%</td> </tr> <tr> <td>EUT</td> <td>Stabilizing Time</td> <td>Over 3 hours</td> </tr> <tr> <td></td> <td>Warm-up Time</td> <td>10 minutes</td> </tr> <tr> <td></td> <td>Power Supply</td> <td>Internal battery</td> </tr> </table>	Laboratory	Temperature	23 °C ± 5 °C		Relative Humidity	55% ± 25%	EUT	Stabilizing Time	Over 3 hours		Warm-up Time	10 minutes		Power Supply	Internal battery
Laboratory	Temperature	23 °C ± 5 °C														
	Relative Humidity	55% ± 25%														
EUT	Stabilizing Time	Over 3 hours														
	Warm-up Time	10 minutes														
	Power Supply	Internal battery														
Calibration Results	Calibration data were detailed in the continuation pages.															
<i>Approved By & Date</i>																
	 K.O. Lo 13-Mar-2017															
<i>Statements</i>																
<ul style="list-style-type: none"> * Calibration equipment used for this calibration are traceable to national / international standards. * The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement. * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT. * The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited. 																

Page 1 of 2

萬儀校正中心有限公司
MaxLab Calibration Centre Limited


香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室

Unit B2, 9/F., Boldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk



CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Figure C4: SVAN 958 (23412) Calibration Certificate, Page 2



Certificate No MLCN170405S

Calibration Data						
Channel / Mode	Filter / Detector	Range	EUT Reading	Standard Reading	EUT Error	Calibration Uncertainty
CH4 / Sound	A / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / FAST (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
			114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	LIN / SLOW (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	A / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
		130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB
	C / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB
130 dB		114.0 dB	114.0 dB	0.0 dB	0.2 dB	
LIN / IMPULSE (1 kHz Input)	105 dB	94.0 dB	94.0 dB	0.0 dB	0.2 dB	
	130 dB	114.0 dB	114.0 dB	0.0 dB	0.2 dB	

- END -

Calibrated By :	Patrick	Checked By :	K.O. Lo
Date :	13-Mar-2017	Date :	13-Mar-2017

Page 2 of 2




CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Figure C5: Acoustics Calibrator (10814) Calibration Certificate, Page 1



MAXLAB

CALIBRATION CERTIFICATE

<i>Certificate Information</i>																
Date of Issue	15-Jun-2017															
Certificate Number	MLCN171088S															
<i>Customer Information</i>																
Company Name	Wilson Accoustics Limited															
Address	Unit 601, Block A, Shatin Industrial Centre, Yuen Shun Circuit, Shatin, N. T., Hong Kong															
<i>Equipment-under-Test (EUT)</i>																
Description	Acoustic Calibrator															
Manufacturer	Svantek															
Model Number	SV 30A															
Serial Number	10814															
Equipment Number	--															
<i>Calibration Particular</i>																
Date of Calibration	15-Jun-2017															
Calibration Equipment	4231(MLTE008) / PA160059 / 20-May-18 1351(MLTE049) / MLEC17/06/02 / 6-Jun-18															
Calibration Procedure	MLCG00, MLCG15															
Calibration Conditions	<table border="1"> <tr> <td>Laboratory</td> <td>Temperature</td> <td>23 °C ± 5 °C</td> </tr> <tr> <td></td> <td>Relative Humidity</td> <td>55% ± 25%</td> </tr> <tr> <td>EUT</td> <td>Stabilizing Time</td> <td>Over 3 hours</td> </tr> <tr> <td></td> <td>Warm-up Time</td> <td>Not applicable</td> </tr> <tr> <td></td> <td>Power Supply</td> <td>Internal battery</td> </tr> </table>	Laboratory	Temperature	23 °C ± 5 °C		Relative Humidity	55% ± 25%	EUT	Stabilizing Time	Over 3 hours		Warm-up Time	Not applicable		Power Supply	Internal battery
Laboratory	Temperature	23 °C ± 5 °C														
	Relative Humidity	55% ± 25%														
EUT	Stabilizing Time	Over 3 hours														
	Warm-up Time	Not applicable														
	Power Supply	Internal battery														
Calibration Results	Calibration data were detailed in the continuation pages. All calibration results were within EUT specification.															
<i>Approved By & Date</i>																
	 K.O. Lo 15-Jun-2017															
<i>Statements</i>																
<ul style="list-style-type: none"> * Calibration equipment used for this calibration are traceable to national / international standards. * The results on this Calibration Certificate only relate to the values measured at the time of the calibration and the uncertainties quoted will not include allowance for the EUT long term drift, variation with environmental changes, vibration and shock during transportation, overloading, mishandling, misuse, and the capacity of any other laboratory to repeat the measurement. * MaxLab Calibration Centre Limited shall not be liable for any loss or damage resulting from the use of the EUT. * The copy of this Certificate is owned by MaxLab Calibration Centre Limited. No part of this Certificate may be reproduced without the prior written approval of MaxLab Calibration Centre Limited. 																



CEDD Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works
Insertion Loss (IL) Measurement Report of Movable Noise Barrier for Drilling Rig

Figure C6: Acoustics Calibrator (10814) Calibration Certificate, Page 2



Certificate No. MLCN171088S

<i>Calibration Data</i>					
EUT Setting		Standard Reading	EUT Error	Calibration Uncertainty	EUT Specification
94	dB	94.0 dB	0.0 dB	0.15 dB	± 0.3 dB
114	dB	113.9 dB	0.1 dB	0.15 dB	± 0.3 dB

- END -

Calibrated By : Patrick
Date : 15-Jun-17

Checked By : K.O. Lo
Date : 15-Jun-17

Page 2 of 2

萬儀校正中心有限公司
MaxLab Calibration Centre Limited

香港新界葵涌華星街 16-18 號保盈工業大廈 9 樓 B2 室

Unit B2, 9/F., Baldwin Industrial Bldg., 16-18 Wah Sing Street, Kwai Chung, N.T., Hong Kong Tel: (852) 2116 1380 Fax: (852) 2264 6480 Email: info@maxlab.com.hk



Acoustics Innovation

SilentUP[®] Retractable Noise Barrier

PATENTED

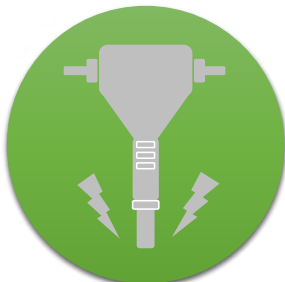


Product of Hong Kong
THE WORLD'S FIRST
RETRACTABLE NOISE BARRIER
26 dB(A) NOISE REDUCTION

Happy Valley Race Course



Roadworks



Breaking
Drilling



Piling



Loading
Unloading



Concreting

aihk.hk

info@aihk.hk

(852) 2702-2007

R&D Division of





Product Description

SilentUP® is a patented retractable noise barrier for construction works and outdoor music events. It can be easily installed and mobilized by people without using any machines. No concrete foundation is required and the installation process is quiet enough to be conducted even at night time. The panels are installed upwards from ground level and connected by magnetic gap sealing.

Our product has been widely used in Hong Kong. Visit our website for the job references aihk.hk/SilentUP/reference.

Benefits

- ▶ Quiet and manual installation
- ▶ Flexible construction site planning
- ▶ Facilitate Construction Noise Permit (CNP) application process
- ▶ Minimize noise complaints
- ▶ No concrete foundation required

Technical Information

SilentUP® noise barrier material conforms to the flammability requirement specifications.

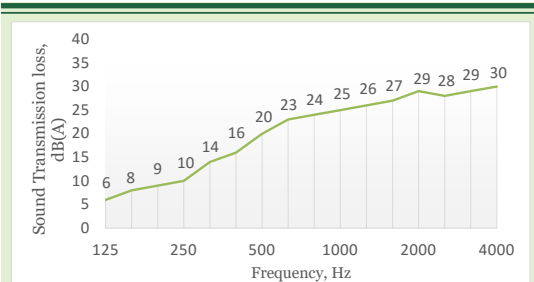
BS EN ISO 15025:2002 6 TYPE B
GB8624-1997 TYPE B

Product Specification

Modular Size	1m(H) x 1.35m(W)
Modular Weight	6kg
Maximum Height	10m
Insertion Loss*	26 dB(A)
STC	23
Standard Colour	Grey
Panel Thickness	100mm on edges

* Tested with white noise source

Sound Transmission Loss



Testing method in accordance with BS EN ISO 10140-2: 2010



Client Feedback

“Some of our contractors have used the retractable noise barriers to facilitate CNP application. They have found this innovative product useful - lightweight, easy to manoeuvre, and fit for purpose.”

Richard Kwan
Environment Manager
MTR Corporation Ltd

“We are impressed by SilentUP’s quick installation and relocation, it is definitely one of the best innovations and practicable approaches for the noise mitigation measures for the construction activities.”

Lighting Chan
Environmental Compliance Support Manager,
Leighton Asia Ltd

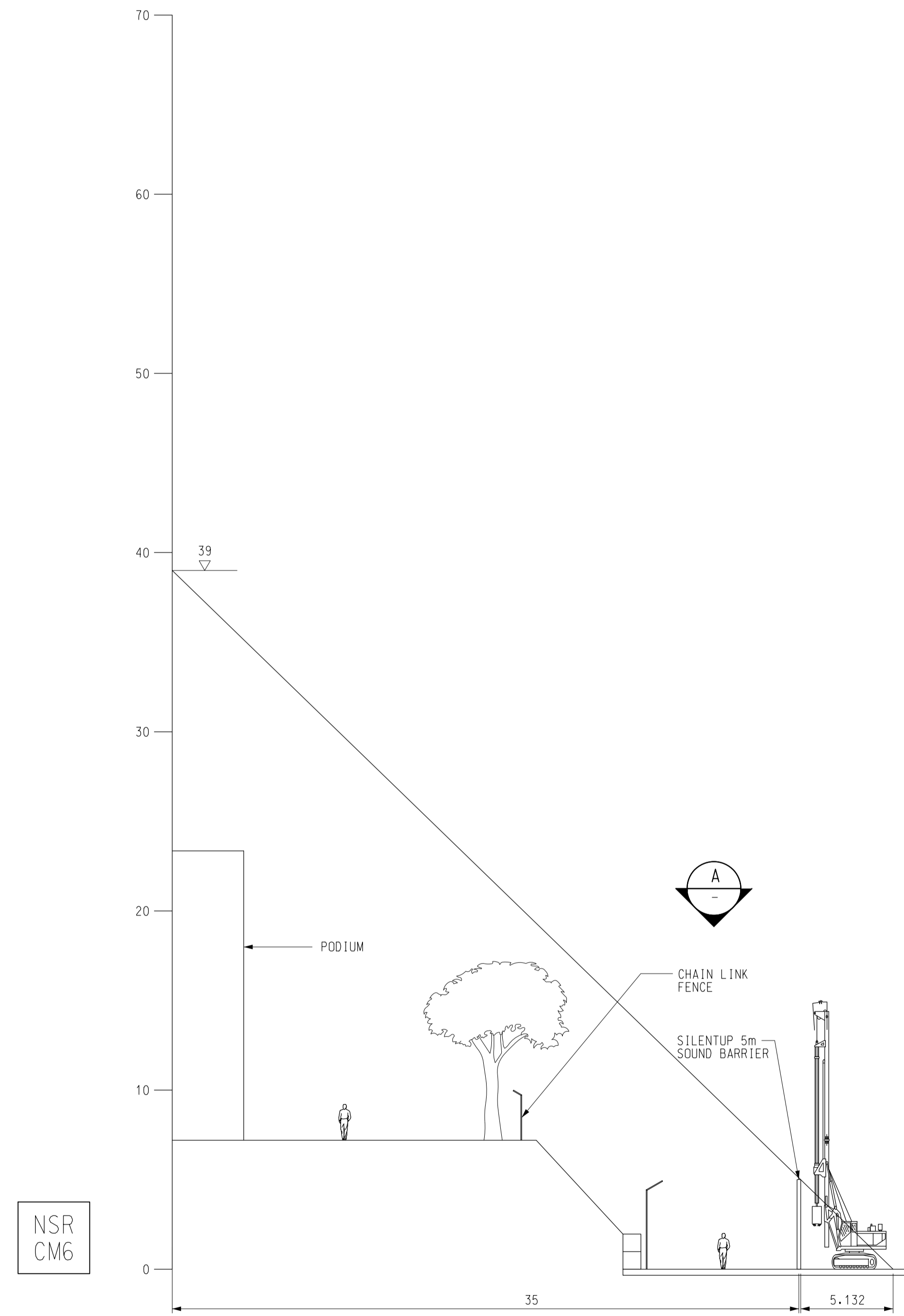
“We are happy with Acoustics Innovation’s professional service (SilentUP Noise Barrier) in helping us achieve our noise mitigation goals.”

Ronald Fung
Project QA & Environmental Manager
Kier - Laing O’Rourke - Kaden Joint Venture

“SilentUP is definitely a useful tool to minimize the noise pollution. We successfully obtained a CNP and most importantly no complaint has been received from the NSRs.”

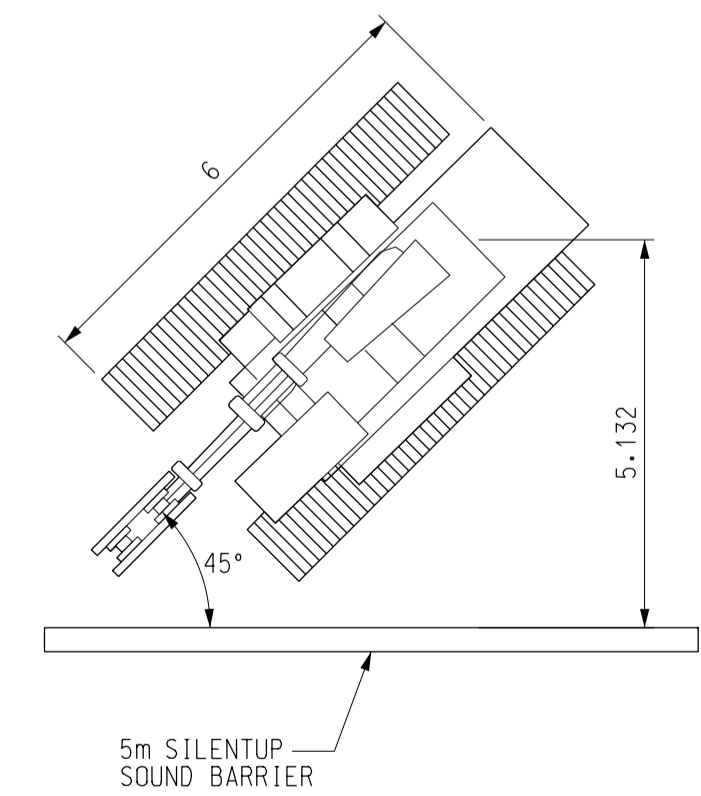
Clarence Yeung
Environmental Officer
Chun Wo Construction and Engineering Co. Ltd

Installation videos available at aihk.hk/youtube

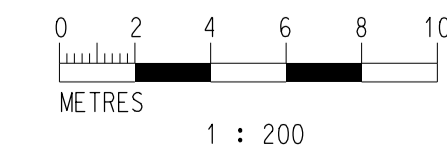


NSR
CM6

DETAIL
SCALE 1:200



VIEW
SCALE 1:100



Rev. 修訂	Description 內容摘要	By 設計	Date 日期
PM			
土木工程拓展署 Civil Engineering and Development Department			
Supervisor			
AECOM AECOM Asia Co. Ltd.			
Contractor			
中國路橋 CRBC BuildKing CRBC-Build King Joint Venture			
Project title 工程名稱			
Contract No. NE/2015/02 Tseung Kwan O - Lam Tin Tunnel Road P2 and Associated Works			
Drawing title 圖紙名稱			
PORTION IV 35m FROM NSR CM6 SCHEMATIC DIAGRAMS			
Drawing no. 圖紙編號		Rev. 修訂	
NE/2015/02/SK/0084		-	
Drawn By 繪圖	Checked By 覆核	Approved By 批准人	
AL			
Scale 比例	Status 階段		
AS SHOWN @ A1			

**APPENDIX T
CULTURAL HERITAGE MONITORING
RESULTS**

Appendix T – Cultural Heritage Monitoring Results

Date	Tilting				Settlement (mm)			Vibration (mm/s)		
	THT-TM-01	THT-TM-02	THT-TM-03	THT-TM-04	THT-BSP-1	THT-BSP-2	THT-BSP-3	Measurement Direction		
								Tran	Vertical	Longitude
01-Jun-21								0.126	0.189	0.173
02-Jun-21								0.087	0.260	0.110
03-Jun-21								0.102	0.166	0.158
04-Jun-21								0.244	0.134	0.370
05-Jun-21								0.158	0.236	0.150
07-Jun-21								0.118	0.118	0.118
08-Jun-21								0.134	0.126	0.150
09-Jun-21								0.221	0.166	0.166
10-Jun-21								0.158	0.150	0.134
11-Jun-21								0.213	0.229	0.158
12-Jun-21								0.126	0.118	0.118
15-Jun-21								0.126	0.134	0.118
16-Jun-21								0.158	0.434	0.268
17-Jun-21								0.134	0.102	0.095
18-Jun-21								0.150	0.110	0.095
19-Jun-21								0.158	0.347	0.221
21-Jun-21								0.173	0.252	0.181
22-Jun-21								0.205	0.276	0.394
23-Jun-21								0.110	0.126	0.110
24-Jun-21								0.102	0.126	0.110
25-Jun-21								0.166	0.189	0.229
26-Jun-21								0.110	0.134	0.102
28-Jun-21								0.118	0.118	0.110
29-Jun-21								0.095	0.118	0.102
30-Jun-21								0.134	0.244	0.126
Alert Level									4.5	
Alarm Level									4.8	
Action Level									5	

Obstructed by THT renovation work

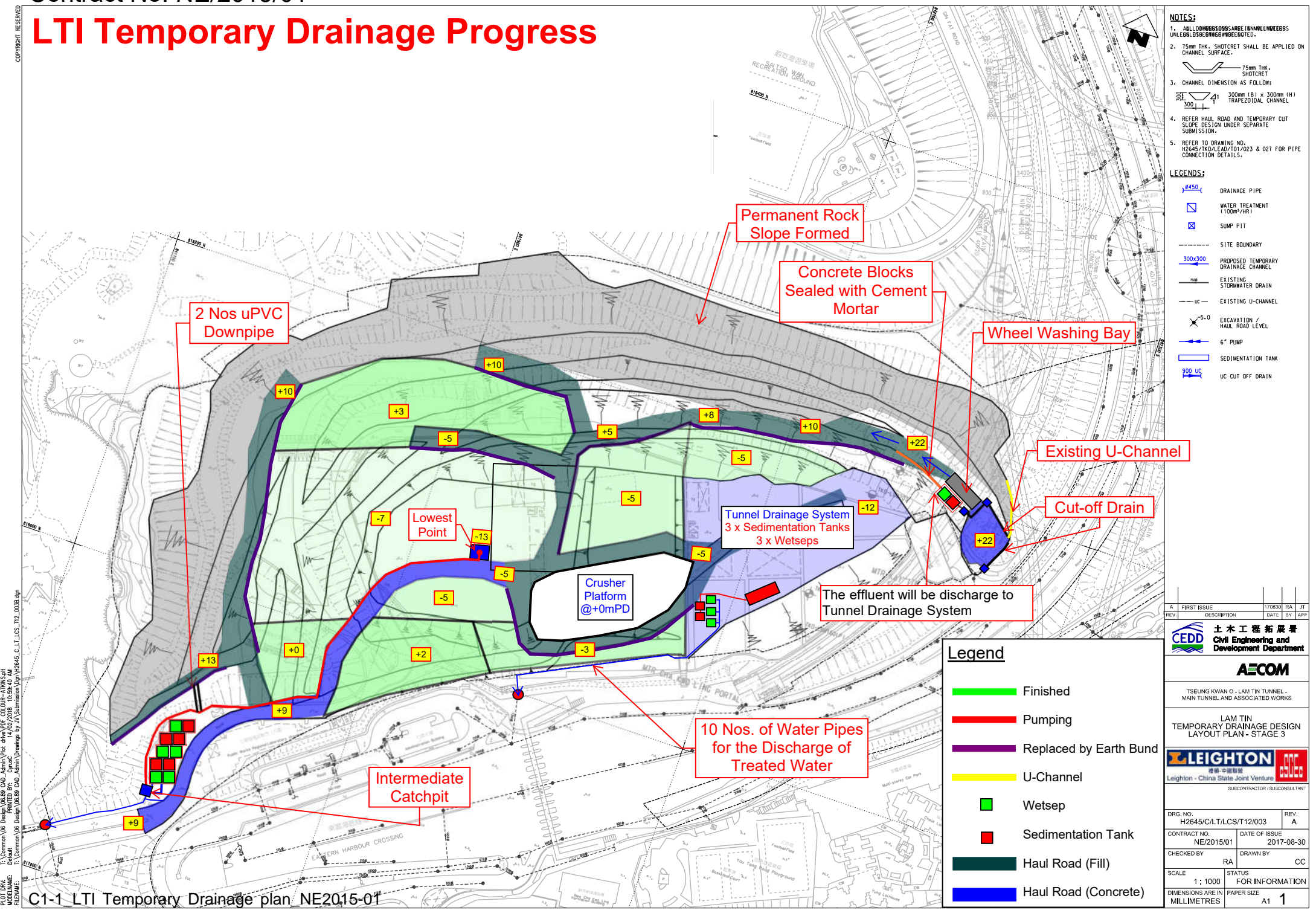
Note:

Bold means Alert Level exceedance**Bold Italic** means Alarm Level exceedance**Bold Italic with underline** means Action Level exceedance

**APPENDIX V
SURFACE RUNOFF MANAGEMENT
PLAN**

LTI Temporary Drainage Progress

COPYRIGHT RESERVED



- NOTES:**
1. ALL DIMENSIONS ARE LARGE 1000 MILLIMETRES UNLESS OTHERWISE SPECIFIED.
 2. 75mm THK. SHOTCRET SHALL BE APPLIED ON CHANNEL SURFACE.
 3. CHANNEL DIMENSION AS FOLLOW:

	300mm (B) x 300mm (H) TRAPEZOIDAL CHANNEL
--	--
 4. REFER HAUL ROAD AND TEMPORARY CUT SLOPE DESIGN UNDER SEPARATE SUBMISSION.
 5. REFER TO DRAWING NO. H2645/T/O/LEAD/T01/0223 & 027 FOR PIPE CONNECTION DETAILS.

- LEGENDS:**
- 450 Drainage Pipe
 - WATER TREATMENT (100m³/HR)
 - SUMP PIT
 - SITE BOUNDARY
 - PROPOSED TEMPORARY DRAINAGE CHANNEL
 - EXISTING STORMWATER DRAIN
 - EXISTING U-CHANNEL
 - EXCAVATION / HAUL ROAD LEVEL
 - 6" PUMP
 - SEDIMENTATION TANK
 - UC CUT OFF DRAIN

REV.	DESCRIPTION	DATE	BY	APP.
A	FIRST ISSUE	17/08/30	RA	JT

土木工程拓展署
 Civil Engineering and Development Department

TSEUNG KWAN O - LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

LAM TIN
TEMPORARY DRAINAGE DESIGN
LAYOUT PLAN - STAGE 3

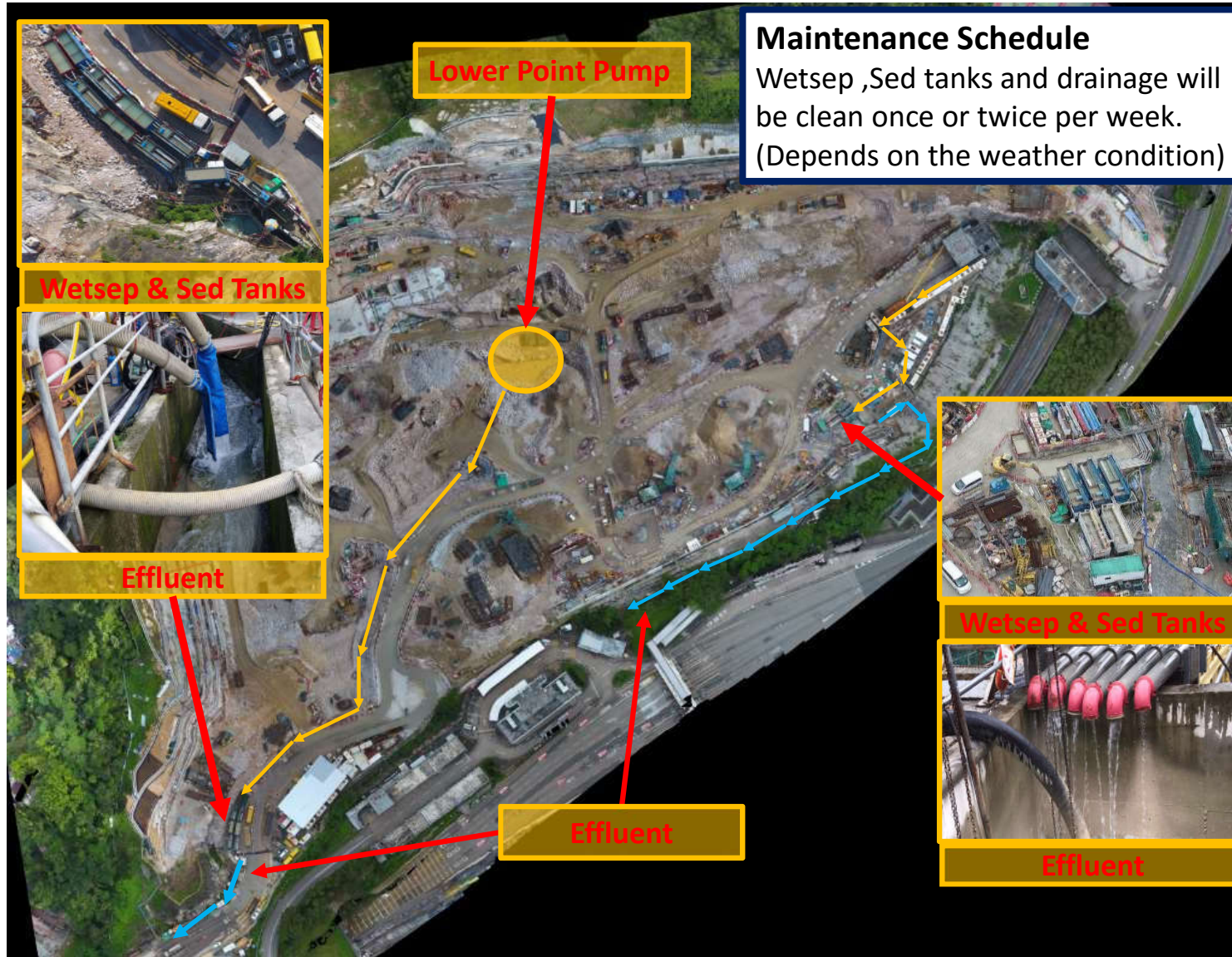
Leighton - China State Joint Ventures

DRG. NO.	H2645/C/LT/CS/T12/003	REV.	A
CONTRACT NO.	NE/2015/01	DATE OF ISSUE	2017-08-30
CHECKED BY	RA	DRAWN BY	CC
SCALE	1 : 1000	STATUS	FOR INFORMATION
DIMENSIONS ARE IN	MILLIMETRES	PAPER SIZE	A1 1

Legend

- Finished
- Pumping
- Replaced by Earth Bund
- U-Channel
- Wetsep
- Sedimentation Tank
- Haul Road (Fill)
- Haul Road (Concrete)

T:\Common\06 Design\06.09 CAD Admin\Plot.dwg PLOT COLOR - ATMS.cad
 T:\Common\06 Design\06.09 CAD Admin\Drawings by A\Submission\Draw\H2645.dwg
 PLOT DATE: 2017/08/30
 PLOT TIME: 10:00:00 AM



FOR CONSTRUCTION

ISSUE/REVISION

NO.	DATE	DESCRIPTION	ISSUED BY	CHECKED BY
B	JUL 16	WORKING DRAWING	ALC	
A	OCT 15	TENDER ADDENDUM NO.1	CYKC	
-	AUG 15	TENDER DRAWING	CYKC	

STATUS
WORKING DRAWING

SCALE
1:500

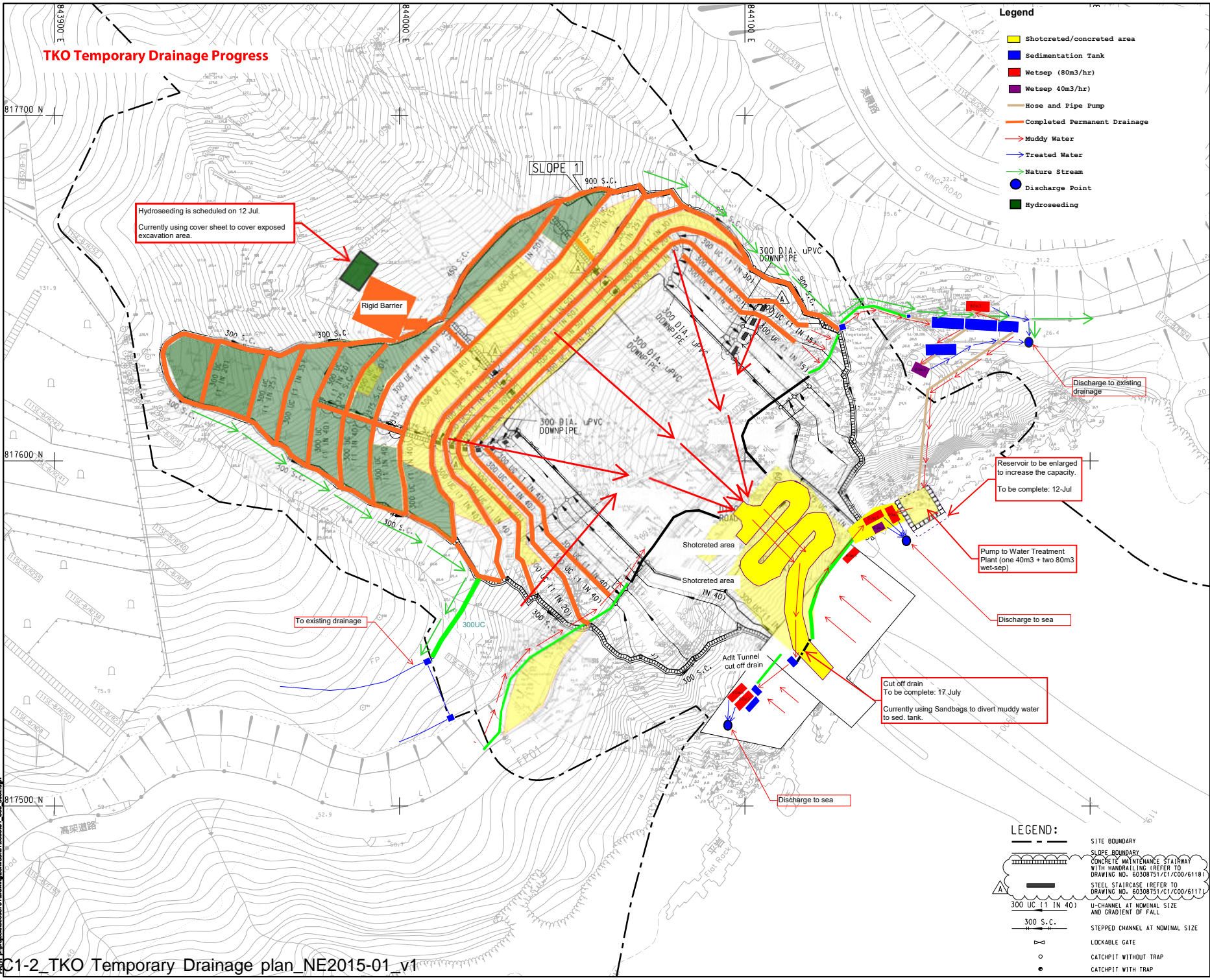
KEY PLAN

PROJECT NO. 60308751
CONTRACT NO. NE/2015/01

SHEET TITLE
TSEUNG KWAN O PORTAL SITE FORMATION DRAINAGE LAYOUT PLAN

SHEET NUMBER
60308751/C1/C00/6092B 3

Project Management Initials: Designer: BMS Checked: CHC Approved: CHN
 ISO 9001 Registered
 2014/08/20
 60308751/C1/C00/6092B



- Legend**
- Shotcreted/concreted area
 - Sedimentation Tank
 - Wetsep (80m³/hr)
 - Wetsep 40m³/hr
 - Hose and Pipe Pump
 - Completed Permanent Drainage
 - Muddy Water
 - Treated Water
 - Nature Stream
 - Discharge Point
 - Hydroseeding

- LEGEND:**
- SITE BOUNDARY
 - SLOPE BOUNDARY
 - CONCRETE MAINTENANCE STAIRWAY WITH HANDRAILING (REFER TO DRAWING NO. 60308751/C1/C00/6118)
 - STEEL STAIRCASE (REFER TO DRAWING NO. 60308751/C1/C00/6117)
 - U-CHANNEL AT NOMINAL SIZE AND GRADIENT OF FALL
 - 300 S.C.
 - 300 UC (1 IN 40)
 - STEPPED CHANNEL AT NOMINAL SIZE
 - LOCKABLE GATE
 - CATCHPIT WITHOUT TRAP
 - CATCHPIT WITH TRAP

Maintenance Schedule
Wetsep ,Sed tanks and drainage will be clean once or twice per week.
(Depends on the weather condition)

Sed tanks

Site Clearance & provide cover to exposed excavation area

Wetsep

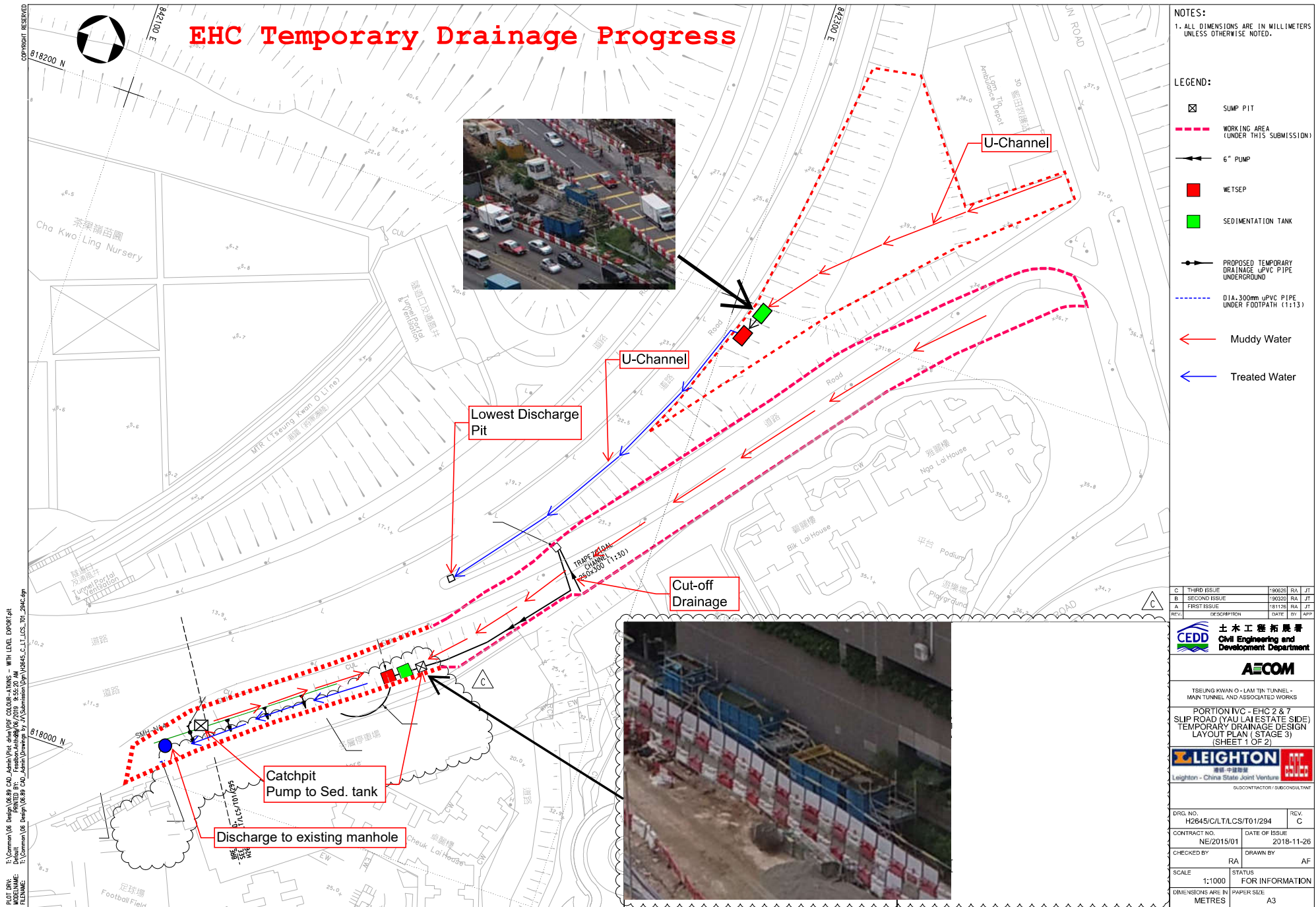
Effluent

Extension of Sed tanks

Contract Number NE/2015/01

2019年6月28日
新界

The image is an aerial photograph of a construction site for a road or bridge project. The site is situated on a hillside with terraced slopes. A large concrete structure, likely a bridge or viaduct, is under construction. Several callout boxes with yellow borders and red text are overlaid on the image, pointing to specific areas. A blue box at the top right contains the 'Maintenance Schedule' text. A yellow box labeled 'Sed tanks' points to a large rectangular structure. A yellow box labeled 'Site Clearance & provide cover to exposed excavation area' points to a worker in a yellow vest. A yellow box labeled 'Wetsep' points to a blue truck. A yellow box labeled 'Effluent' points to a concrete structure. A yellow box labeled 'Extension of Sed tanks' points to a concrete structure. A large black text 'Contract Number NE/2015/01' is overlaid on the right side of the image. A date stamp '2019年6月28日 新界' is visible in the top left corner of the image.



C	THIRD ISSUE	190626	RA	JT
B	SECOND ISSUE	190320	RA	JT
A	FIRST ISSUE	181126	RA	JT
REV.	DESCRIPTION	DATE	BY	APP

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

AECOM

TSEUNG KWAN O - LAM TIN TUNNEL - MAIN TUNNEL AND ASSOCIATED WORKS

PORTION IVC - EHC 2 & 7
SLIP ROAD (YAU LAI ESTATE SIDE)
TEMPORARY DRAINAGE DESIGN LAYOUT PLAN (STAGE 3)
(SHEET 1 OF 2)

LEIGHTON 中國建築
Leighton - China State Joint Venture

DRG. NO. H2645/C/LT/LCS/T01/294

CONTRACT NO. NE/2015/01 DATE OF ISSUE 2018-11-26

CHECKED BY RA DRAWN BY AF

SCALE 1:1000 STATUS FOR INFORMATION
DIMENSIONS ARE IN METRES PAPER SIZE A3



中國路橋
C R B C



CRBC-Build King Joint Venture

Our Ref.:JV/TKO-P2/NE201502/19.00.00.00/017621/L
Your Ref.: TLT/(NE/2015/02)/C30/650/(0205)



29 March 2021

AECOM Asia Company Limited
8/F, Tower 2, Grand Central Plaza
138 Shatin Rural Committee Road
Shatin, Hong Kong

By Hand

Attn.: Mr C. W. Lam, Dominic (CRE)

Dear Sir,

Contract No.: NE/2015/02

Tseung Kwan O – Lam Tin Tunnel – Road P2 and Associated Works
Submission of Layout Plan for Site Surface Run-off Control

We would like to submit herewith a Layout Plan for Site Surface Run-off Control so as to illustrate our site preparedness for the coming typhoon and wet season as per PS Clause 25.08.

Yours faithfully,
For and on behalf of
CRBC-Build King Joint Venture



YU Man Kit, Andy
Site Agent

Encl.

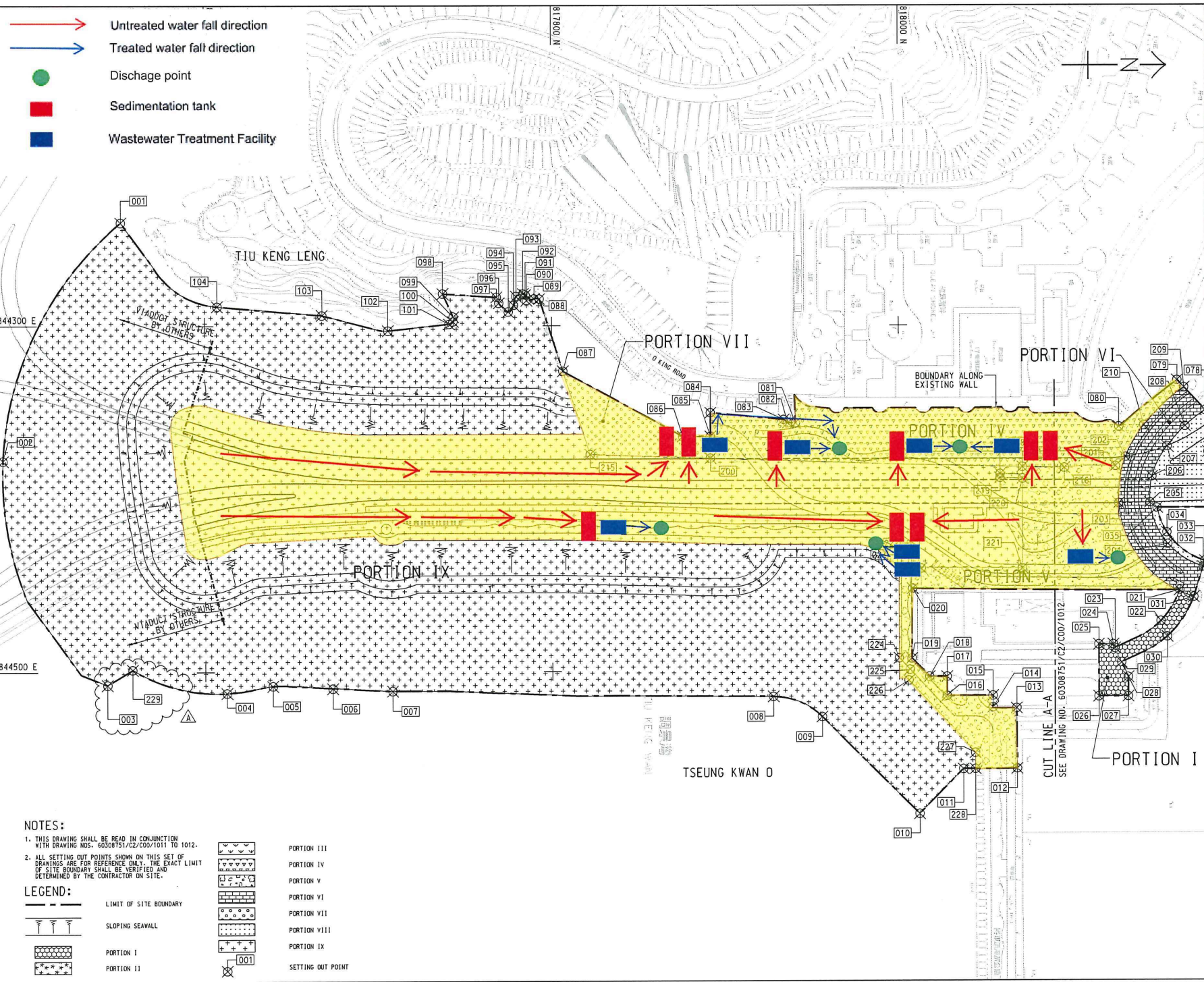
c.c.:

The Project Manager for the contract, (CE/E1, CEDD) – Attn.: Mr. Sunny SP LO
The Project Manager's Delegate, AECOM (HO) - Attn: Mr. Ivan Tsang

Fax: 2739 0076
Fax: 3922 9797

AY/GN/WW/RP/KC

Page 1 of 1



NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH DRAWING NOS. 60308751/C2/C00/1011 TO 1012.
2. ALL SETTING OUT POINTS SHOWN ON THIS SET OF DRAWINGS ARE FOR REFERENCE ONLY. THE EXACT LIMIT OF SITE BOUNDARY SHALL BE VERIFIED AND DETERMINED BY THE CONTRACTOR ON SITE.

LEGEND:

- LIMIT OF SITE BOUNDARY
- SLOPING SEAWALL
- PORTION I
- PORTION II

- PORTION III
- PORTION IV
- PORTION V
- PORTION VI
- PORTION VII
- PORTION VIII
- PORTION IX
- SETTING OUT POINT

AECOM
 PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL
 CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL ROAD P2 AND ASSOCIATED WORKS
 CLIENT
CEDD 土木工程拓展署
 Civil Engineering and Development Department
 CONSULTANT
AECOM Asia Company Ltd.
 www.aecom.com

SUB-CONSULTANTS

ISSUE/REVISION

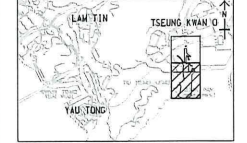
NO.	DATE	DESCRIPTION	CHK.
B	SEP. 16	WORKING DRAWING	RPCM
A	FEB. 16	TENDER ADDENDUM NO. 1	RPCM
-	JAN. 16	TENDER DRAWING	RPCM

STATUS

WORKING DRAWING

SCALE 1:1:1000 METRES
 DIMENSION UNIT METRES

KEY PLAN A1:1:50000



PROJECT NO. 60308751
 CONTRACT NO. NE/2015/02

SHEET TITLE
 PORTION OF SITE

SHEET NUMBER
 80308751/C2/C00/1011B



Contract No.: NE/2017/02

**Contract Title: Tseung Kwan O – Lam Tin Tunnel – Road P2/D4 and
Associated Works**

Flooding Mitigation Plan

Treatment facility







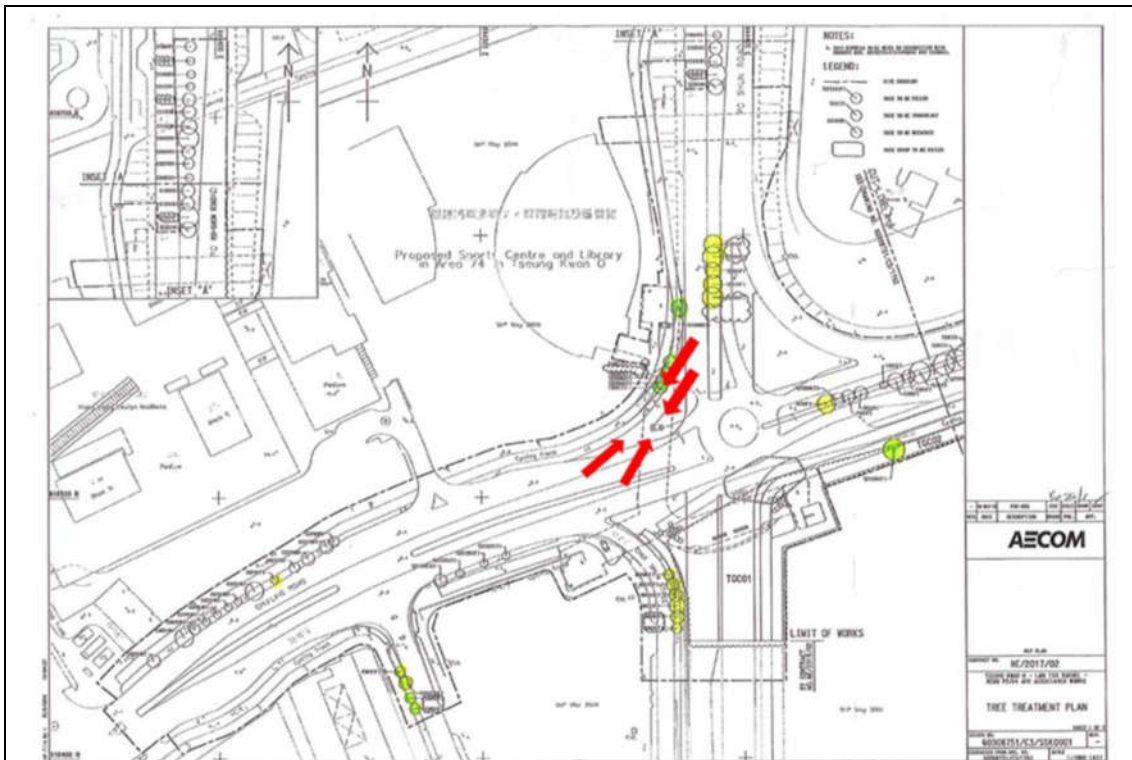
Bunding





Surface runoff collection





Height difference between the road and site area to form a natural flow. Sump pit was provided for wastewater collection.



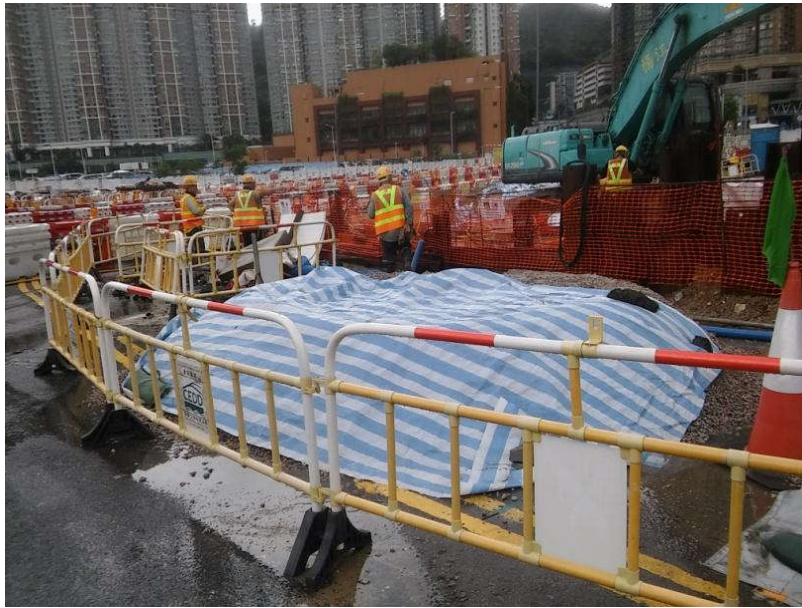
Gully Protection

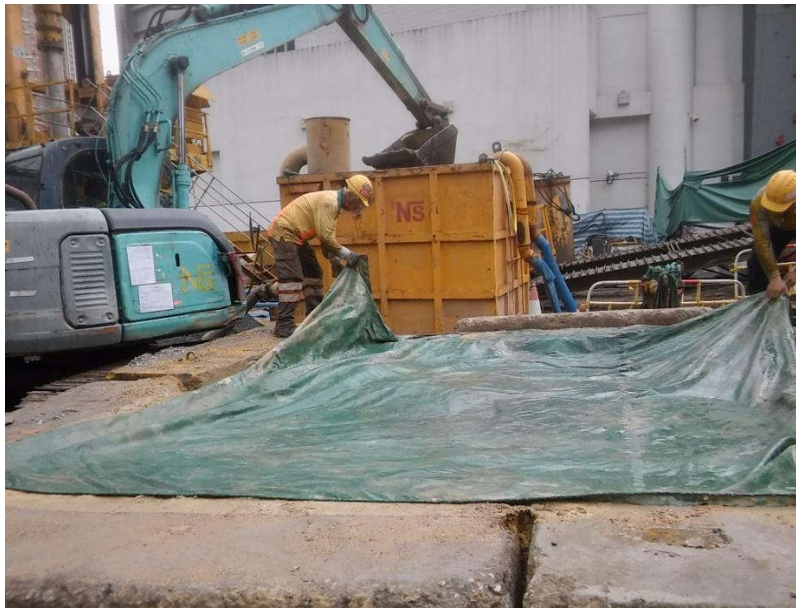


Gully were protected and covered by geotextile.



Stockpile Cover





Stockpile Should be proper cover with tarpaulin.

Project Management: AECOM
 Designer: NCE
 Checker: ABE
 Approver: CWN
 Date: 27/05/2015
 File Name: C5_Surface Runoff Management v.4
 WIP May 2014

CATCHPIT SCHEDULE

U/S ID	D/S ID	U/S G.L. (mPD)	D/S G.L. (mPD)	LENGTH (m)	GRADIENT 1 IN	U/S I.L. (mPD)	D/S I.L. (mPD)	UC SIZE (mm)	U/S ID TYPE	UC MATERIAL	BEDDING
CP01	CP02	6.50	6.50	6	100	6.275	6.219	225	CATCHPIT	CONCRETE	B
CP03	CP04	8.00	5.50	6	2	7.775	5.342	225	CATCHPIT	CONCRETE	B

- Water Flow
- Precautionary measures
- Silt Measurement
- Sedimentation tank
- Sampling Point

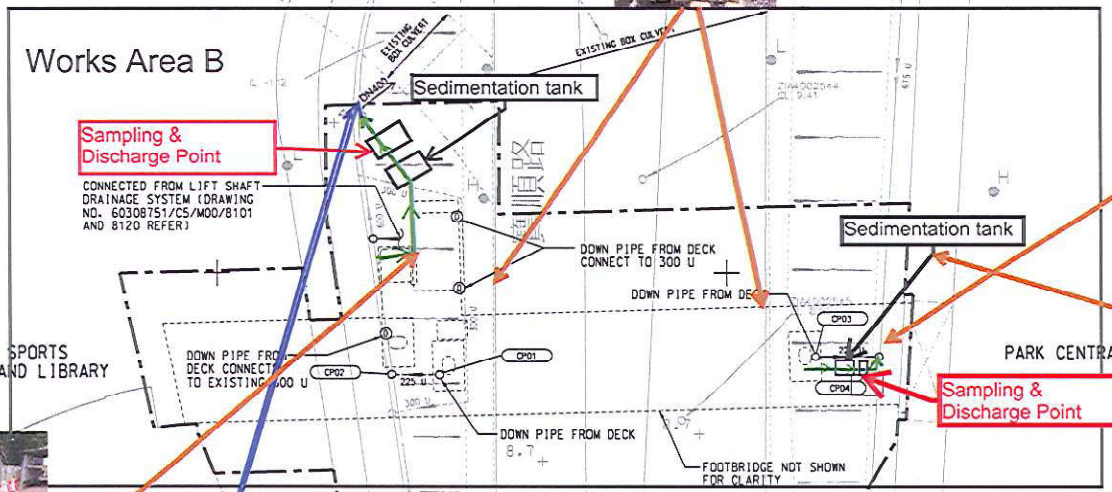
Geotextiles are on the top of gully cover along the site as a filter to avoid any muddy water discharge directly into the drainage system.



Exposed slope is covered by tarpaulin



Sampling & Discharge Point



Sampling & Discharge Point

CONNECTED FROM LIFT SHAFT DRAINAGE SYSTEM (DRAWING NO. 60308751/CS/M00/8101 AND 8120 REFER)

AREA 74 SPORTS CENTRE AND LIBRARY

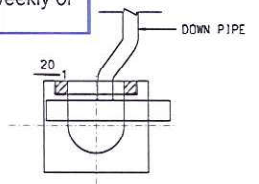


Sandbag is placed along the water barrier boundary to avoid the surface runoff.

Manhole Inspection for Silt measurement, we have regular cleaning the channel weekly or in an emergency



Manhole Inspection for Silt measurement, we have regular cleaning the channel weekly or in an emergency



DETAILS CONNECTION OF DOWNPIPE TO U-CHANNEL WITH GRATING

AECOM

PROJECT
TSEUNG KWAN O - LAM TIN TUNNEL

CONTRACT TITLE
TSEUNG KWAN O - LAM TIN TUNNEL NORTHERN FOOTBRIDGE

CLIENT
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Civil Engineering and Development Department

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ISSUE/REVISION NO.	DATE	DESCRIPTION	CHK	APP
1	AUG 16	TENDER DRAWING		

STATUS

SCALE: A1: 1:200
DIMENSION UNIT: METRES

KEY PLAN

PROJECT NO.: 60308751
CONTRACT NO.: NE/2015/03

SHEET TITLE: DRAINAGE LAYOUT

SHEET NUMBER: 60308751/CS/C00/1301

Site Surface Runoff Measures

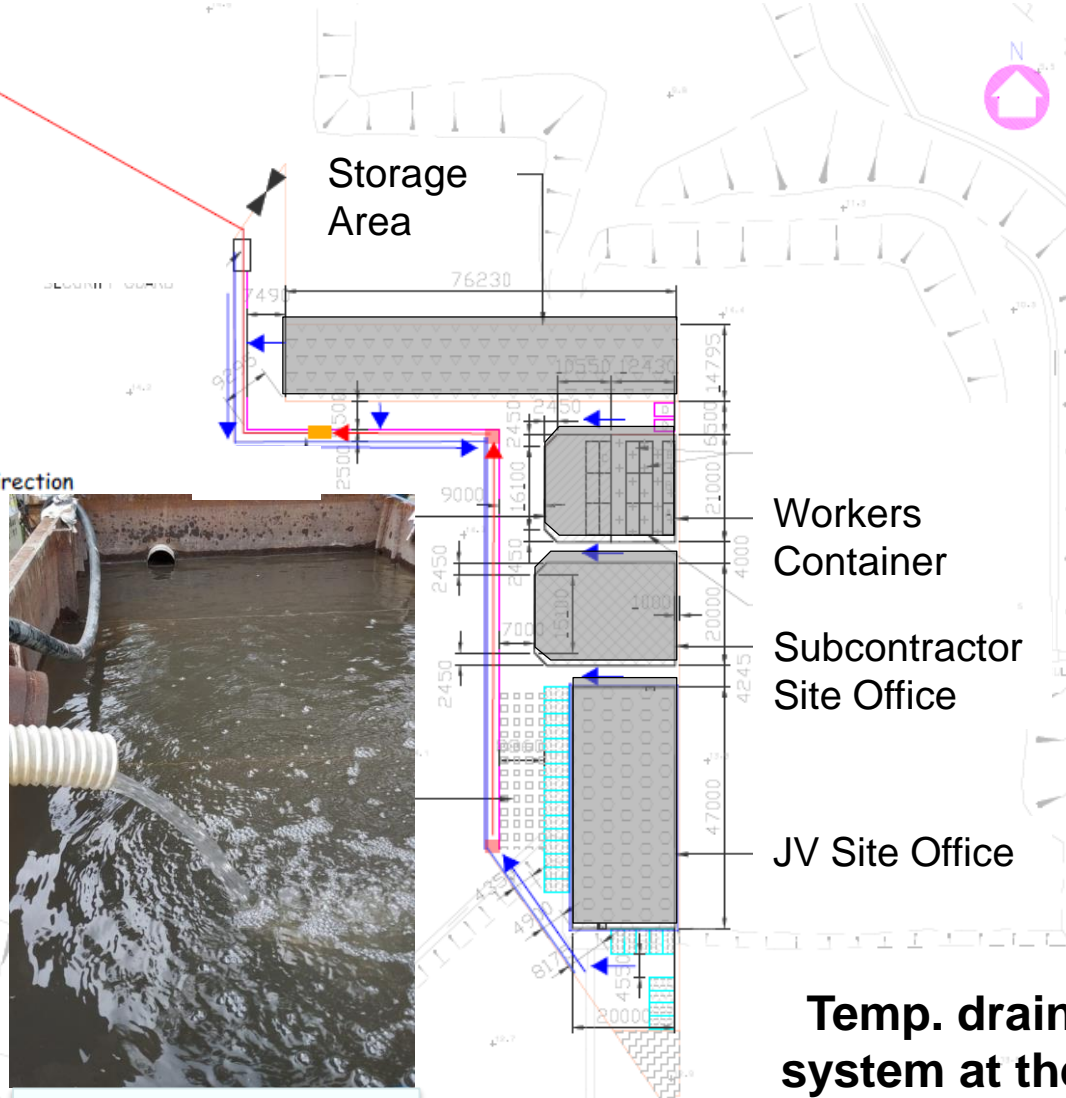
俊和-上隧-中冶聯營
CW - STEC - CMGC JV



Temp. Channel

Discharge to manhole "ZIA 4004921"

- ← channel / surface water flow direction
- ← water pump direction
- sump pit
- sedimentation tank



Sump Pit



Sedimentation Tank

Temp. drainage system at the site office area