MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 93

[Period from 1 to 31 January 2021]

(February 2022)

Verified by: Claudine LEE

Position: Independent Environmental Checker

Date: 15 February 2022

MTR Corporation Limited

Shatin to Central Link –
Hung Hom to Admiralty Section

Monthly EM&A Report No. 93

[Period from 1 to 31 January 2022]

(February 2022)

Certified by:	Lisa Poon 
Position:	Environmental Team Leader
Date:	15 February 2022

AECOM

MTR Corporation Limited

Consultancy Agreements
No. C11033B

Shatin to Central Link - Hung Hom to Admiralty Section

Monthly EM&A Report No. 93

[Period from 1 to 31 January 2022]

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1 INTRODUCTION

1.1 Background

1.1.1 The Shatin to Central Link (SCL) is a 17 km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai to Hung Hom via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH) and Stabling Sidings at Hung Hom Freight Yard (HHS); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

1.1.2 Shatin to Central Link – Hung Hom to Admiralty Section [SCL (HUH – ADM)] (hereafter referred to as "the Project") is part of the SCL.

1.1.3 The Environmental Impact Assessment (EIA) Report for SCL (HUH-ADM) (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) (EP No.: EP-436/2012) was granted on 22 March 2012 for construction and operation. Variations of environmental permit (VEP) was subsequently applied for EP-436/2012 and the latest Environmental Permit (EP No: EP-436/2012/F) was issued by Director of Environmental Protection (DEP) on 23 January 2019.

1.2 Project Programme

1.2.1 Eight civil construction works contracts of the Project have been awarded since January 2014. The construction of the Project commenced in May 2014 and is expected to complete in 2021[1]. The Project will have to interface with other infrastructure projects, including Wan Chai Development Phase II and Central-Wan Chai Bypass. **Table 1.1** summarises the information of the awarded Works Contracts.

Table 1.1 Summary of Awarded Works Contracts

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
1121(1)(8)	NSL Cross Harbour Tunnels	March 2015	Penta-Ocean – China State JV	Wellab Limited
1122(2)	Admiralty South Overrun Tunnel	August 2016	Vinci Construction Grands Projects	AECOM Asia Co. Ltd.
1123	Exhibition Station and Western Approach Tunnels	June 2015	Leighton – China State JV	AECOM Asia Co. Ltd.
1124(6)	Admiralty SCL Related Works	February 2017	Build King SCL 1124 JV	Action-United Environmental Services and Consulting (AUES)
1126(3)	Reprovisioning of Harbour Road Sports Centre and Wan Chai Swimming Pool	July 2014	Kaden Leader JV	Cinotech Consultants Ltd. (Cinotech)
1128(7)	South Ventilation Building to Admiralty Tunnels	November 2014	Dragages Bouygues J.V.	AECOM Asia Co. Ltd.
1129(4)	SCL – Advance Works for NSL	May 2014	Hsin Chong Construction Co. Ltd.	AECOM Asia Co. Ltd.

[1] The commissioning date of SCL(HUH-ADM) will very likely be deferred to 2021 to allow flexibility for the topside development of the Exhibition Station, and to cater for the construction works under other infrastructure projects on Hong Kong Island.

Works Contract	Description	Construction Start Date	Contractor	Environmental Team
11227(5)	Advance Works for NSL Cross Harbour Tunnels	August 2014	Concentric-Hong Kong River Joint Venture	Cinotech Consultants Ltd. (Cinotech)

Note:
(1) The environmental team of Works Contract 1121 was taken over by Wellab Limited since 1 January 2019.
(2) Construction works under Works Contract 1122 were substantially completed since 10 November 2020 and the EM&A programme of the Project was terminated on 12 December 2020.
(3) Construction works under Works Contract 1126 was completed on 17 May 2015.
(4) Construction works under Works Contract 1129 was completed on 20 July 2015.
(5) Construction works in Victoria Harbour and Shek O Casting Basin under Works Contract 11227 were completed on 15 and 20 December 2014 respectively.
(6) Construction works under Works Contract 1124 were substantially completed since 30 September 2021 and the EM&A programme of the Project was terminated on 30 November 2021.
(7) Construction works under Works Contract 1128 were substantially completed since 30 September 2021 and the EM&A programme of the Project was terminated on 30 November 2021.
(8) Construction works under Works Contract 1121 were substantially completed since 30 October 2021 and the EM&A programme of the Project was terminated on 31 January 2022.

1.3 Purpose of the Report

1.3.1 The Environmental Monitoring and Audit (EM&A) programme for the Project commenced in May 2014. This is the ninty-third EM&A Report for the Project which summarises the EM&A works undertaken by the respective Contractor's ETs during the period from 1 to 31 January 2022.

2 ENVIRONMENTAL MONITORING AND AUDIT

2.1 EM&A Results

2.1.1 The EM&A Report for Works Contract 1123 prepared by the Contractor's ET is provided in **Appendix A**. The EM&A Report provides details of the project information, EM&A requirements, impact monitoring and audit results for the Contract.

2.1.2 All major construction works under Works Contract 1121 have been substantially completed since 30 October 2021, with only minor works remained. Hence, the EM&A programme of the Project was ceased on 31 January 2022. The Final EM&A Review Report, which summaries the impact monitoring results and audit findings for the Project during the reporting period from 1 March 2015 to 31 January 2022, is provided in **Appendix B**.

2.1.3 A summary of the major construction activities undertaken by the Contractor of Works Contract during the reporting period are presented in **Table 2.1**.

Table 2.1 Summary of Major Construction Activities in the Reporting Period

Works Contract	Site	Construction Activities
1123	Overall	• The Station Was Handed Over to MTR Operation Team.
	Zone 1 – PTI Area	• Defects Rectification.
	Zone 2	• Toilet – ABWF and BS Installation.
	Zone 3 – Swimming Pool Area (including W4, W5, partial W6, W7a and W7b)	• Roof Tile Works.
	Zone 4 – Tunnel at Tonnochy Road	• WCSG Reprovision Works – Bored Pile Completed; and • WCSG Reprovision Works – Excavation For Cap and Ground Beam.
	Fleming Road Junction - Area E	• N/A.
	Western Vent Shaft and WAT - Area C	• C1 Opening was Closed.
	WAT - Area B	• N/A.
	WAT - Area A	• N/A.
	Area W22	• Material Storage.

2.1.4 During the reporting month, impact monitoring for air quality and construction noise were conducted in accordance with the EM&A Manual. Continuous noise monitoring was not required in the reporting period according to the Continuous Noise Monitoring Plan (CNMP). No exceedances of the Action / Limit Level of 24-hour TSP and construction noise due to the Project construction were recorded. Results of air quality and construction noise are summarised in **Tables 2.2** and **2.3** respectively. Details of the monitoring requirements, locations, equipment and methodology are presented in the EM&A Report (**Appendix A**).

Table 2.2 Summary of 24-Hour TSP Monitoring Results in the Reporting Period

Monitoring Station ID	Location	TSP Concentration ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)	Exceedance due to the Project Construction (Yes/No)
Works Contract 1123[(1)]					
AM2	Wan Chai Sports Ground[(2)(3)]	12.2 – 41.1	160	260	No
AM4	Pedestrian Plaza[(4)]	13.2 – 69.7	198	260	No

Note:

(1) Dust monitoring at AM3 (Existing Harbour Road Sports Centre) was handed over from Works Contract 1126 to Works Contract 1123 in June 2015 and terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
(2) The spectator stand at Wan Chai Sports Ground was not available for impact dust monitoring, therefore impact monitoring was conducted at the existing water pump room area at Wan Chai Sports Ground.
(3) Dust monitoring at AM2 (Wan Chai Sports Ground) was handed over to Works Contract 1123 from Works Contract 1128 on 28 October 2015.
(4) Dust monitoring at AM4 (Pedestrian Plaza) was handed over to Works Contract 1123 from Works Contract 1128 on 1 April 2021.

Table 2.3 Summary of Construction Noise Monitoring Results in the Reporting Period

Monitoring Station ID	Location	Noise Level ($L_{Aeq,30mins}$, dB(A))			Limit Level (dB(A))	Exceedance due to the Project Construction (Yes/No)
		Measured	Baseline	Corrected(1)		
Works Contract 1123						
NM2(2)(3)(4)	Harbour Centre	63.8 – 68.1	69.6	< Baseline	75	No

Note:
(1) The measured noise levels are corrected against the corresponding baseline noise levels.
(2) The impact monitoring at NM2 was handed over from Works Contract 1126 to Works Contract 1123 in June 2015.
(3) Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. Alternative noise monitoring location proposed at Harbour Centre was approved by the ER and agreed by IEC. It was approved by EPD on 18 December 2017. Impact noise monitoring was carried out at Harbour Centre from 20 August 2014 onwards.
(4) Impact noise monitoring has been carrying out on 7/F of Harbour Centre between 20 August and 15 December 2014, and on 8/F from 19 December 2014 onwards.

2.1.5 No environmental complaints, notification of summons and successful prosecutions were recorded in the reporting period. Log for environmental complaints, notification of summons and successful prosecutions is provided in **Table 2.5**.

Table 2.4 Log for Environmental Complaints, Notification of Summons and Successful Prosecutions for the Reporting Month

Works Contract	Environmental Complaints	Notification of Summons	Successful Prosecutions
1123	0	0	0

2.1.6 Regular site inspections were conducted by the Contractor's ET on a weekly basis to check the implementation of environmental pollution control and mitigation measures for the Project. No non-conformance was identified in the reporting period.

3 IMPLEMENTATION STATUS ON THE ENVIRONMENTAL PROTECTION REQUIREMENTS

3.1.1 The respective Contractors have implemented all mitigation measures and requirements as stated in the EIA Report, EM&A Manual and EP (EP-436/2012/F). The status of required submissions under the EP as of the reporting period are summarised in **Table 3.1**.

Table 3.1 Summary of EP Submissions Status

EP Condition (EP-436/2012/F)	Submission	Submission date
Condition 1.11	Notification of Commencement Date of Construction of the Project	19 Dec 2012
Condition 2.3	Notification of Setup of Community Liaison Group	22 Jun 2016
Condition 2.5	Management Organisation of Main Construction Companies	5 Jan 2017
Condition 2.6	Construction Programme and EP Submission Schedule	5 Jan 2017
Condition 2.7	Construction Noise Mitigation Measures Plan (CNMMP) Works Contract 1126: Construction Noise Mitigation Measures Plan (CNMMP) Works Contract 1123: Construction Noise Mitigation Measures Plan (CNMMP)	 9 Jun 2014 (1st Submission) 24 Apr 2015 (1st Submission) 7 Jul 2015 (2nd Submission) 2 Oct 2015 (3rd Submission) 2 Jun 2016 (4th Submission) 28 Oct 2019 (5th Submission)
Condition 2.8	Continuous Noise Monitoring Plan (CNMP) Works Contract 1126: Continuous Noise Monitoring Plan (CNMP) Works Contract 1123: Continuous Noise Monitoring Plan (CNMP)	 9 Jun 2014 (1st Submission) 24 Apr 2015 (1st Submission) 7 Jul 2015 (2nd Submission) 2 Jun 2016 (3rd Submission) 28 Oct 2019 (4th Submission)
Condition 2.9	Construction and Demolition Materials Management Plan (C&DMMP)	6 Jul 2012 (1st Submission) 12 Sep 2012 (2nd Submission) 15 Oct 2012 (Approved)
Condition 2.10	Works Contract 11227: Silt Curtain Deployment Plan for Trial Trenching in Victoria Harbour Works Contract 1121: Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour Works Contract 1128: Silt Curtain Deployment Plan	11 Jul 2014 17 Feb 2015 (1st Submission) 2 Apr 2015 (2nd Submission) 27 Oct 2015 (3rd Submission) 29 Mar 2016 (4th Submission) 19 Dec 2017 & 15 Jan 2018 (5th Submission) 21 Mar 2018 (1st Submission) 13 Apr 2018 (2nd Submission) 17 Apr 2018 (Approved)
Condition 2.11	Works Contract 11227: Silt Screen Deployment Plan Works Contract 1121: Silt Screen Deployment Plan	11 Jul 2014 13 Feb 2015

EP Condition (EP-436/2012/F)	Submission	Submission date
Condition 2.12	Sediment Management Plan	6 Jul 2012 (1st Submission) 12 Sep 2012 (2nd Submission) 5 Oct 2012 (3rd Submission) 15 Oct 2012 (Approved) 3 Jul 2014 (4th Submission)
Condition 2.14	Visual, Landscape, Tree Planting & Tree Protection Plan	14 Nov 2012 (1st Submission) 3 Dec 2013 (2nd Submission) 21 Aug 2014 (3rd Submission) 9 Feb 2015 (4th Submission) 27 May 2016 (5th Submission) 29 Nov 2016 (6th Submission) 19 Jan 2017 (7th Submission) 11 Apr 2017 (8th Submission) 20 Apr 2017 (Approved) 7 Feb 2018 (9th Submission on 1122 revised landscape plans) 7 Mar 2018 (10th Submission) 9 Mar 2018 (Approved) 18 Jun 2019 (11th Submission on 1122 revised landscape plan) 5 Sep 2019 (12th Submission) 19 Aug 2020 (13th Submission on 1122 revised landscape plan) 21 Sep & 14 Oct 2020 (14th Submission) 28 Oct 2020 (Approved) 20 Oct 2021 (15th Submission)
Condition 2.23.1	Works Contract 11227: Silt Curtain Deployment Plan for Shek O Works Contract 1121: Silt Curtain Deployment Plan for Shek O	23 Jul 2014 (1st Submission) 31 Jul 2014 (Approved) 4 Feb 2015 (1st Submission) 4 Mar 2015 (2nd Submission) 9 Mar 2015 (Approved)
Condition 2.24	Contamination Assessment Plan (CAP) and Contamination Assessment Report (CAR) Remedial Action Plan (RAP) for the above-ground diesel tanks for Wan Chai Swimming Pool	CAP: 25 Sep 2012 (1st Submission) 12 Nov 2012 (2nd Submission) 22 Nov 2012 (Approved) CAR: 19 Mar 2013 (1st Submission) 16 Apr 2013 (2nd Submission) 21 May 2013 (3rd Submission) 7 Jun 2013 (Approved)
Condition 2.26	As-built Drawings for Landscape and Visual Mitigation Measures	5 Jan 2018 (1st Submission on Lo Wu Access Road) 11 Dec 2020 (2nd Submission on Works Contract 1122)
Condition 2.28	Operational Ground-borne Noise Mitigation Measures Plan – Batch 1 Operational Ground-borne Noise Mitigation Measures Plan – Batch 2 Final Operational Ground-borne Noise Mitigation Measures Plan	26 Jun 2018 (1st Submission) 2 Apr 2019 (2nd Submission) 22 May 2019 (3rd Submission) 21 Mar 2019 (1st Submission) 22 May 2019 (2nd Submission) 31 Jul 2019 (3rd Submission) 15 Oct 2019 (Approved)
Condition 2.29	As-built Drawing for Operational Ground-borne Noise Mitigation Measures	21 Sep 2020 (1st Submission)

EP Condition (EP-436/2012/F)	Submission	Submission date
Condition 3.3	Baseline Monitoring Report (for noise and air quality)	4 Dec 2013 (1st Submission) 5 Feb 2014 (2nd Submission)
	Baseline Water Quality Monitoring Report	23 Sep 2014 (1st Submission) 18 Dec 2014 (2nd Submission)
	Baseline Water Quality Monitoring Report for Temporary Marine Works at Shek O Casting Basin	8 Jul 2014 (1st Submission) 11 Aug 2014 (2nd Submission)
Condition 3.4	Monthly EM&A Reports No.1 - 91	Reported in previous Monthly EM&A Reports
	Final EM&A Review Report for Works Contract 1127	12 Feb 2015
	Final EM&A Review Report for Works Contract 1126	25 Jun 2015 (1st Submission) 4 Sep 2015 (2nd Submission)
	Final EM&A Review Report for Works Contract 1129	30 Sep 2015
	Final EM&A Review Report for Works Contract 1122	11 Feb 2021
	Final EM&A Review Report for Works Contract 1124	14 Jan 2022
	Final EM&A Review Report for Works Contract 1128	14 Jan 2022
	Monthly EM&A Report No.92	14 Jan 2022

Appendix A

Monthly EM&A Report for January 2022 – SCL Works Contract 1123 Exhibition Station and Western Approach Tunnel

AECOM

Leighton – China State J.V.

Shatin to Central Link -
Hung Hom to Admiralty Section

Works Contract 1123 -
Exhibition Station and Western Approach Tunnel

Monthly EM&A Report for
January 2022

[February 2022]

	Name	Signature
Prepared & Checked:	Barry Ho	
Reviewed, Approved & Certified:	Y W Fung (Contractor's Environmental Team Leader)	

Version: 0	Date: 10 February 2022

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EXECUTIVE SUMMARY

Shatin to Central Link Contract 1123 – Exhibition Station and Western Approach Tunnel (hereafter called "the Project") covers part of the construction of the Shatin to Central Link (SCL).

The Project comprises the construction of an underground station (Exhibition Station) and 300 m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

The EM&A programme commenced on 1 June 2015.The impact EM&A for the Project includes air quality and noise monitoring.

This report documents the findings of EM&A works conducted in the period between 1 and 31 January 2022. As informed by the Contractor, major activities in the reporting period were:

Location	Site Activities
Overall	• The station was handed over to MTR operation team.
Exhibition Station (Zone 1 - PTI Area)	• Defects rectification
Harbour Road Sport Cenrtre (Zone 2)	• Toilet - ABWF and BS Installation
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	• Roof Tile works
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	• WCSG reprovision works-Bored Pile completed. • WCSG reprovision works-Excavation for Cap and Ground beam.
Fleming Road Junction Area E	• N/A
Western Vent Shaft and WAT Area C	• C1 opening was closed.
WAT Area B	• N/A
WAT Area A	• N/A
Area W22	• Material Storage

Breaches of Action and Limit Levels for Air Quality

No exceedance of Action and Limit Level of air quality was recorded in the reporting month.

Breaches of Action and Limit Levels for Noise

Regular Noise Monitoring

No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

No exceedance of Limit Level of noise was recorded in the reporting month.

Complaint, Notification of Summons and Successful Prosecution

No complaint, notification of summons and successful prosecution were received in the reporting month.

Reporting Changes

There was no reporting change in the reporting month.

Future Key Issues

Key issues to be considered in the next three months included:

Location	Site Activities
Exhibition Station (Zone 1 - PTI Area)	• Station defect fixing
Harbour Road Sport Cenrtre (Zone 2)	• Toilet -FS Inspection and handover
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	• N/A
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	• Construction of Grandstand -Ground beam and Caps
Western Vent Shaft and WAT Area C	• C1 opening-Removal of ELS and waterproofing/backfill
WAT Area B	• Reinstatement of MOE
WAT Area A	• Reinstatement of MOE
Area W22	• Material Storage

Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

1 INTRODUCTION

Leighton – China State Joint Venture (JV) was commissioned by MTR as the Civil Contractor for Works Contract 1123. AECOM Asia Company Limited (AECOM) was appointed by JV as the Environmental Team (ET) to undertake the Environmental Monitoring and Audit (EM&A) programme during construction phase of the Project.

1.1 Purpose of the Report

1.1.1 This is the seventy-ninth monthly EM&A Report which summaries the impact monitoring results and audit findings for the Project during the reporting period between 1 and 31 January 2022.

1.2 Report Structure

1.2.1 This monthly EM&A Report is organized as follows:

- Section 1: Introduction
- Section 2: Project Information
- Section 3: Environmental Monitoring Requirement
- Section 4: Implementation Status of Environmental Mitigation Measures
- Section 5: Monitoring Results
- Section 6: Environmental Site Inspection and Audit
- Section 7: Environmental Non-conformance
- Section 8: Future Key Issues
- Section 9: Conclusions and Recommendations

2 PROJECT INFORMATION

2.1 Background

2.1.1 The Shatin to Central Link (SCL) is a 17km extension of the existing Ma On Shan Line (MOL) and East Rail Line (EAL) comprising (i) The East-West Corridor which extends the MOL from Tai Wai via East Kowloon to connect with the West Rail Line (WRL) at Hung Hom Station (HUH); and (ii) The North-South Corridor which is an extension of the East Rail Line (EAL) at Hung Hom across the harbour to Admiralty Station (ADM).

2.1.2 The Environmental Impact Assessment (EIA) Reports for SCL – Hung Hom to Admiralty Section [SCL (HUH-ADM)] (Register No.: AEIAR-166/2012) was approved on 17 February 2012 under the Environmental Impact Assessment Ordinance (EIAO). Following the approval of the EIA Report, an Environmental Permit (EP) was granted on 22 March 2012, which covers SCL (HUH-ADM) EP No.: EP-436/2012), for the construction and operation. Variation of EP (VEP) was subsequently applied and the latest EP (EP No. EP-436/2012/F) was issued by the Director of Environmental Protection (DEP) on 23 January 2019.

2.1.3 The construction of the SCL is divided into different civil construction works contracts and Works Contract 1123 – Exhibition Station and Western Approach involves the construction of an underground station (Exhibition Station) and 300m of cut and cover tunnel (Western Approach Tunnel) along Convention Avenue.

2.1.4 The site layout plan of the Project is shown in **Figure 1.1** and **Figure 1.2**.

2.2 Site Description

2.2.1 The major construction activities under Works Contract 1123 include:

(a) Site preparation;
(b) Demolition works;
(c) Utilities works;
(d) Box Culvert works;
(e) Diaphragm wall construction and piling works;
(f) Pile Removal works;
(g) Excavation & Lateral Support (ELS) works; and
(h) Reprovisioning/ Reinstatement works.

2.3 Construction Programme and Activities

2.3.1 The major construction activities undertaken in the reporting month are summarised below:

Location	Site Activities
Overall	• The station was handed over to MTR operation team.
Exhibition Station (Zone 1 - PTI Area)	• Defects rectification
Harbour Road Sport Cenrtre (Zone 2)	• Toilet - ABWF and BS Installation
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	• Roof Tile works
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	• WCSG reprovision works-Bored Pile completed. • WCSG reprovision works-Excavation for Cap and Ground beam.
Fleming Road Junction Area E	• N/A
Western Vent Shaft and WAT Area C	• C1 opening was closed.
WAT Area B	• N/A
WAT Area A	• N/A
Area W22	• Material Storage

2.3.2 The construction programme is presented in **Appendix A**.

2.4 Project Organisation

2.4.1 The project organization structure is shown in **Appendix B**. The key personnel contact names and numbers for the Project are summarised in **Table 2.1.**

Table 2.1 Contact Information of Key Personnel

Party	Role	Position	Name	Telephone	Fax
MTR	Residential Engineer (ER)	Senior Construction Manager – SCL Civil	Mr. Mike Bezzano	3959 2128	3959 2200
		SCL Project Environmental Team Leader	Ms. Lisa Poon	3127 6295	3127 6422
Meinhardt	Independent Environmental Checker	Independent Environmental Checker	Ms. Claudine Lee	2859 5409	2540 1580
JV	Contractor	Project Director	Mr. Brian Shepstone	3973 0838	31051126
		Environmental Engineer	Mr. Andy Leung	3973 1498	
AECOM	Contractor's Environmental Team (ET)	ET Leader	Mr. Y W Fung	3922 9366	2317 7609

2.5 Status of Environmental Licences, Notification and Permits

2.5.1 Relevant environmental licenses, permits and/or notifications on environmental protection for this Project and valid in the reporting month are summarized in **Table 2.2**.

Table 2.2 Status of Environmental Licenses, Notifications and Permits

Permit / License No. / Notification/ Reference No.	Valid Period		Status	Remarks
	From	To		
Environmental Permit				
EP-436/2012/F	23 Jan 2019	-	Valid	
Construction Noise Permit				
GW-RS0913-21	18 Dec 2021	30 Jan 2022	Valid until 30 Jan 2022	TTMS for Changeover of Hung Hing Road Stage 3
GW-RS0017-22	21 Jan 2022	17 Jul 2022	Valid	EXH (General) 24-hr Temporary Footbridge Remedial works (Welding set, hand-drill/grinder) + ABWF works (Ground & Underground)
GW-RS0737-21	1 Oct 2021	28 Mar 2022	Valid	WAT Area B surface crane relocation + Battery drill
Wastewater Discharge License				
WT00031573-2018	23 Jul 2018	31 Jul 2023	Valid	For W15d, W13 & W6
WT00031235-2018	23 Jul 2018	31 Jul 2023	Valid	For W25
WT00037120-2020	18 Jan 2021	30 Sep 2025	Valid	For W1a, 1b
WT00038058-2021	13 Jul 2021	30 Apr 2025	Valid	For site portion W15a, W16, W17 &18a
WT00038215-2021	13 Jul 2021	30 Jun 2025	Valid	For site portion W9a, W9b, W10 W12T
Chemical Waste Producer Registration				
5213-135-L2881-01	02 Apr 2015	End of Contract	Valid	For whole site at Wan Chai Area
Marine Dumping Permit				
-	-	-	-	-
Billing Account for Construction Waste Disposal				
7021736	16 Feb 2015	End of Contract	Valid	For Disposal of C&D Waste
Notification Under Air Pollution Control (Construction Dust) Regulation				
385128	1 Mar 2015	End of Contract	Valid	For whole site at Wan Chai Area

3 ENVIRONMENTAL MONITORING REQUIREMENT

3.1 Construction Dust Monitoring

Monitoring Requirements

3.1.1 In accordance with the approved EM&A Manuals, 24-hour Total Suspended Particulates (TSP) level at the designated air quality monitoring station is required. Impact 24-hour TSP monitoring should be carried out for at least once every 6 days. The Action and Limit level of the air quality monitoring is provided in **Appendix D**.

Monitoring Equipment

3.1.2 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS meets all the requirements of the EM&A Manual. Brand and model of the equipment is given in **Table 3.1**.

Table 3.1 Air Quality Monitoring Equipment

Equipment	Brand and Model
High Volume Sampler (24-hour TSP)	Andersen Total Suspended Particulate Mass Flow Controlled High Volume Air Sampler (Model No. GS 2310 (S/N:809 & 10273))
Calibration Kit	TISCH Environmental Orifice (Model TE-5025A (Orifice I.D.: 843))

Monitoring Locations

3.1.3 The monitoring station for construction dust monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. The location of the construction dust monitoring stations are summarised in **Table 3.2** and shown in **Figure 3.1**.

Table 3.2 Locations of Construction Dust Monitoring Station

ID	Air Sensitive Receiver (ASR) ID in EIA Report	Dust Monitoring Station
AM2[1]	EXA6	Wanchai Sports Ground
AM3[2][3]	EXA5	Existing Harbour Road Sports Centre
AM4[4]	EXA4	Pedestrian Plaza

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.
[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.
[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
[4] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

Monitoring Methodology

3.1.4 24-hour TSP Monitoring

(a) The HVS was installed in the vicinity of the air sensitive receivers. The following criteria were considered in the installation of the HVS as far as practicable:-

(i) A horizontal platform with appropriate support to secure the sampler against gusty wind was provided.
(ii) Two samplers should not be placed less than 2m apart from each others;
(iii) The distance between the HVS and any obstacles, such as buildings, was at least twice the height that the obstacle protrudes above the HVS.
(iv) A minimum of 2 meters separation from walls, parapets and penthouse for rooftop sampler.

(v) A minimum of 2 meters separation from any supporting structure, measured horizontally is required.
(vi) No furnace or incinerator flues nearby.
(vii) Airflow around the sampler was unrestricted.
(viii) The sampler was located more than 20 meters from any dripline.
(ix) Any wire fence and gate, required to protect the sampler, did not obstruct the monitoring process.
(x) Permission was obtained to set up the samplers and access to the monitoring station.
(xi) A secured supply of electricity was obtained to operate the sampler.

(b) Preparation of Filter Papers

(i) Glass fibre filters, G810 were labelled and sufficient filters that were clean and without pinholes were selected.
(ii) All filters were equilibrated in the conditioning environment for 24 hours before weighing. The conditioning environment temperature was around 25 °C and not variable by more than ±3 °C; the relative humidity (RH) was < 50% and not variable by more than ±5%. A convenient working RH was 40%.
(iii) All filter papers were prepared and analysed by ALS Technichem (HK) Pty Ltd., which is a HOKLAS accredited laboratory and has comprehensive quality assurance and quality control programmes.

(c) Field Monitoring

(i) The power supply was checked to ensure the HVS works properly.
(ii) The filter holder and the area surrounding the filter were cleaned.
(iii) The filter holder was removed by loosening the four bolts and a new filter, with stamped number upward, on a supporting screen was aligned carefully.
(iv) The filter was properly aligned on the screen so that the gasket formed an airtight seal on the outer edges of the filter.
(v) The swing bolts were fastened to hold the filter holder down to the frame. The pressure applied was sufficient to avoid air leakage at the edges.
(vi) Then the shelter lid was closed and was secured with the aluminium strip.
(vii) The HVS was warmed-up for about 5 minutes to establish run-temperature conditions.
(viii) A new flow rate record sheet was set into the flow recorder.
(ix) On site temperature and atmospheric pressure readings were taken and the flow rate of the HVS was checked and adjusted at around 1.3 m^3/min, and complied with the range specified in the EM&A Manual (i.e. 0.6-1.7 m^3/min).
(x) The programmable digital timer was set for a sampling period of 24 hrs, and the starting time, weather condition and the filter number were recorded.
(xi) The initial elapsed time was recorded.
(xii) At the end of sampling, on site temperature and atmospheric pressure readings were taken and the final flow rate of the HVS was checked and recorded.
(xiii) The final elapsed time was recorded.
(xiv) The sampled filter was removed carefully and folded in half length so that only surfaces with collected particulate matter were in contact.
(xv) It was then placed in a clean envelope and sealed.
(xvi) All monitoring information was recorded on a standard data sheet.
(xvii) Filters were then sent to ALS Technichem (HK) Pty Ltd. for analysis.

(d) Maintenance and Calibration

(i) The HVS and its accessories were maintained in good working condition, such as replacing motor brushes routinely and checking electrical wiring to ensure a continuous power supply.
(ii) HVSs were calibrated using TE-5025A Calibration Kit upon installation and thereafter at bi-monthly intervals.
(iii) Calibration certificate of the TE-5025A Calibration Kit and the HVSs are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.1.5 The schedule for environmental monitoring in January 2022 is provided in **Appendix F**.

3.2 Construction Noise Monitoring

Monitoring Requirements

3.2.1 In accordance with the EM&A Manual, impact noise monitoring should be conducted for at least once a week during the construction phase of the Project. **Table 3.3** summarises the monitoring parameters, frequency and duration of impact noise monitoring. The Action and Limit level of the noise monitoring is provided in **Appendix D**.

Table 3.3 Noise Monitoring Parameters, Frequency and Duration

Parameter and Duration	Frequency
30-mins measurement at each monitoring station between 0700 and 1900 on normal weekdays. Leq, L_{10} and L_{90} would be recorded.	At least once per week

Monitoring Equipment

3.2.2 Noise monitoring was performed using sound level meter at each designated monitoring station. The sound level meters deployed comply with the International Electrotechnical Commission Publications (IEC) 651:1979 (Type 1) and 804:1985 (Type 1) specifications. Acoustic calibrator was deployed to check the sound level meters at a known sound pressure level. Brand and model of the equipment is given in **Table 3.4**.

Table 3.4 Noise Monitoring Equipment for Regular Noise Monitoring

Equipment	Brand and Model
Integrated Sound Level Meter	Model No. B&K 2270 (S/N: 2644597) Model No. B&K 2250-L (S/N: 2681366)
Acoustic Calibrator	Model No. MVI CAL21 (S/N: 34113610(2011)) Model No. B&K 4231 (S/N:3006428)

Monitoring Locations

3.2.3 The monitoring station for construction noise monitoring pertinent to the Project has been identified based on the approved EM&A Manual for SCL (HUH-ADM) of the Project. Location of the noise monitoring station is summarised in **Table 3.5** and shown in **Figure 3.1**.

Table 3.5 Noise Monitoring Station during Construction Phase

Identification No.	Noise Sensitive Receiver (NSR) ID in EIA Report	Noise Monitoring Station	Alternative Noise Monitoring Location
NM2[1]	EX1	Causeway Centre, Block A	Harbour Centre[2]

Note:
[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.
[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18 December 2017.

Monitoring Methodology

3.2.4 Monitoring Procedure

(a) Façade measurements were made at NM2.

(b) The battery condition was checked to ensure the correct functioning of the meter.

(c) Parameters such as frequency weighting, the time weighting and the measurement time were set as follows:

(i) frequency weighting: A
(ii) time weighting: Fast
(iii) time measurement: $L_{eq(30\text{-}minutes)}$ during non-restricted hours i.e. 0700 – 1900 on normal weekdays.

(d) Prior to and after each noise measurement, the meter was calibrated using the acoustic calibrator for 94 dB(A) at 1000 Hz. If the difference in the calibration level before and after measurement was more than 1 dB(A), the measurement would be considered invalid and repeat of noise measurement would be required after re-calibration or repair of the equipment.

(e) During the monitoring period, the L_{eq}, L_{10} and L_{90} were recorded. In addition, site conditions and noise sources were recorded on a standard record sheet.

(f) Noise measurement was paused during periods of high intrusive noise (e.g. dog barking, helicopter noise) if possible. Observations were recorded when intrusive noise was unavoidable.

(g) Noise monitoring was cancelled in the presence of fog, rain, wind with a steady speed exceeding 5m/s, or wind with gusts exceeding 10m/s.

3.2.5 Maintenance and Calibration

(a) The microphone head of the sound level meter was cleaned with soft cloth at regular intervals.

(b) The meter and calibrator were sent to the supplier or HOKLAS laboratory to check and calibrate at yearly intervals.

(c) Calibration certificates of the sound level meters and acoustic calibrators are provided in **Appendix E**.

Monitoring Schedule for the Reporting Month

3.2.6 The schedule for environmental monitoring in January 2022 is provided in **Appendix F**.

3.3 Continuous noise monitoring

3.3.1 According to EP conditions under EP-436/2012/F (Condition 2.7 and 2.8), the latest Construction Noise Mitigation Measures Plan (CNMMP) and Continuous Noise Monitoring Plan (CNMP) were submitted to EPD in June 2016, it is predicted that no residual air-borne construction noise impact exceeding the relevant noise criteria is anticipated. No continuous noise monitoring is required under this Contract.

3.4 Landscape and Visual

3.4.1 As per the EM&A Manuals, the landscape and visual mitigation measures shall be implemented and site inspections should be undertaken once every two weeks during the construction period. A summary of the implementation status is presented in **Section 6.**

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1.1 The Contractor has implemented environmental mitigation measures and requirements as stated in the EIA Reports, the EP and EM&A Manuals. The implementation status of the environmental mitigation measures during the reporting period is summarized in **Appendix C.** Status of required submissions under the EP during the reporting period is summarised in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 3.4 (EP-436/2012/F)	Monthly EM&A Report for December 2021	14 January 2022

5 MONITORING RESULTS

5.1 Construction Dust Monitoring

5.1.1 The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.

5.1.2 The monitoring station at AM4 was handed over from Contract SCL1128 in April 2021.

5.1.3 The monitoring results for 24-hour TSP are summarised in **Table 5.1**. Detailed air quality monitoring results and wind monitoring data extracted from the nearest Automatic Weather Station are presented in **Appendix G**.

Table 5.1 Summary of 24-hour TSP Monitoring Result in the Reporting Period

ID	Average ($\mu g/m^3$)	Range ($\mu g/m^3$)	Action Level ($\mu g/m^3$)	Limit Level ($\mu g/m^3$)
AM2[1]	26.8	12.2 – 41.1	160	260
AM4[2]	44.4	13.2 – 69.7	198	260

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015
[2] The impact monitoring at AM4 was handed over from Contract SCL1128 in April 2021.

5.1.4 No Action and Limit Level exceedance were recorded for 24-hour TSP monitoring at the monitoring locations in the reporting month.

5.1.5 The event and action plan is annexed in **Appendix I**.

5.1.6 Major dust sources during the monitoring included construction dust, nearby traffic emission and other nearby construction sites.

5.2 Regular Construction Noise Monitoring

5.2.1 The monitoring results for noise are summarized in **Table 5.2** and the monitoring data is provided in **Appendix H**.

Table 5.2 Summary of Construction Noise Monitoring Results in the Reporting Period

ID	Range, dB(A), $L_{eq\ (30\ mins)}$	Limit Level, dB(A), $L_{eq\ (30\ mins)}$
NM2(*)	<Baseline	75

(*) Baseline correction will be made to the measured L_{eq} when the measured noise level exceeded the corresponding baseline noise level and presented in the table.

5.2.2 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

5.2.3 No Limit Level exceedance of noise was recorded at the monitoring station in the reporting month.

5.2.4 The event and action plan is annexed in **Appendix I**.

5.2.5 Major noise sources during the monitoring included construction noise from the Project site, nearby traffic noise and the community.

5.3 Waste Management

5.3.1 C&D materials and wastes sorting were carried out on site. Receptacles were available for C&D wastes and general refuse collection.

5.3.2 As advised by the Contractor, 1,394 m^3 of inert C&D material was generated and disposed of as public fill in the reporting month. No inert C&D materials were reused in other projects or in the Contract in the reporting month. No fill material was imported in the reporting month. 290 m^3 general refuse was generated in the reporting month. 4,120 kg metal, 1,370 kg paper/cardboard packaging material and 230 kg plastic were collected by recycle contractor in the reporting month. No chemical waste was collected by licensed contractor in the reporting month. No Type 1 and Type 2 of Marine sediment were disposed of at Confined Marine Disposal Facility to the East of Sha Chau. The waste flow table is annexed in **Appendix K.**

5.3.3 The Contractor is advised to properly maintain on site C&D materials and wastes collection, sorting and recording system and maximize reuse / recycle of C&D materials and wastes. The Contractor is reminded to properly maintain the site tidiness and dispose of the wastes accumulated on site regularly and properly.

5.3.4 The Contractor is reminded that chemical waste containers should be properly treated and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes.

5.4 Landscape and Visual

5.4.1 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was conducted on 4, 18 and 31 January 2022. A summary of the site inspection is provided in **Appendix C**. The observations and recommendations made during the site inspections are presented in **Table 6.1**.

6 ENVIRONMENTAL SITE INSPECTION AND AUDIT

6.1.1 Site inspections were carried out on a weekly basis to monitor the implementation of proper environmental pollution control and mitigation measures for the Project. A summary of the mitigation measures implementation schedule is provided in **Appendix C**.

6.1.2 In the reporting month, 5 site inspections were carried out on 6, 13, 21, 26 and 31 January 2022. Joint inspections with the IEC, ER, the Contractor and the ET were conducted on 21 January 2022. No non-compliance was recorded during the site inspection. Details of observations recorded during the site inspections are presented in **Table 6.1**.

Table 6.1 Observations and Recommendations of Site Audit

Parameters	Date	Observations and Recommendations	Follow-up
Air Quality	26 Jan 2022	Reminder • The Contractor was reminded to provide wheel washing at the TTM area near Hung Hing Road.	This item was rectified on 28 Jan 2022.
Noise	Nil	Nil	Nil
Water Quality	6 Jan 2022	Reminder • The previous AquaSed was replaced at WAT. The Contractor was reminded to set up the new AquaSed at WAT.	This item was rectified on 26 Jan 2022.
	13 Jan 2022	• Stagnant water was observed near the site boundary of Zone 1 (near the junction of Convention Avenue & Fleming Road). The Contractor should remove the stagnant water and repair the water hose.	This item was rectified on 21 Jan 2022.
	13 Jan 2022	• The AquaSed of Zone 3 was disconnected. The Contractor should reconnect the power of the AquaSed and ensure the wastewater e.g., wheel washing water was treated properly before discharge, or the Contractor should propose an alternative method for wastewater treatment.	This item was rectified on 21 Jan 2022.
	21 Jan 2022	• No precautionary measure was observed for the chemicals at the AquaSed of Zone 3. The Contractor should provide precautionary measures e.g., drip tray or bunding to prevent chemical spillage.	This item was rectified on 26 Jan 2022.
	21 Jan 2022	• The pH reading of the AquaSed at WAT was high (9.84). The Contractor should repair the malfunction part of the AquaSed as soon as possible.	This item was rectified on 26 Jan 2022.
	21 Jan 2022	Reminder • The Contractor was reminded to provide precautionary measure for the stagnant water (if any) at Zone 1.	This item was rectified on 28 Jan 2022.
	26 Jan 2022	• Stagnant water was observed next to the storage area (W3) near Hung Hing Road. The Contractor should remove the stagnant water as soon as possible.	This item was rectified on 31 Jan 2022.
	31 Jan 2022	• Stagnant water was observed at the boundary of Zone 1 (near the junction of Convention Avenue & Fleming Road). The Contractor was reminded to remove it as soon as possible.	Follow up action and inspection are required.
Waste/ Chemical Management	19 Nov 2021	Follow-up item of November 2021 • Precautionary measure should be provided for the chemical containers of AquaSed at Zone 3.	This item was rectified on 26 Jan 2022.
	13 Jan 2022	Reminder • Accumulated refuse was observed at Zone 2. The Contractor was reminded to remove it regularly.	This item was rectified on 24 Jan 2022.
	13 Jan 2022	Reminder • Precautionary measure should be provided for chemical container at WAT.	This item was rectified on 21 Jan 2022.

Parameters	Date	Observations and Recommendations	Follow-up
	21 Jan 2022	Reminder • Accumulated refuse was observed at Zone 3. The Contractor was reminded to remove the refuse regularly.	This item was rectified on 24 Jan 2022.
	26 Jan 2022	Reminder • Precautionary measure e.g., drip tray should be provided for the chemicals at the TTM area near Hung Hing Road.	This item was rectified on 21 Jan 2022.
	26 Jan 2022	Reminder • Accumulated refuse was observed at Zone 2, The Contractor was reminded to remove the refuse regularly.	This item was rectified on 28 Jan 2022.
Landscape & Visual	Nil	Nil	Nil
Permits/ Licenses	Nil	Nil	Nil

6.1.3 Almost all follow-up actions requested by Contractor's ET and IEC during the site inspection were undertaken as reported by the Contractor and confirmed in the following weekly site inspection conducted during the reporting period.

7 ENVIRONMENTAL NON-CONFORMANCE

7.1 Summary of Monitoring Exceedances

7.1.1 All 24-hour TSP result was below the Action and Limit level at all monitoring locations in the reporting month.

7.1.2 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

7.1.3 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

7.2 Summary of Environmental Non-Compliance

7.2.1 No environmental non-compliance was recorded in the reporting month.

7.3 Summary of Environmental Complaints

7.3.1 No environmental related complaint was received in the reporting month. Cumulative statistics on environmental complaints is provided in **Appendix J**.

7.4 Summary of Environmental Summon and Successful Prosecutions

7.4.1 No environmental related prosecution or notification of summons was received in the reporting month. Cumulative statistics on notification of summons and successful prosecutions is provided in **Appendix J**.

8 FUTURE KEY ISSUES

8.1 Construction Programme for the Next Three Month

8.1.1 The major construction works between February to April 2022 will be:

Location	Site Activities
Exhibition Station (Zone 1 - PTI Area)	• Station defect fixing
Harbour Road Sport Cenrtre (Zone 2)	• Toilet -FS Inspection and handover
Exhibition Station (Zone 3 - Swimming Pool Area) (including W7a, W7b, W4, W5 and partial W6)	• N/A
Exhibition Station (Zone 4 - Tunnel at Tonnochy Road)	• Construction of Grandstand -Ground beam and Caps
Western Vent Shaft and WAT Area C	• C1 opening-Removal of ELS and waterproofing/backfill
WAT Area B	• Reinstatement of MOE
WAT Area A	• Reinstatement of MOE
Area W22	• Material Storage

8.2 Key Issues for the Coming Month

8.2.1 Potential environmental impacts arising from the above construction activities are mainly associated with construction dust, construction noise, water quality and waste management.

8.3 Monitoring Schedule for the Next Three Month

8.3.1 The tentative schedules for environmental monitoring in between February to April 2022 are provided in **Appendix F**.

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 24-hour TSP and noise monitoring were carried out in the reporting month.

9.1.2 No Action and Limit Level exceedance was recorded for 24-hour TSP monitoring at the monitoring locations in the reporting month.

9.1.3 No Action Level exceedance was recorded since no noise related complaint was received in the reporting month.

9.1.4 No Limit Level exceedance for noise was recorded at all monitoring stations in the reporting month.

9.1.5 5 nos. of environmental site inspections were carried out in January 2022. Recommendations on remedial actions were given to the Contractor for the deficiencies identified during the site audit.

9.1.6 No environmental complaint was received in the reporting month.

9.1.7 No notification of summons and successful prosecution were received in the reporting month.

9.1.8 Referring to the Contractor's information, no notification of summons and successful prosecution was received in the reporting month.

9.2 Recommendations

9.2.1 According to the environmental site inspections performed in the reporting month, the following recommendations were provided: -

Air Quality Impact

- The Contractor was reminded to provide wheel washing at every vehicle exit point .

Construction Noise Impact

- No specific observation was identified in the reporting month.

Water Quality Impact

- The Contractor was reminded to provide precautionary measures at the site boundary, e.g., bunding, to prevent surface runoff seeping.
- The Contractor was reminded to maintain the function of the wastewater treatment facility properly.

Chemical and Waste Management

- The Contractor was reminded to provide proper precautionary measure for the chemical containers to prevent chemical spillage.
- The Contractor was reminded to remove refuse regularly.

Landscape & Visual Impact

- No specific observation was identified in the reporting month.

Permits/licenses

- No specific observation was identified in the reporting month.

FIGURES

LEGEND:

PROPOSED SCL ALIGMENT

SCL SCHEME BOUMDARY

1123.W29 WORKS AREA

維多利亞港

VICTORIA HARBOUR

1123.W29 1123.W28 1123.W25 1123.W26 1123.W27 1123.W21R 1123.W23 1123.W21 1123.W22 1123.H1 1123.W20 1123.W19R 1123.W18a 1123.W19T 1123.W16 1123.W17 1123.W17T 1123.W14R 1123.W19 1123.W18b 1123.W14T 1123.W13 1123.W15d 1123.W15c 1123.W15b 1123.W15T 1123.W15a 1123.W15e 1123.W15f 1123.W15g 1123.W12d 1123.W6T 1123.W8T 1123.W13T 1123.W15T 1123.W12a 1123.W12T 1123.W8 1123.W6 1123.W7b 1123.W7a 1123.W3 1123.W5 1123.W4 1123.W11 1123.W12b 1123.W12c 1123.W9a 1123.W9b 1123.W10 1123.W1a 1123.W2 1123.W1b

EXPO DRIVE CENTRAL · CONVENTION AVENUE · HARBOUR ROAD · GLOUCESTER ROAD · JAFFE ROAD · LUNG WUI ROAD · FENWICK PIER STREET · HARCOURT ROAD · LUNG KING STREET · HUNG HING ROAD · FLEMING ROAD · TONNOCHY ROAD

Hong Kong Convention and Exhibition Centre · Grand Hyatt · Renaissance Harbour View Hotel · Harbour Road Sports Centre · Wan Chai Sports Ground · Wan Chai Waterfront Promenade · Bus Terminus · Ferry Pier · Central Pier · Convention Plaza · Harbour Road Garden · Sun Hung Kai Centre (Car Park under) · Wan Chai Police Station · Immigration Tower · Revenue Tower · Telecom House · Bank of East Asia Harbour View Centre · Academy Block · Theatre Block · Cotton House · Harcourt House · Island Shangri-La Hotel · Lee Theatre Plaza · Pico Tower · Lee Garden One · Lee Garden Two · Lee Garden Three · Lee Garden Four · Lee Garden Five · Lee Garden Six · Lee Garden Seven · Lee Garden Eight · Hysan Place · Sino Plaza · Causeway Centre · Hennessy Centre · Great Eagle Centre · Harbour Centre · China Resources Building · Central Plaza · Bank of China Tower · Cheung Kong Center · Two International Finance Centre · One International Finance Centre · Two Exchange Square · Three Exchange Square · Four Exchange Square · Jardine House · Gloucester Tower · The Landmark · Alexandra House · Prince's Building · Chater House · Edinburgh Tower · The Gateway · Tower 1 · Tower 2 · Tower 3 · Tower 4 · Tower 5 · Tower 6 · Tower 7 · Tower 8 · Tower 9 · Tower 10 · Tower 11 · Tower 12 · Tower 13 · Tower 14 · Tower 15 · Tower 16 · Tower 17 · Tower 18 · Tower 19 · Tower 20 · Tower 21 · Tower 22 · Tower 23 · Tower 24 · Tower 25 · Tower 26 · Tower 27 · Tower 28 · Tower 29 · Tower 30 · Tower 31 · Tower 32 · Tower 33 · Tower 34 · Tower 35 · Tower 36 · Tower 37 · Tower 38 · Tower 39 · Tower 40 · Tower 41 · Tower 42 · Tower 43 · Tower 44 · Tower 45 · Tower 46 · Tower 47 · Tower 48 · Tower 49 · Tower 50 · Tower 51 · Tower 52 · Tower 53 · Tower 54 · Tower 55 · Tower 56 · Tower 57 · Tower 58 · Tower 59 · Tower 60 · Tower 61 · Tower 62 · Tower 63 · Tower 64 · Tower 65 · Tower 66 · Tower 67 · Tower 68 · Tower 69 · Tower 70 · Tower 71 · Tower 72 · Tower 73 · Tower 74 · Tower 75 · Tower 76 · Tower 77 · Tower 78 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Tower 994 · Tower 995 · Tower 996 · Tower 997 · Tower 998 · Tower 999 · Tower 1000

REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	C.F.WOO
DESIGNED	---
CHECKED	---
APPROVED	---
DATE	19/MAR/2015

MTR

SHATIN TO CENTRAL LINK – CONTRACT 1123

ORIGINATOR

LEIGHTON 中建 Leighton - China State Joint Venture

CADD REF. 1123_LCS_SK_0382A.dgn

TITLE

CONTRACT 1123

EXHIBITION STATION AND WESTERN APPROACH TUNNEL

WORKS AREA

SCALE 1 : 3000 @A3

DRAWING NO. Figure 1.1

REV. A

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27/5/2015 17:45:38
PRINTED BY: cfwoo

LEGEND:

PROPOSED SCL ALIGMENT

SCL SCHEME BOUMDARY

1123.W29 WORKS AREA

維多利亞港
VICTORIA HARBOUR

維多利亞港
VICTORIA HARBOUR

1123.W13
1123.W15d
1123.W15c
1123.W14
1123.W15b
1123.W14R
1123.W19
1123.W18b
1123.W15T
1123.W3
1123.W5
1123.W4
1123.W7b
1123.W8
1123.W7a
1123.W6
AM2
1123.W8T
1123.W6T
1123.W1a
1123.W2
1123.W1b
1123.W29
1123.W28
1123.W25
1123.W21R
1123.W23
1123.W21
1123.W26
1123.H1
1123.W16
1123.W19R
1123.W18a
1123.W17
1123.W15a
1123.W15e
1123.W15f
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1123.W15T
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1123.W22
1123.W27
1123.W20
1123.W19T
1123.W17T
1123.W12d
1123.W12T
1123.W11
1123.W12b
1123.W12c
1123.W9a
1123.W9b
1123.W10
NM2

REV	DESCRIPTION	BY	DATE	APPROVED

DRAWN	C.F.WOO
DESIGNED	---
CHECKED	---
APPROVED	---
DATE	19/MAR/2015

MTR

SHATIN TO CENTRAL LINK – CONTRACT 1123

ORIGINATOR

Leighton - China State Joint Venture

CADD REF. 1123_LCS_SK_0382A.dgn

TITLE

CONTRACT 1123

EXHIBITION STATION AND WESTERN APPROACH TUNNEL

WORKS AREA

SCALE	DRAWING NO.	REV.
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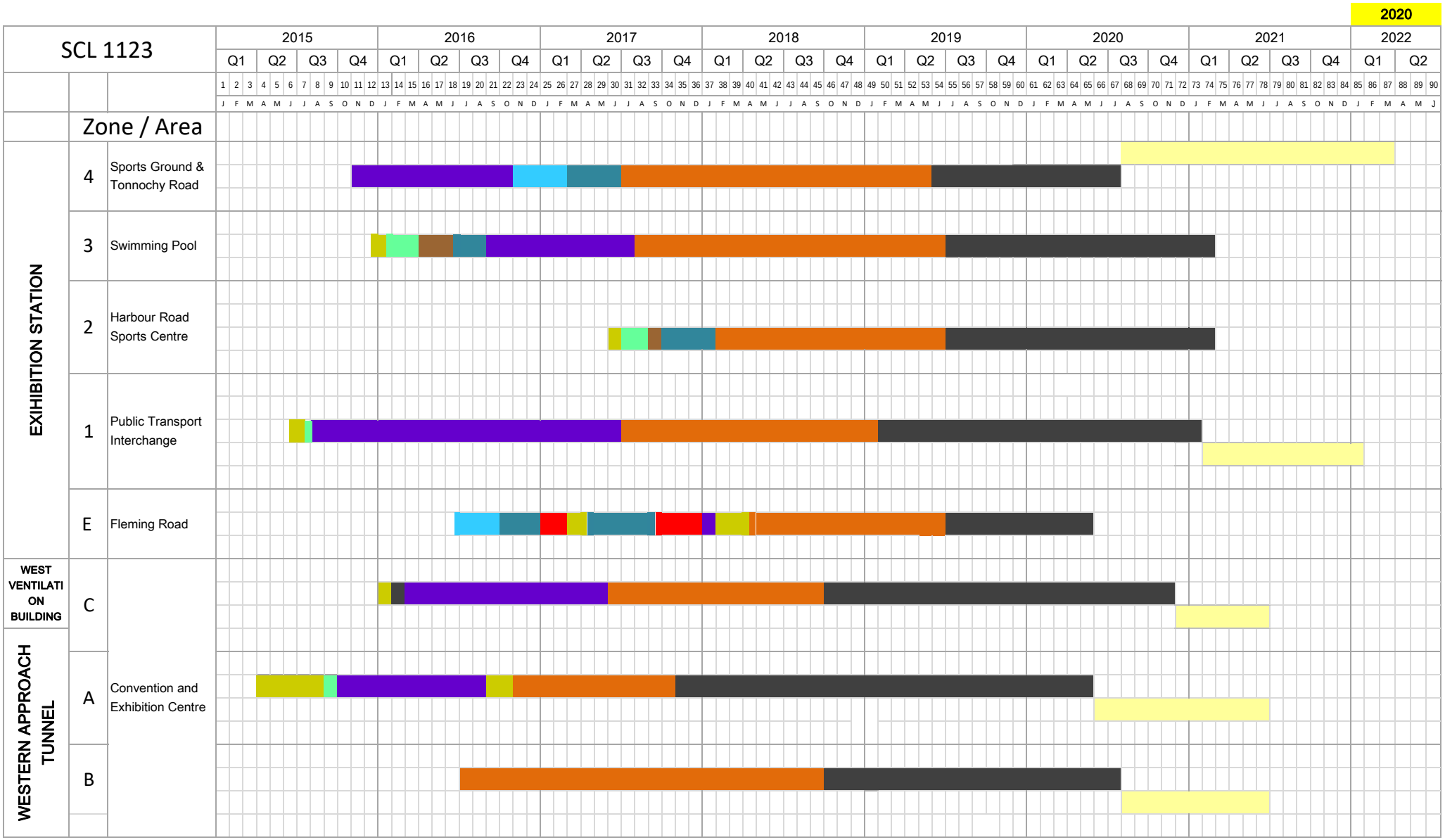
APPENDIX A

Construction Programme

MTR SCL 1123 - Exhibition Station and Western Approach Tunnel

High Level Programme

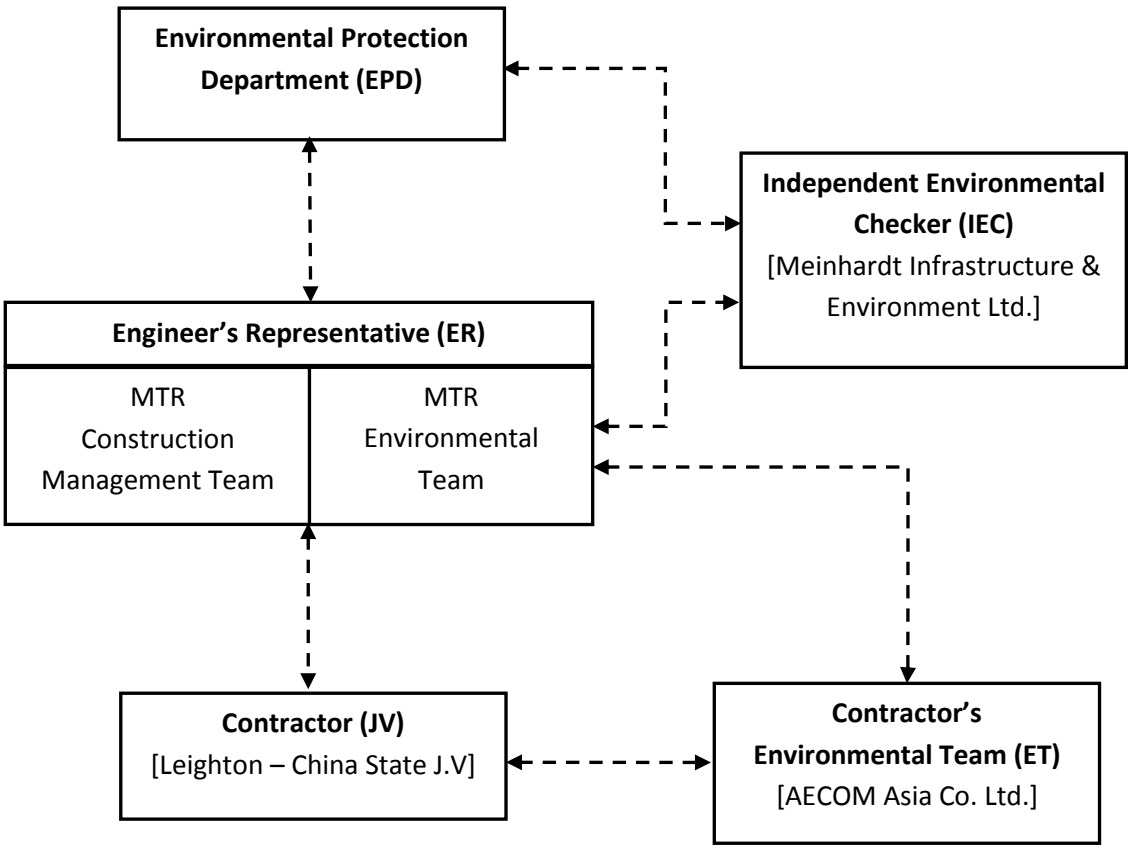
Leighton - China State Joint Venture



APPENDIX B

Project Organization Structure

Appendix B Project Organisation Structure



APPENDIX C

Implementation Schedule of Environmental Mitigation Measures

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
Cultural Heritage Impact						
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai, and Works Shaft in Admiralty	Construction Phase	V
Ecological Impact						
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted.	To minimize the contamination of wastewater discharge	Contractor	All land based works areas	Construction Phase	N/A
Landscape and Visual Impact						
Construction Phase						
Table 7.9	CM1 - Trees unavoidably affected by the works shall be transplanted as far as possible in accordance with ETWB TC(W) 3/2006 – Tree Preservation.	Transplanting and reuse of affected trees.	MTR	Works Sites	Construction Phase	V
Table 7.9	CM2a - Compensatory tree planting shall be provided in accordance with ETWB TC(W) 3/2006 – Tree Preservation to compensate for felled trees and maintained until end of the establishment period.	Compensation for the removal of existing trees due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM2b - Compensatory shrub planting shall be provided to compensate for the loss of shrub planting in amenity areas.	Compensation for the removal of existing shrub planting due to the Project.	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs	Control of height and deposition/ arrangement of temporary facilities in works areas	MTR	Works Sites	Construction Phase	N/A
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	Works Sites	Construction Phase	N/A
Construction Dust Impact						
Table 8.5	Barging facilities: (i) Transportation of spoils to the barging point – Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0 L/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impacts	Contractor	All barging points	Construction phase	N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	(ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles through the wheel washing facilities provided at site exits.					N/A N/A
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the *Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93)* shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	N/A
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in “wet form”. (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.	To minimize dust impacts	Contractor	Concrete Batching Plant	Construction phase	N/A
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m2 for Kowloon side and 1.0 L/m2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.	To minimize dust impact	Contractor	Works areas	Construction Phase	V
S8.89	Enclosing the unloading process at barging point by a 3-sided screen with top tipping hall, provision of water spraying and flexible dust curtains to reduce dust emission	To minimize dust impact	Contractor	All barging points	Construction phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: • Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. • Use of frequent watering for particularly dusty construction areas and areas close to ASRs. • 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. • Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles near ASRs. • Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. • Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. • 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. • 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. • Imposition of speed controls for vehicles on site haul roads. • Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. • Every stock of more than 20 bags of cement or dry pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. • 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	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V V V @ V V V N/A V V
/	***Dust suppression measures (con't)*** • De-bagging, batching and mixing processes carried out in sheltered areas during the use of bagged cement • The portion of any road where along the site boundary should be kept clear of dusty materials. • Use of frequent watering for any dusty construction process (e.g. breaking works) to reduce dust emissions.	To minimize dust impacts	Contractor	Works areas	Construction phase	V V V
/	***Emission from Vehicles and Plants*** • 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	Works areas	Construction phase	V V V
Airborne Noise Impact						
Construction Phase						
S9.55	The following good site practices shall be implemented: • Only well-maintained plant shall be operated on-site and plant shall be serviced regularly during the construction program • Silencers or mufflers on construction equipment shall be utilized and shall be properly maintained during the construction program • Mobile plant, if any, shall be sited as far from NSRs as possible • Machines and plant (such as trucks) that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum • Plant known to emit noise strongly in one direction shall, wherever possible, be orientated so that the noise is directed away from the nearby NSRs	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V V V N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	• Material stockpiles and other structures shall be effectively utilized, wherever practicable, in screening noise from on-site construction activities					N/A
/	• Install movable noise barriers, acoustic mat or full enclosure, screen the noisy plants during operation • Air compressors or Hand-held breaker shall be fitted with valid noise emission labels during operation	To minimize construction noise impact	Contractor	Works areas	Construction phase	V V
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile • Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	V V N/A V N/A N/A N/A N/A N/A V V V V V N/A N/A N/A N/A N/A
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker • Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun Tunnel	Construction phase	N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A N/A
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV • SOV to EXH • EXH • EXH to open space at the junction of Expo Drive and Convention Avenue • Open space at the junction of Expo Drive and Convention Avenue to north of ADM • South of ADM to Overrun	Construction phase	N/A N/A N/A N/A N/A N/A N/A

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
				Tunnel		
Water Quality Impact						
Construction Phase						
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront: • Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. • Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. • Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.	To minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction Phase	V V N/A
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable. <u>Surface Run-off</u> • Surface run-off from construction sites shall be discharged into storm drains via adequately designed sand/silt removal facilities such as sand traps, silt traps and sedimentation basins. Channels or earth bunds or sand bag barriers shall be provided on site to properly direct stormwater to such silt removal facilities. Perimeter channels at site boundaries shall be provided where necessary to intercept storm run-off from outside the site so that it will not wash across the site. Catchpits and perimeter channels shall be constructed in advance of site formation works and earthworks. • Silt removal facilities, channels and manholes shall be maintained and the deposited silt and grit shall be removed regularly, at the onset of and after each rainstorm to prevent local flooding. Any practical options for the diversion and re-alignment of drainage shall comply with both engineering and environmental requirements in order to provide adequate hydraulic capacity of all drains. Minimum distances of 100 m shall be maintained between the discharge points of construction site runoff and the existing saltwater intakes. • Construction works shall be programmed to minimize soil excavation works in rainy seasons (April to September). If excavation in soil cannot be avoided in these months or at any time of year when rainstorms are likely, for the purpose of preventing soil erosion, temporary exposed slope surfaces shall be covered e.g. by tarpaulin, and temporary access roads shall be protected by crushed stone or gravel, as excavation proceeds. Intercepting channels shall be provided (e.g. along the crest / edge of excavation) to prevent storm runoff from washing across exposed soil surfaces. Arrangements shall always be in place in such a way that adequate surface protection measures can be safely carried out well before the arrival of a rainstorm. • Earthworks final surfaces shall be well compacted and the subsequent permanent work or surface protection shall be carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms. Appropriate drainage like intercepting channels shall be provided where necessary. • Measures shall be taken to minimize the ingress of rainwater into trenches. If excavation of trenches in wet seasons is necessary, they shall be dug and backfilled in short sections. Rainwater pumped out from trenches or foundation excavations shall be discharged into storm drains via silt removal facilities. • Open stockpiles of construction materials (e.g. aggregates, sand and fill material) on sites shall be covered with tarpaulin or similar fabric during rainstorms. • Manholes (including newly constructed ones) shall always be adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting 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. • Good site practices shall be adopted to remove rubbish and litter from construction sites so as to prevent the rubbish and litter from spreading from the site area. It is recommended to clean the construction sites on a regular basis.	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction Phase	@ V V N/A N/A V V V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	Boring and Drilling Water • Water used in ground boring and drilling for site investigation or rock / soil anchoring shall as far as practicable be re-circulated after sedimentation. When there is a need for final disposal, the wastewater shall be discharged into storm drains via silt removal facilities. Wheel Washing Water • All vehicles and plant shall be cleaned before they leave a construction site to minimize the deposition of earth, mud, debris on roads. A wheel washing bay shall be provided at every site exit if practicable and wash-water shall 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 shall be paved with backfall to reduce vehicle tracking of soil and to prevent site run-off from entering public road drains. Bentonite Slurries • Bentonite slurries used in diaphragm wall and bore-pile construction shall be reconditioned and used again wherever practicable. If the disposal of a certain residual quantity cannot be avoided, the bentonite slurries shall either be dewatered or mixed with inert fill material for disposal to a public filling area. • If the used bentonite slurry is intended to be disposed of through the public drainage system, it shall be treated to the respective effluent standards applicable to foul sewer, storm drains or the receiving waters as set out in the TM-DSS. Water for Testing & Sterilization of Water Retaining Structures and Water Pipes • Water used in water testing to check leakage of structures and pipes shall be used for other purposes as far as practicable. Surplus unpolluted water will be discharged into storm drains. • Sterilization is commonly accomplished by chlorination. Specific advice from EPD shall be sought during the design stage of the works with regard to the disposal of the sterilizing water. The sterilizing water shall be used again wherever practicable. Acid Cleaning, Etching and Pickling Wastewater • Acidic wastewater generated from acid cleaning, etching, pickling and similar activities shall 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 shall be tankered off site for disposal into foul sewers or treated to a standard acceptable to storm drains and the receiving waters. Wastewater from Site Facilities • Wastewater collected from any temporary canteen kitchens, including that from basins, sinks and floor drains, shall be discharged into foul sewer via grease traps. In case connection to the public foul sewer is not feasible, wastewater generated from kitchens or canteen, if any, shall be collected in a temporary storage tank. A licensed waste collector shall be deployed to clean the temporary storage tank on a regular basis. • Drainage serving an open oil filling point shall be connected to storm drains via petrol interceptors with peak storm bypass. • Vehicle and plant servicing areas, vehicle wash bays and lubrication bays shall as far as possible be located within roofed areas. The drainage in these covered areas shall be connected to foul sewers via a petrol interceptor. Oil leakage or spillage shall be contained and cleaned up immediately. Waste oil shall be collected and stored for recycling or disposal in accordance with the Waste Disposal Ordinance.					V V N/A N/A N/A N/A N/A @ N/A N/A V V
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.	To minimize water quality impacts due to sewage generated from construction workforce	Contractor	Works areas	Construction Phase	N/A
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.249	If land contaminated site is identified from the Stage 2 SI work (refer to Sections 11.188 to 11.191 of the EIA Report), the following mitigation measures shall be implemented for the identified contaminated area. Any transient pile of contaminated soil / material shall be minimized and shall be bottom-lined, bunded and covered with impervious membrane during rain event to avoid generation of contaminated runoff. Appropriate intercepting channels and partial shelters shall be provided where necessary to prevent rainwater from collecting within trenches or footing excavations. Any contaminated water and wastewater generated from the decontamination process shall not be directly discharged to public sewers or site drainage. They shall be treated or tanked away as necessary for proper disposal in compliance with the TM-DSS.	To control site run-off generated from any potential contaminated works areas.	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.250 & S11.251	No direct discharge of groundwater from contaminated areas shall be adopted. If land contamination impact and generation of contaminated groundwater is identified from the Stage 2 SI works (refer to Sections 11.189 to 11.192 of the EIA Report), the following mitigation measures shall be adopted. Any contaminated groundwater shall be either properly treated in compliance with the requirements of the TM-DSS or properly recharged into the ground. If wastewater treatment is deployed for treating the contaminated groundwater, the wastewater treatment unit shall deploy suitable treatment processes (e.g. oil interceptor / activated carbon) to reduce the pollution level to an acceptable standard and remove any prohibited substances (such as TPH) to an undetectable range. All treated effluent from the wastewater treatment plant shall meet the requirements as stated in TM-DSS and shall be discharged into the foul sewers. If groundwater recharging wells are deployed, the recharging wells shall be installed as appropriate for recharging the contaminated groundwater back into the ground. The recharging wells shall be selected at places where the groundwater quality will not be affected by the recharge operation as indicated in Section 2.3 of the TM-DSS. The baseline groundwater quality shall be determined prior to the selection of the recharge wells, and submit a working plan (including the laboratory analytical results showing the quality of groundwater at the proposed recharge location(s) as well as the pollutant levels of groundwater to be recharged) to EPD for agreement. Pollution levels of groundwater to be recharged shall not be higher than pollutant levels of ambient groundwater at the recharge well. Prior to recharge, any prohibited substance such as TPH products shall be removed as necessary by installing the petrol interceptor. The Contractor shall apply for a discharge licence under the WPCO through the Regional Office of EPD for groundwater recharge operation or discharge of treated groundwater.	To minimize potential water quality impact from discharge of contaminated groundwater	Contractor	Any potential contaminated areas to be identified from the Stage 2 SI	Construction Phase	N/A
S11.252	The following good site practices shall be adopted for the proposed barging points: • all vessels shall 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 shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site • loading of barges and hoppers shall be controlled to prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation	To minimize water quality impacts generated from the barging points.	Contractor	Barging points	Construction Phase	N/A
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
S11.254	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 shall be observed and complied with for control of chemical wastes.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	N/A
S11.256	Disposal of chemical wastes shall 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: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport. • Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.	To minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction Phase	V V V
Waste Management Implications						
Construction Phase						
S12.75	***Good Site Practices and Waste Reduction Measures*** • Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; • 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; • Regular cleaning and maintenance programme for drainage systems, sumps and oil interceptors; and • Separation of chemical wastes for special handling and appropriate treatment.	To reduce waste management impacts	Contractor	All Work Sites	Construction Phase	V V V V N/A V
S12.76	***Good Site Practices and Waste Reduction Measures (con't)*** • Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); • 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 aluminum cans by providing separate labeled 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; • Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and • Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management procedures, including waste reduction, reuse and recycle.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A V V V V V
S12.77	***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 shall incorporate site specific factors, such as the	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	V

Appendix C – Environmental Mitigation Implementation Schedule

EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.					
S12.78	***Good Site Practices and Waste Reduction Measures (con't)*** C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	To achieve waste reduction	Contractor	All Work Sites	Construction Phase	N/A
S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: • Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; • Maintain and clean storage areas routinely; • Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and • Different locations shall be designated to stockpile each material to enhance reuse.	To minimize potential adverse environmental impacts arising from waste storage	Contractor	Work Sites	Construction Phase	N/A V V N/A
S12.80	***Storage, Collection and Transportation of Waste (con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: • Remove waste in timely manner • Waste collectors shall only collect wastes prescribed by their permits • Impacts during transportation, such as dust and odour, shall 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 shall be disposed of at licensed waste disposal facilities • Maintain records of quantities of waste generated, recycled and disposed	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V V N/A V V V
S12.81	***Storage, Collection and Transportation of Waste (con't)*** • Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 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) shall be proposed.	To minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	Work Sites	Construction Phase	V
S12.83 – 12.86	***Sorting of C&D Materials*** • 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 shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. • Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach tunnels.	To minimize potential adverse environmental impacts during the handling, transportation and disposal of C&D materials	Contractor	Work Sites	Construction Phase	V V V N/A
S12.88	***Sediments*** • The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	N/A

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EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	marine dumping permit under the Dumping at Sea Ordinance.					
S12.89	***Sediments (con't)*** • The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.	To determine the best handling and disposal option of the sediments	MTR / Contractor	All works areas with sediments concern	Detailed Design Stage and Construction Phase	N/A
S12.91 – 12.94	***Sediments (con't)*** • Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). • In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall 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 shall be equipped with tight fitting seals to prevent leakage and shall 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 shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.95	***Sediments (con't)*** • A 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. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible rupture of the containers and sediment loss due to impact of the container on the seabed have been addressed.	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	N/A
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with 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. Containers used for storage of chemical waste shall: • Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; • Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and	To register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	Work Sites	Construction Phase	V V

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EIA Ref. / EM&A Log Ref.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concern to Address	Who to implement the measures?	Location of the measure	When to implement the measures?	Implementation Status
	• Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation.					V
S12.98	***Chemical Waste Storage Area*** • Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; • Be enclosed on at least 3 sides; • Have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • Have adequate ventilation; • Be covered to prevent rainfall from entering; and • Be properly arranged so that incompatible materials are adequately separated.	To prepare appropriate storage areas for chemical waste at works areas	Contractor	Work Sites	Construction Phase	V V V V V V
S12.99	***Chemical Waste*** • Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	To clearly label the chemical waste at works areas	Contractor	Work Sites	Construction Phase	V
S12.100	***Collection and Disposal of Chemical Waste*** ***A trip-ticket system shall be operated in accordance with the Waste Disposal*** *(Chemical Waste) (General) Regulation* to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the *Waste Disposal (Chemical Waste) (General) Regulation*.	To monitor the generation, reuse and disposal of chemical waste	Contractor	Work Sites	Construction Phase	N/A
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	To properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	Work Sites	Construction Phase	@
S12.102	***General Refuse (con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	To facilitate recycling of recyclable portions of refuse	Contractor	Work Sites	Construction Phase	V
S12.103	***General Refuse (con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the use of the bins shall also be provided in the sites as reminders.	To raise workers' awareness on recycling issue	Contractor	Work Sites	Construction Phase	V
/	***Accidental spillage*** To prevent accidental spillage of chemicals, the following is recommended: • Proper storage and handling facilities will be provided. • All the tanks, containers, storage area will be bunded and the locations will be locked as far as possible from the sensitive watercourse and stormwater drains. • The contractor will register as a chemical waste producer if chemical wastes would be generated. Storage of chemical waste arising from the construction activities will be stored with suitable labels and warnings. • Disposal of chemical wastes will be conducted in compliance with the requirements as stated in the Waste disposal (Chemical Waste) (General) Regulation.	To minimize potential adverse environmental impacts arising from accidental spillage	Contractor	Work Sites	Construction Phase	@ V V V
Land Contamination Impact						
S13.23–13.24	For construction works at sites under the current stage of site investigation (Stage 1 SI): • Precautionary measures such as visual inspection are recommended to be undertaken during construction activities that disturb soil. The inspection process shall involve a visual observation of excavated soils for discolouration and the presence of oils, together with identifying the presence of	To act as a general precautionary measure to screen soils for the presence contamination	Contractor	Within Project Boundary where signs of contamination is identified	During excavation works for Cut-and-Cover	N/A

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	odours, which may also indicate soil and/or groundwater contamination. • If soil materials suspected to be contaminated are encountered during excavation, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Shall concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the Contamination Assessment Report (CAR) and Remediation Action Plans (RAP).	during excavation works for Cut-and-Cover.				
S13.30	For some sites with currently no SI proposed (i.e. sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28), to be conservative, visual inspection shall be conducted during demolition and excavation to detect any abnormal colour, smell or other characteristics of the soil, due to the nearby land use and/ or construction method. If abnormal colour, smell or other characteristics of contamination are identified for any of these sites, sampling and testing shall be undertaken to verify the presence of contamination. The soil extracted during demolition, excavation and cut & cover construction shall be temporary stockpiled. Should the concentrations of contaminants of concern (COCs) exceed relevant RBRGs as indicated by laboratory analyses, remediation works shall be undertaken with reference to the CAR and RAP.	To act as a general precautionary measure to screen soils for the presence contamination during excavation works for Cut-and-Cover.	Contractor	Areas with no SI proposed (Sites ID 2-02, 2-18, 2-22, 2-23, 2-27, 2-28)	During excavation works for Cut-and-Cover	N/A
S13.36 – 13.38	For areas inaccessible for proper site appraisal and investigation (Stage 2 SI) (i) Site 2-15 • Upon site access being granted, visual inspection shall be carried out where intrusive works and soil excavation is encountered, for attention on any potential contamination due to its current operation • A supplementary CAP shall then be submitted to EPD for endorsement. • A CAR/RAP shall be prepared and submitted to EPD for endorsement on completion of the SI and analytical testing. • Shall remediation be undertaken a Remediation Report (RR) shall be prepared and submitted to EPD for endorsement to demonstrate that the decontamination work is adequate and is carried out in accordance with the endorsed CAR and RAP. Information such as soil treatment/ disposal records (including trip tickets), confirmatory sampling results, and photographs shall be included in the aforesaid RR. • No construction work shall be carried out prior to the endorsement of the RR by EPD.	To identify areas with land contamination concern, report laboratory results and propose remediation measures if necessary. To ensure remediation works have been undertaken to before the commencement of any construction works of the Project.	Contractor	Areas unable to be accessed during Stage 1 SI (Site 2-15)	After land resumption and prior to the construction works commencement at the site	N/A
S13.39	Potential Remediation of Contaminated Soil • Excavation profiles must be properly designed and executed with attention to the relevant requirements for environment, health and safety; • Excavation shall be carried out during dry season as far as possible to minimise contaminated runoff from contaminated soils; • Supply of suitable clean backfill material is needed after excavation; • If remediation is required with chemical oxidation proposed as a contaminant mass reduction technology, chemicals will be securely and separately stored away from sources of ignition or oxidisable items. Handling will be undertaken by personnel with appropriate training and personal protective equipment (PPE). • Vehicles containing any excavated materials shall be suitably covered to limit potential dust emissions or contaminated wastewater run-off, and truck bodies and tailgates shall be sealed to prevent any discharge during transport or during wet conditions; • Speed control for the trucks carrying contaminated materials shall be enforced; • Vehicle wheel and body washing facilities at the site's exit points shall be established and used; and • Pollution control measures for air emissions e.g. from biopile blower, noise emissions e.g. from blower, and water discharges e.g. runoff control shall be implemented and complied with relevant regulations and guidelines.	To remediate contaminated soil	Contractor	Identified contaminated sites	Site remediation	N/A
S13. 40	In order to minimize the potential adverse effects on health and safety of construction workers during the course of site remediation, the Occupation Safety and Health Ordinance (OSHO) (Chapter 509) and its subsidiary Regulations shall be followed by all site personnel working on the site at all times. In addition, the following basic health and safety measures shall be implemented as far as possible: • Set up a list of safety measures for site workers; • Provide written information and training on safety for site workers; • Keep a log-book and plan showing the contaminated zones and clean zones;	To minimise the potentially adverse effects on health and safety of construction workers during the course of site	Contractor	Identified contaminated sites	Site remediation and prior to construction phase	N/A

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	• Maintain a hygienic working environment; • Avoid dust generation; • Provide face and respiratory protection gear to site workers; • Provide personal protective clothing (e.g. chemical resistant jackboot, liquid tight gloves) to site workers; and • Provide first aid training and materials to site workers.	remediation.				

Legend: V = implemented;
x = not implemented;
@ = partially implemented;
N/A = not applicable

APPENDIX D

Summary of Action and Limit Levels

Appendix D – Summary of Action and Limit Levels

Table 1 Action and Limit Levels for 24-hour TSP

ID	Location	Action Level	Limit Level
AM2[1]	Wan Chai Sports Ground	160 μg/m^3	260 μg/m^3
AM3[2][3]	Existing Harbour Road Sports Centre	169 μg/m^3	260 μg/m^3
AM4[4]	Pedestrian Plaza	198 μg/m^3	260 μg/m^3

Note:
[1] The impact monitoring at AM2 was handed over from Contract SCL1128 on 28 October 2015.
[2] The impact monitoring at AM3 was handed over from Contract SCL1126 in June 2015.
[3] The impact monitoring at AM3 terminated on 6 May 2017 as demolition of Existing Harbour Road Sports Centre commenced on 8 May 2017.
[4] The impact monitoring at AM4 will be handed over from Contract SCL1128 in April 2021.

Table 2 Action and Limit Levels for Construction Noise (0700 – 1900 hrs of normal weekdays)

ID	Location	Action Level	Limit Level
NM2[1]	Harbour Centre[2]	When one documented complaint is received	75 dB(A)

Note:
[1] The impact monitoring at NM2 was handed over from Works Contract SCL1126 in June 2015.
[2] The Access to the designated monitoring location NM2 (i.e. Block A, Causeway Centre) was denied before the commencement of impact monitoring under Works Contract 1126. An alternative monitoring location at Harbour Centre was approved by the ER, agreed by IEC. The alternative monitoring location was approved by EPD on 18 December 2017.

APPENDIX E

Calibration Certificates of Equipments

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Wanchai Sports Ground	Operator:	Choi Wing Ho
Cal. Date:	14-Dec-21	Next Due Date:	14-Feb-22
Equipment No.:	A-001-72T	Serial No.	809

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	755.9

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.01375
Last Calibration Date:	7-Jan-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	7-Jan-22				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	7.0	2.65	1.33	45.0	45.11
13	6.0	2.46	1.24	40.0	40.09
10	4.6	2.15	1.08	32.0	32.08
7	3.5	1.88	0.94	26.0	26.06
5	2.7	1.65	0.83	20.0	20.05

By Linear Regression of Y on X

Slope , mw = **49.4945** **Intercept, bw =** **-21.0384**

Correlation Coefficient* = **0.9992**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

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

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2} =$ **43.20**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 14/12/21

AECOM Asia Company Limited
TSP High Volume Sampler
Field Calibration Report

Station	Pedestrian Plaza	Operator:	Choi Wing Ho
Cal. Date:	14-Dec-21	Next Due Date:	14-Feb-22
Equipment No.:	A-001-70T	Serial No.	10273

Ambient Condition			
Temperature, Ta (K)	295	Pressure, Pa (mmHg)	755.9

Orifice Transfer Standard Information					
Serial No:	843	Slope, mc	1.99914	Intercept, bc	-0.01375
Last Calibration Date:	07-Jan-21	$mc \times Qstd + bc = [H \times (Pa/760) \times (298/Ta)]^{1/2}$			
Next Calibration Date:	07-Jan-22				

Calibration of TSP Sampler

Resistance Plate No.	Orfice			HVS Flow Recorder	
	DH (orifice), in. of water	$[DH \times (Pa/760) \times (298/Ta)]^{1/2}$	Qstd (m^3/min) **X - axis**	Flow Recorder Reading (CFM)	Continuous Flow Recorder Reading IC (CFM) **Y-axis**
18	6.9	2.63	1.32	44.0	44.10
13	5.6	2.37	1.19	38.0	38.09
10	4.7	2.17	1.09	33.0	33.08
7	3.5	1.88	0.94	27.0	27.06
5	2.6	1.62	0.82	21.0	21.05

By Linear Regression of Y on X

Slope , mw = **45.0719** **Intercept, bw =** **-15.7435**

Correlation Coefficient* = **0.9990**

*If Correlation Coefficient < 0.990, check and recalibrate.

Set Point Calculation

From the TSP Field Calibration Curve, take Qstd = 1.30m^3/min

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

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

Therefore, Set Point; $IC = (mw \times Qstd + bw) \times [(760 / Pa) \times (Ta / 298)]^{1/2}$ = **42.75**

Remarks:

QC Reviewer: WS CHAN Signature: Date: 14/12/21

TISCH Environmental

RECALIBRATION DUE DATE:
December 27, 2022

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	December 27, 2021	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 740.4	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **0843**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3770	3.2	2.00
2	3	4	1	0.9710	6.4	4.00
3	5	6	1	0.8740	7.9	5.00
4	7	8	1	0.8340	8.8	5.50
5	9	10	1	0.6870	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9799	0.7116	1.4029	0.9957	0.7231	0.8927
0.9756	1.0048	1.9841	0.9914	1.0210	1.2624
0.9736	1.1140	2.2183	0.9893	1.1320	1.4114
0.9724	1.1660	2.3265	0.9881	1.1848	1.4803
0.9673	1.4079	2.8059	0.9828	1.4306	1.7853
QSTD	**m=**	**2.02086**	**QA**	**m=**	**1.26543**
	b=	**-0.03672**		**b=**	**-0.02336**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

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

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

www.tisch-env.com
TOLL FREE: (877)263-7610
FAX: (513)467-9009

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0309 02 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	,	Microphone	Pream
Manufacturer:	B & K	,	B & K	B & K
Type/Model No.:	2270	,	4950	ZC0032
Serial/Equipment No.:	2644597	,	2879980	29398
Adaptors used:	-	,	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	09-Mar-2021

Date of test: 22-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	33873	19-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS & MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0309 02 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Uncertainty (dB) / Coverage Factor	
Self-generated noise	A	Pass	0.3	
	C	Pass	1.0	2.1
	Lin	Pass	2.0	2.2
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Uncertainty (dB) / Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3
	Weighting A at 8000 Hz	Pass	0.5

3, Response to associated sound calibrator

N/A

The uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95 %. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 22-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

綜合試驗有限公司
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HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0319 01-01 **Page** 1 **of** 2

Item tested

Description:	Sound Level Meter (Type 1)	Microphone	Preamp
Manufacturer:	B & K	B & K	B & K
Type/Model No.:	2250-L	4950	ZC0032
Serial/Equipment No.:	2681366	2665582	17190
Adaptors used:	-	-	-

Item submitted by

Customer Name:	AECOM ASIA CO LTD
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Mar-2021

Date of test: 23-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Multi function sound calibrator	B&K 4226	2288444	23-Aug-2021	CIGISMEC
Signal generator	DS 360	33873	19-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Level Meter has been calibrated in accordance with the requirements as specified in BS 7580: Part 1: 1997 and the lab calibration procedure SMTP004-CA-152.

2, The electrical tests were performed using an electrical signal substituted for the microphone which was removed and replaced by an equivalent capacitance within a tolerance of ±20%.

3, The acoustic calibration was performed using an B&K 4226 sound calibrator and corrections was applied for the difference between the free-field and pressure responsess of the Sound Level Meter.

Test results

This is to certify that the Sound Level Meter conforms to BS 7580: Part 1: 1997 for the conditions under which the test was performed.

Details of the performed measurements are presented on page 2 of this certificate.

Actual Measurement data are documented on worksheets.

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0319 01-01 **Page** 2 **of** 2

1, Electrical Tests

The electrical tests were perfomed using an equivalent capacitance substituted for the microphone. The results are given in below with test status and the estimated uncertainties. The "Pass" means the result of the test is inside the tolerances stated in the test specifications. The "-" means the result of test is outside these tolerances.

Test:	Subtest:	Status:	Expanded Uncertanity (dB)	Coverage Factor
Self-generated noise	A	Pass	0.3	
	C	Pass	0.8	
	Lin	Pass	1.6	
Linearity range for Leq	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
	Reference SPL on all other ranges	Pass	0.3	
	2 dB below upper limit of each range	Pass	0.3	
	2 dB above lower limit of each range	Pass	0.3	
Linearity range for SPL	At reference range , Step 5 dB at 4 kHz	Pass	0.3	
Frequency weightings	A	Pass	0.3	
	C	Pass	0.3	
	Lin	Pass	0.3	
Time weightings	Single Burst Fast	Pass	0.3	
	Single Burst Slow	Pass	0.3	
Peak response	Single 100μs rectangular pulse	Pass	0.3	
R.M.S. accuracy	Crest factor of 3	Pass	0.3	
Time weighting I	Single burst 5 ms at 2000 Hz	Pass	0.3	
	Repeated at frequency of 100 Hz	Pass	0.3	
Time averaging	1 ms burst duty factor $1/10^3$ at 4kHz	Pass	0.3	
	1 ms burst duty factor $1/10^4$ at 4kHz	Pass	0.3	
Pulse range	Single burst 10 ms at 4 kHz	Pass	0.4	
Sound exposure level	Single burst 10 ms at 4 kHz	Pass	0.4	
Overload indication	SPL	Pass	0.3	
	Leq	Pass	0.4	

2, Acoustic tests

The complete sound level meter was calibrated on the reference range using a B&K 4226 acoustic calibrator with 1000Hz and SPL 94 dB. The sensitivity of the sound level meter was adjusted. The test result at 125 Hz and 8000 Hz are given in below with test status and the estimated uncertainties.

Test:	Subtest	Status	Expanded Uncertanity (dB)	Coverage Factor
Acoustic response	Weighting A at 125 Hz	Pass	0.3	
	Weighting A at 8000 Hz	Pass	0.5	

3, Response to associated sound calibrator

N/A

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 23-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

綜合試驗有限公司
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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0319 01-02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	MVI
Type/Model No.:	CAL21
Serial/Equipment No.:	34113610(2011) / N.004.11
Adaptors used:	Yes (BAC21)

Item submitted by

Curstomer:	AECOM ASIA CO., LTD.
Address of Customer:	-
Request No.:	-
Date of receipt:	19-Mar-2021

Date of test: 23-Mar-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1005 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 24-Mar-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0319 01-02 **Page:** 2 of 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	93.98	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.010 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 1002.6 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 1.8 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 23-Mar-2021

Checked by: Chan Yuk Yiu **Date:** 24-Mar-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

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HOKLAS 028
CAL

CERTIFICATE OF CALIBRATION

Certificate No.: 21CA0401 02 **Page:** 1 **of** 2

Item tested

Description:	Acoustical Calibrator (Class 1)
Manufacturer:	B & K
Type/Model No.:	4231
Serial/Equipment No.:	3006428
Adaptors used:	-

Item submitted by

Curstomer:	AECOM
Address of Customer:	-
Request No.:	-
Date of receipt:	01-Apr-2021

Date of test: 05-Apr-2021

Reference equipment used in the calibration

Description:	Model:	Serial No.	Expiry Date:	Traceable to:
Lab standard microphone	B&K 4180	2412857	11-May-2021	SCL
Preamplifier	B&K 2673	2743150	03-Jun-2021	CEPREI
Measuring amplifier	B&K 2610	2346941	03-Jun-2021	CEPREI
Signal generator	DS 360	33873	19-May-2021	CEPREI
Digital multi-meter	34401A	US36087050	19-May-2021	CEPREI
Audio analyzer	8903B	GB41300350	18-May-2021	CEPREI
Universal counter	53132A	MY40003662	18-May-2021	CEPREI

Ambient conditions

Temperature:	22 ± 1 °C
Relative humidity:	55 ± 10 %
Air pressure:	1010 ± 5 hPa

Test specifications

1, The Sound Calibrator has been calibrated in accordance with the requirements as specified in IEC 60942 1997 Annex B and the lab calibration procedure SMTP004-CA-156.

2, The calibrator was tested with its axis vertical facing downwards at the specific frequency using insert voltage technique.

3, The results are rounded to the nearest 0.01 dB and 0.1 Hz and have not been corrected for variations from a reference pressure of 1013.25 hectoPascals as the maker's information indicates that the instrument is insensitive to pressure changes.

Test results

This is to certify that the sound calibrator conforms to the requirements of annex B of IEC 60942: 1997 for the conditions under which the test was performed. This does not imply that the sound calibrator meets IEC 60942 under any other conditions.

Details of the performed measurements are presented on **page 2** of this certificate.

Approved Signatory: Feng Junqi **Date:** 07-Apr-2021 **Company Chop:** SOILS AND MATERIALS ENGINEERING COMPANY LTD. 綜合試驗有限公司

Comments: The results reported in this certificate refer to the conditon of the instrument on the date of calibration and carry no implication regarding the long-term stability of the instrument. The results apply to the item as received.

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HOKLAS 028 CAL

CERTIFICATE OF CALIBRATION

(Continuation Page)

Certificate No.: 21CA0401 02 **Page:** 2 **of** 2

1, Measured Sound Pressure Level

The output Sound Pressure Level in the calibrator head was measured at the setting and frequency shown using a calibrated laboratory standard microphone and insert voltage technique. The results are given in below with the estimated uncertainties.

(Output level in dB re 20 μPa)

Frequency Shown Hz	Output Sound Pressure Level Setting dB	Measured Output Sound Pressure Level dB	Estimated Expanded Uncertainty dB
1000	94.00	94.23	0.10

2, Sound Pressure Level Stability - Short Term Fluctuations

The Short Term Fluctuations was determined by measuring the maximum and minimum of the fast weighted DC output of the B&K 2610 measuring amplifier over a 20 second time interval as required in the standard. The Short Term Fluctuation was found to be:

At 1000 Hz **STF = 0.016 dB**

Estimated expanded uncertainty 0.005 dB

3, Actual Output Frequency

The determination of actual output frequency was made using a B&K 4180 microphone together with a B&K 2673 preamplifier connected to a B&K 2610 measuring amplifier. The AC output of the B&K 2610 was taken to an universal counter which was used to determine the frequency averaged over 20 second of operation as required by the standard. The actual output frequency at 1 KHz was:

At 1000 Hz **Actual Frequency = 999.95 Hz**

Estimated expanded uncertainty 0.1 Hz Coverage factor k = 2.2

4, Total Noise and Distortion

For the Total Noise and Distortion measurement, the unfiltered AC output of the B&K 2610 measuring amplifier was connected to an Agilent Type 8903 B distortion analyser. The TND result at 1 KHz was:

At 1000 Hz **TND = 0.3 %**

Estimated expanded uncertainty 0.7 %

The expanded uncertainties have been calculated in accordance with the ISO Publication "Guide to the expression of uncertainty in measurement", and gives an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.

- End -

Calibrated by: Fung Chi Yip **Date:** 05-Apr-2021

Checked by: Chan Yuk Yiu **Date:** 07-Apr-2021

The standard(s) and equipment used in the calibration are traceable to national or international recognised standards and are calibrated on a schedule to maintain the required accuracy level.

APPENDIX F

EM&A Monitoring Schedules

Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for January 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Jan
2-Jan	3-Jan	4-Jan	5-Jan	6-Jan	7-Jan	8-Jan
			Air Quality		Noise	
9-Jan	10-Jan	11-Jan	12-Jan	13-Jan	14-Jan	15-Jan
		Air Quality		Noise		
16-Jan	17-Jan	18-Jan	19-Jan	20-Jan	21-Jan	22-Jan
	Air Quality		Noise			Air Quality
23-Jan	24-Jan	25-Jan	26-Jan	27-Jan	28-Jan	29-Jan
			Noise		Air Quality	
30-Jan	31-Jan					
	Air Quality Noise					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station
AM2 Wan Chai Sports Ground
AM4 Pedestrain Plaza

Noise Monitoring Station
NM2 Harbour Centre

Monitoring Frequency
24-hr TSP Once every 6 days

Monitoring Frequency
Once per week

Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for February 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Feb	2-Feb	3-Feb	4-Feb	5-Feb
						Air Quality
6-Feb	7-Feb	8-Feb	9-Feb	10-Feb	11-Feb	12-Feb
		Noise			Air Quality	
13-Feb	14-Feb	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb
		Noise		Air Quality		
20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb
			Air Quality Noise			
27-Feb	28-Feb					

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2	Wan Chai Sports Ground
AM4	Pedestrain Plaza

Noise Monitoring Station

NM2	Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for March 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1-Mar	2-Mar	3-Mar	4-Mar	5-Mar
		Air Quality		Noise		
6-Mar	7-Mar	8-Mar	9-Mar	10-Mar	11-Mar	12-Mar
	Air Quality		Noise			Air Quality
13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar
		Noise			Air Quality	
20-Mar	21-Mar	22-Mar	23-Mar	24-Mar	25-Mar	26-Mar
				Air Quality Noise		
27-Mar	28-Mar	29-Mar	30-Mar	31-Mar		
			Air Quality Noise			

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2	Wan Chai Sports Ground
AM4	Pedestrain Plaza

Noise Monitoring Station

NM2	Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

Shatin to Central Link Contract 1123 - Exhibition Station and Western Approach Tunnel
Tentative Impact Monitoring Schedule for April 2022

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1-Apr	2-Apr
3-Apr	4-Apr	5-Apr	6-Apr	7-Apr	8-Apr	9-Apr
	Air Quality			Noise		Air Quality
10-Apr	11-Apr	12-Apr	13-Apr	14-Apr	15-Apr	16-Apr
		Noise	Air Quality			
17-Apr	18-Apr	19-Apr	20-Apr	21-Apr	22-Apr	23-Apr
		Air Quality		Noise		
24-Apr	25-Apr	26-Apr	27-Apr	28-Apr	29-Apr	30-Apr
	Air Quality		Noise		Air Quality	

The schedule is subject to change due to unforeseeable circumstances (e.g. adverse weather, etc)

Air Quality Monitoring Station

AM2 Wan Chai Sports Ground
AM4 Pedestrain Plaza

Noise Monitoring Station

NM2 Harbour Centre

Monitoring Frequency

24-hr TSP Once every 6 days

Monitoring Frequency

Once per week

APPENDIX G

Air Quality Monitoring Results and their Graphical Presentations

Appendix G
Air Quality Monitoring Results

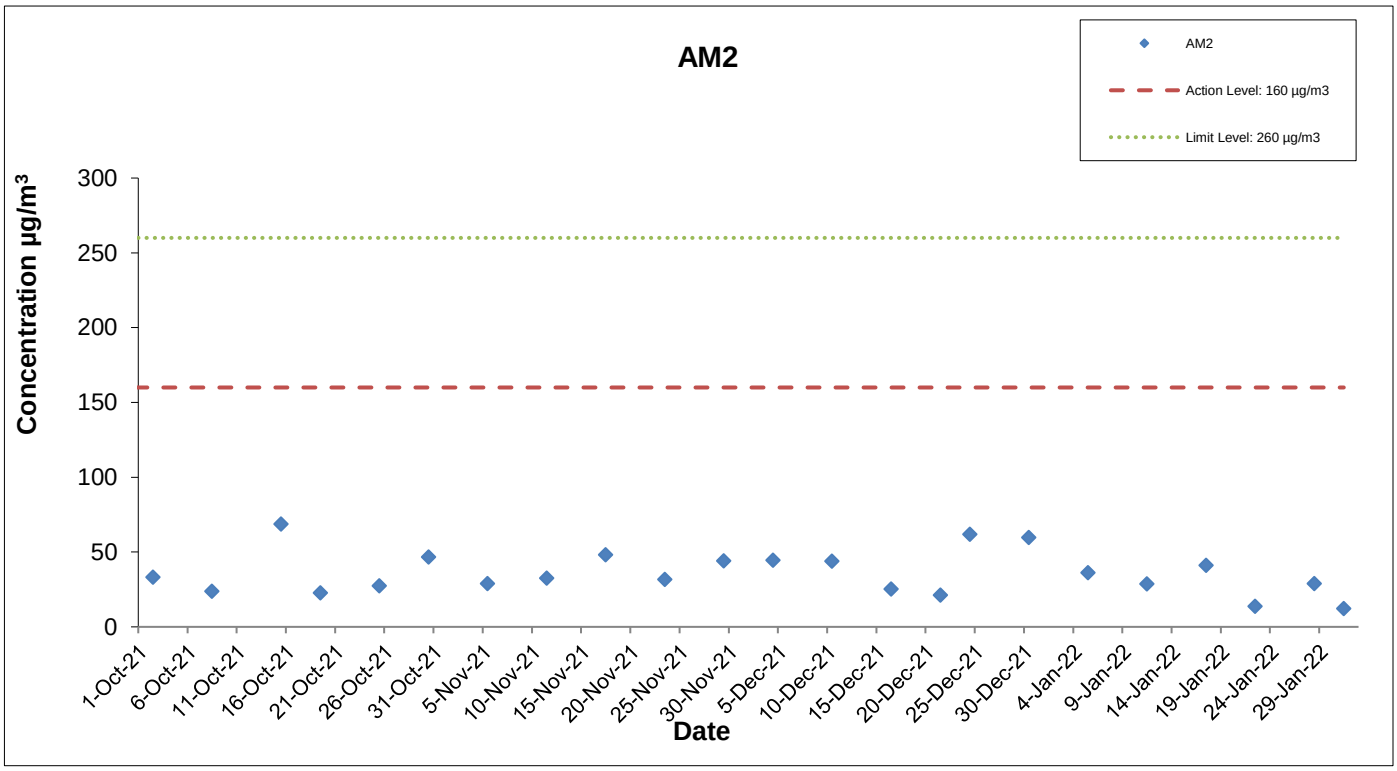
24-hour TSP Monitoring Results at Station AM2 (Wan Chai Sports Ground)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
5-Jan-22	0:00	6-Jan-22	0:00	Sunny	20.4	1017.3	1.33	1.33	1.33	1916.6	2.8206	2.8900	0.0694	28160.67	28184.67	24.00	36.2
11-Jan-22	0:00	12-Jan-22	0:00	Sunny	15.8	1020.2	1.33	1.33	1.33	1916.6	2.8177	2.8726	0.0549	28184.67	28208.67	24.00	28.6
17-Jan-22	0:00	18-Jan-22	0:00	Sunny	17.8	1020.7	1.33	1.33	1.33	1916.6	2.8256	2.9043	0.0787	28208.67	28232.67	24.00	41.1
22-Jan-22	0:00	23-Jan-22	0:00	Cloudy	17.3	1014.3	1.33	1.33	1.33	1916.6	2.8123	2.8385	0.0262	28232.67	28256.67	24.00	13.7
28-Jan-22	0:00	29-Jan-22	0:00	Sunny	18.8	1016.3	1.33	1.33	1.33	1916.6	2.8192	2.8747	0.0555	28256.67	28280.67	24.00	29.0
31-Jan-22	0:00	1-Feb-22	0:00	Sunny	14.6	1019.2	1.33	1.33	1.33	1916.6	2.8045	2.8278	0.0233	28280.67	28304.67	24.00	12.2
																Average	**26.8**
																Minimum	**12.2**
																Maximum	**41.1**

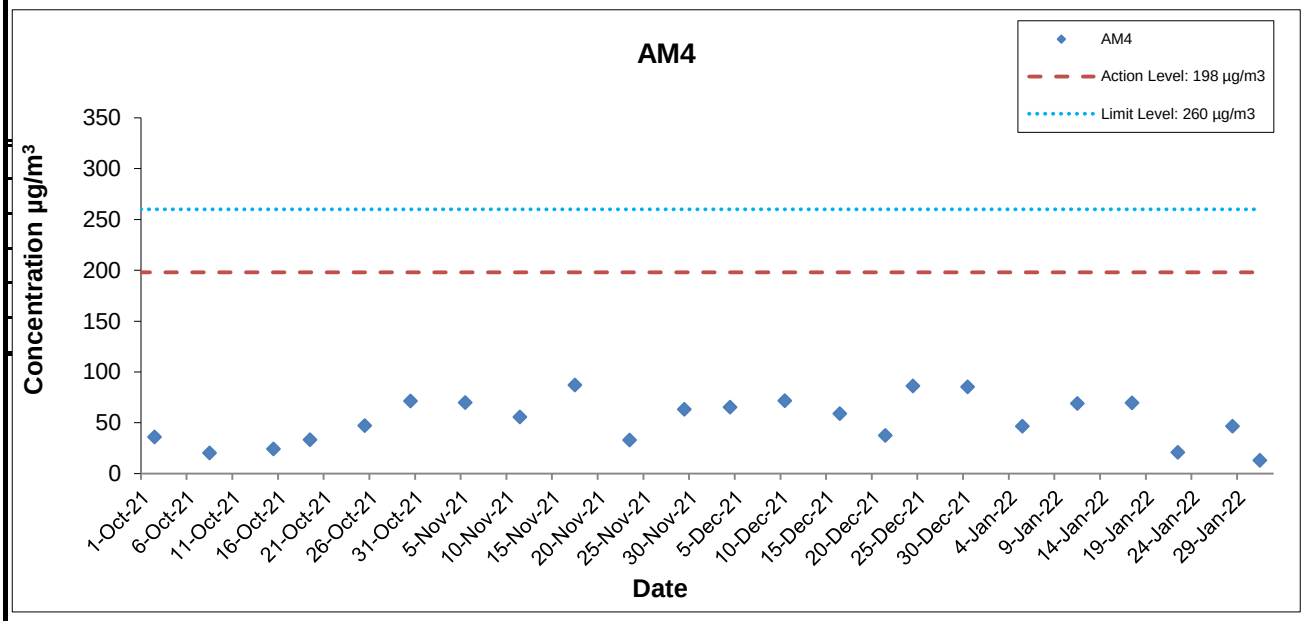
Appendix G
Air Quality Monitoring Results

24-hour TSP Monitoring Results at Station AM4 (Pedestrian Plaza)

Start		End		Weather	Air	Atmospheric	Flow Rate (m^3/min.)		Av. flow	Total vol.	Filter Weight (g)		Particulate	Elapse Time		Sampling	Conc.
Date	Time	Date	Time	Condition	Temp. (^oC)	Pressure (hPa)	Initial	Final	(m^3/min)	(m^3)	Initial	Final	weight(g)	Initial	Final	Time(hrs.)	($\mu g/m^3$)
5-Jan-22	0:00	6-Jan-22	0:00	Sunny	20.4	1017.3	1.33	1.33	1.33	1921.0	2.8003	2.8900	0.0897	27719.01	27743.01	24.00	46.7
11-Jan-22	0:00	12-Jan-22	0:00	Sunny	15.8	1020.2	1.33	1.33	1.33	1921.0	2.8376	2.9706	0.1330	27743.01	27767.01	24.00	69.2
17-Jan-22	0:00	18-Jan-22	0:00	Sunny	17.8	1020.7	1.33	1.33	1.33	1921.0	2.8172	2.9511	0.1339	27767.01	27791.01	24.00	69.7
22-Jan-22	0:00	23-Jan-22	0:00	Cloudy	17.3	1014.3	1.33	1.33	1.33	1921.0	2.8149	2.8551	0.0402	27791.01	27815.01	24.00	20.9
28-Jan-22	0:00	29-Jan-22	0:00	Sunny	18.8	1016.3	1.33	1.33	1.33	1921.0	2.8244	2.9140	0.0896	27815.01	27839.01	24.00	46.6
31-Jan-22	0:00	1-Feb-22	0:00	Sunny	14.6	1019.2	1.33	1.33	1.33	1921.0	2.7805	2.8058	0.0253	27839.01	27863.01	24.00	13.2
																Average	44.4
																Minimum	13.2
																Maximum	69.7



* The monitoring station at AM2 was handed over from Contract SCL1128 on 28 October 2015.



* The impact monitoring at AM4 will be handed over from Contract SCL1128 in April 2021.

Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

AECOM

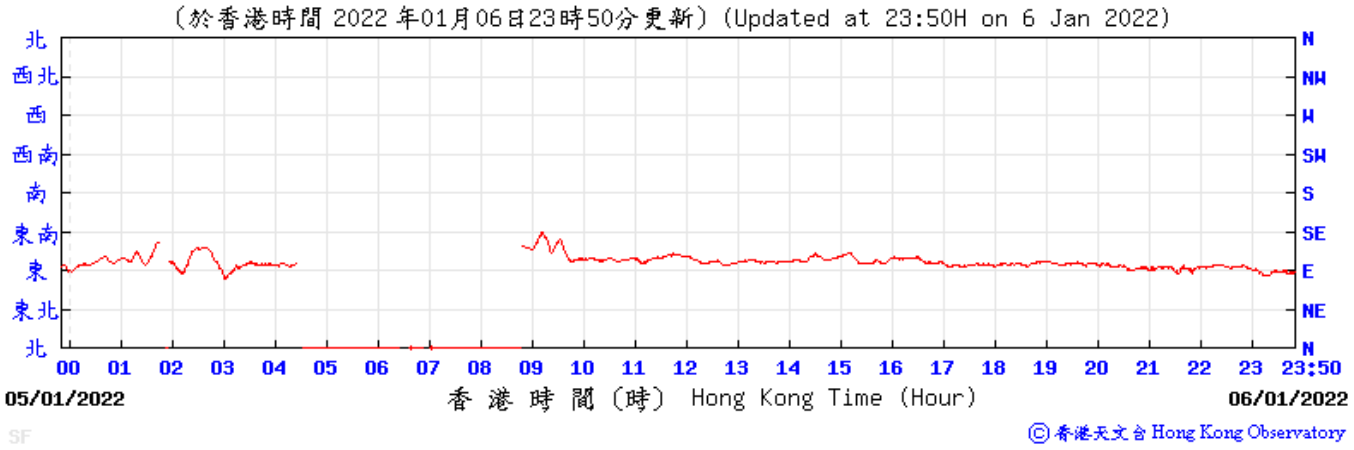
Graphical Presentation of Impact 24-hr TSP Monitoring Results

Date: February 2022

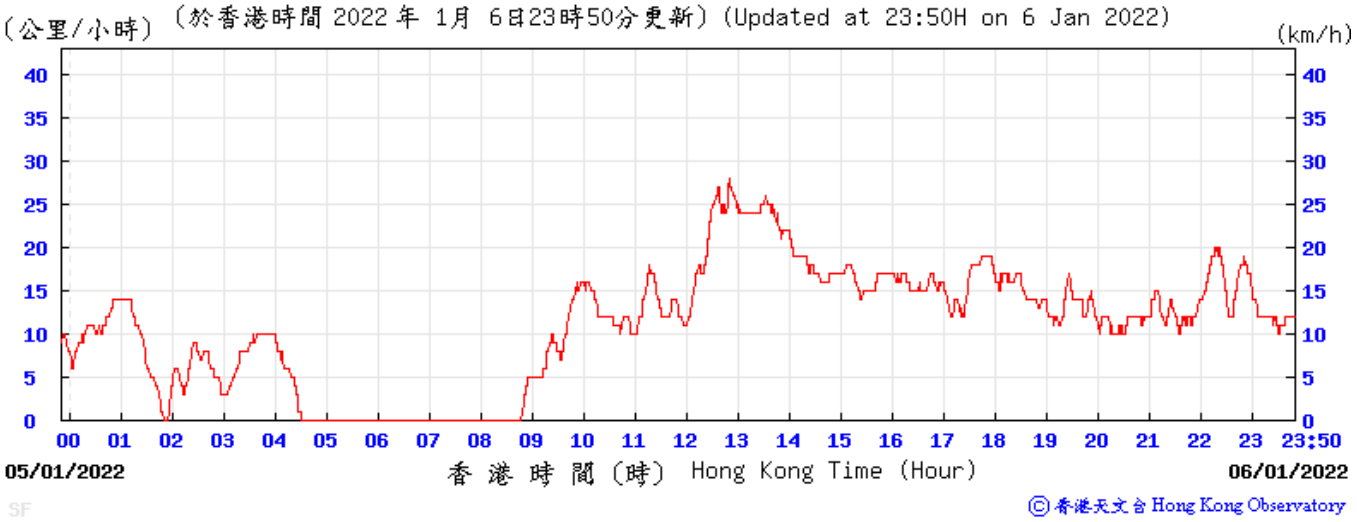
Appendix G

Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, January 2022

Wind Direction:

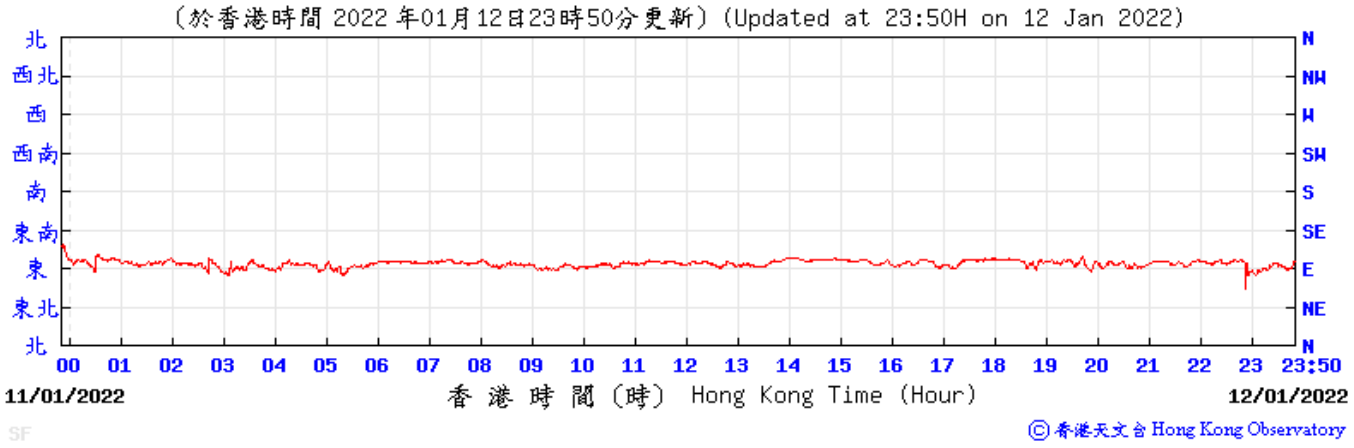


Wind Speed:

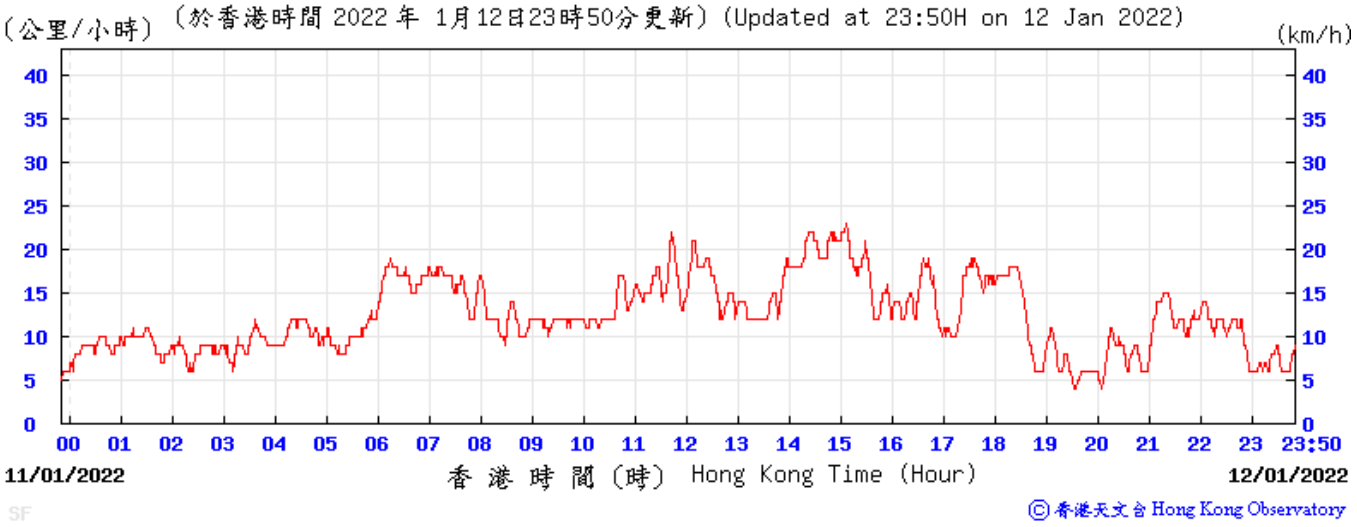


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, January 2022

Wind Direction:

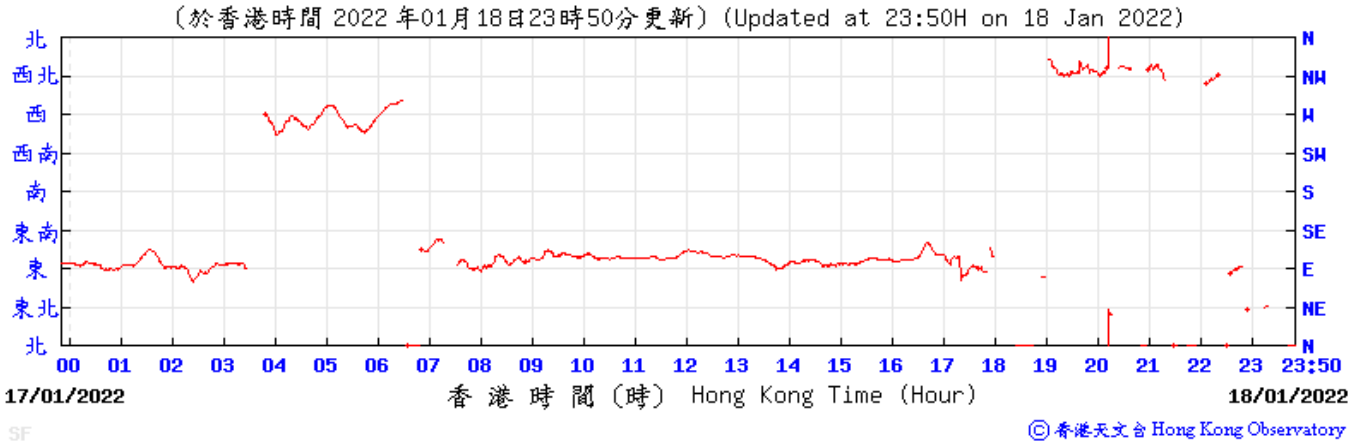


Wind Speed:

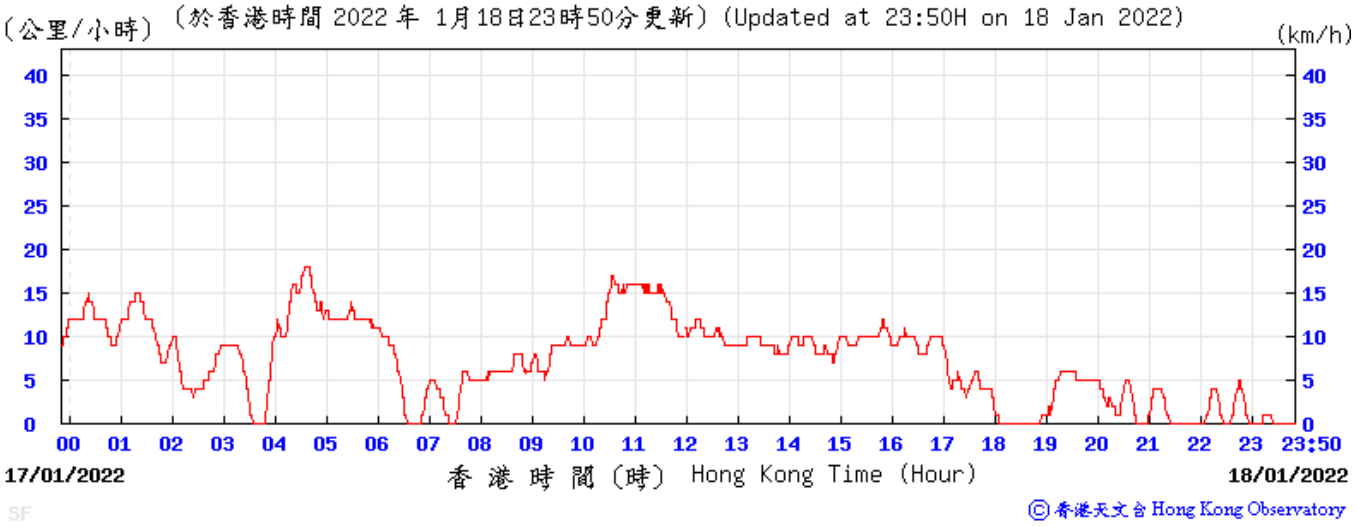


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, January 2022

Wind Direction:

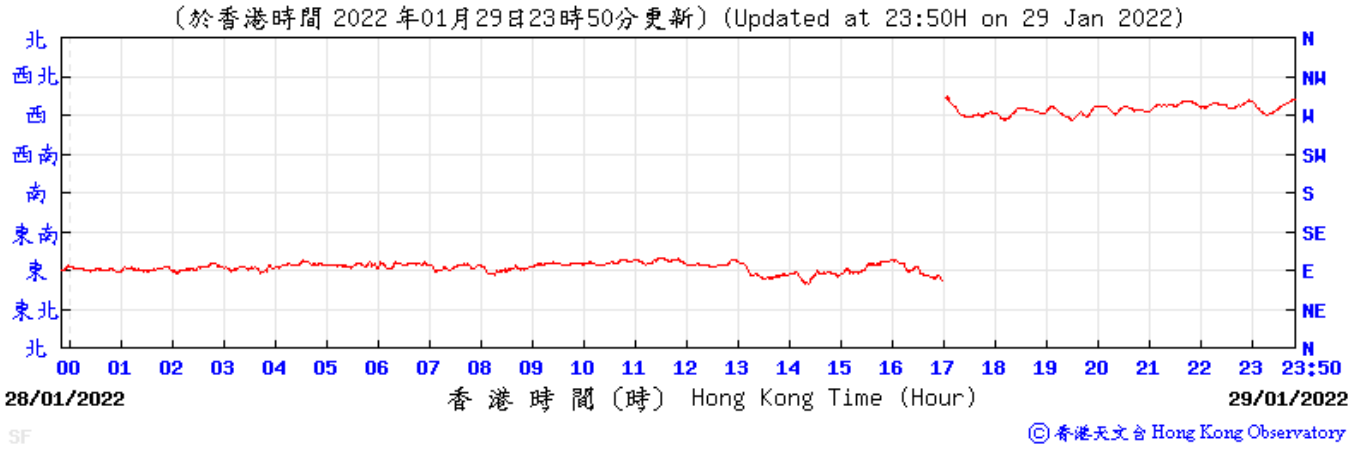


Wind Speed:

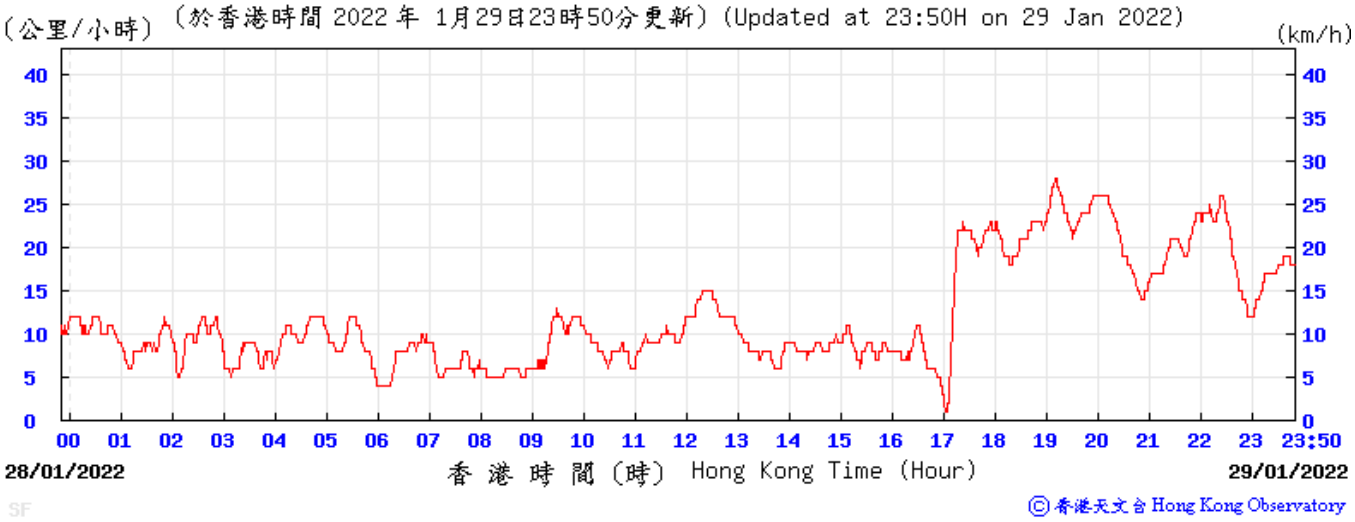


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, January 2022

Wind Direction:

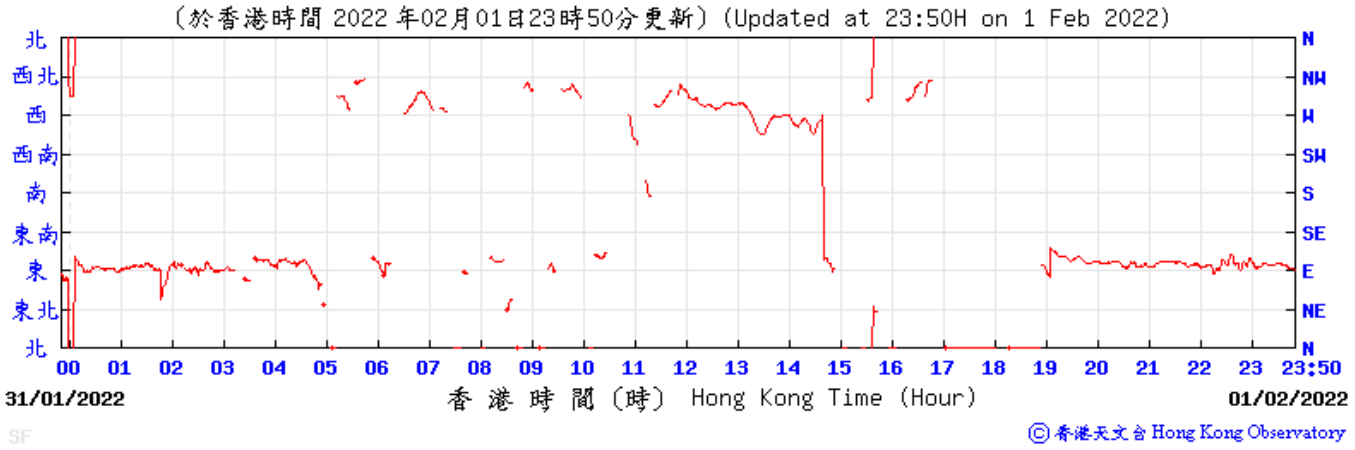


Wind Speed:

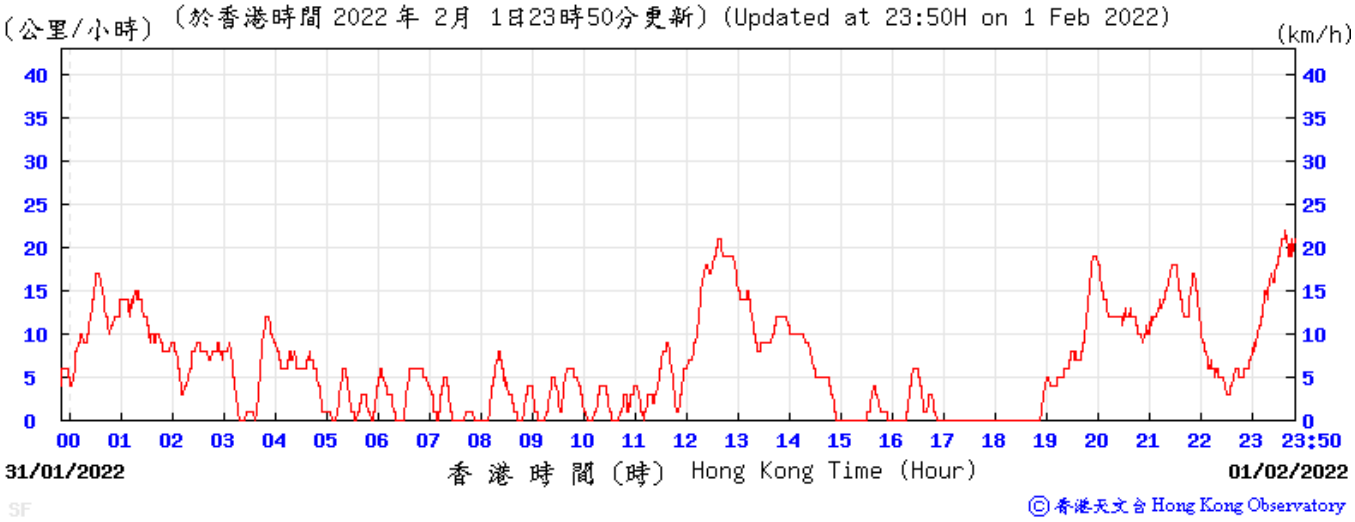


Appendix G – Extract of Meteorological Observations for Star Ferry Automatic Weather Station, January 2022

Wind Direction:



Wind Speed:



APPENDIX H

Noise Monitoring Results and their Graphical Presentations

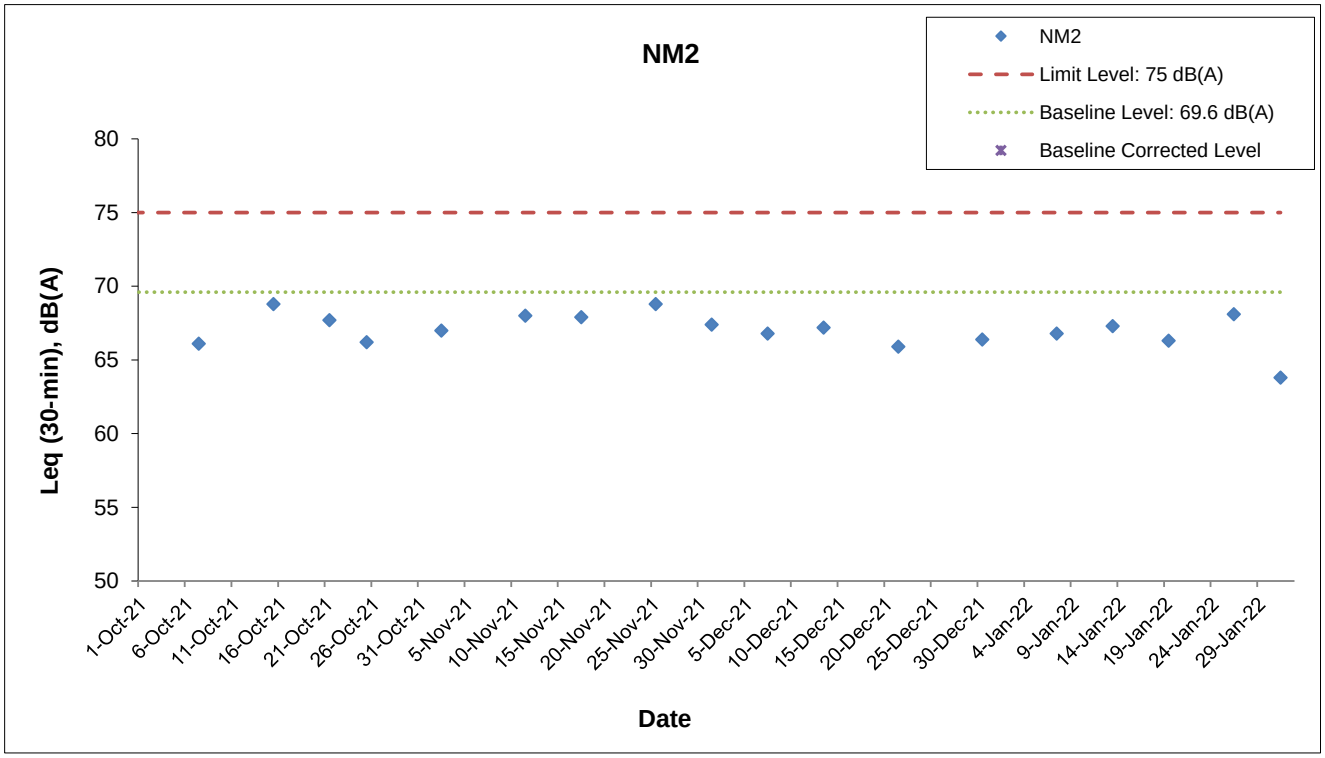
Appendix H Regular Construction Noise Monitoring Results

Daytime Noise Monitoring Results at Station NM2 (Harbour Centre)

Date	Weather Condition	Noise Level for 30-min, dB(A)+				Baseline Corrected Level, dB(A)	Baseline Noise Level, dB(A)	Limit Level, dB(A)	Exceedance (Y/N)
		Time	L90	L10	Leq				
7-Jan-22	Sunny	14:20	63.9	68.3	66.8	<Baseline	69.6	75	N
13-Jan-22	Sunny	11:25	65.2	68.7	67.3	<Baseline	69.6	75	N
19-Jan-22	Fine	13:20	64.2	67.9	66.3	<Baseline	69.6	75	N
26-Jan-22	Sunny	10:35	65.2	69.3	68.1	<Baseline	69.6	75	N
31-Jan-22	Fine	11:20	62.2	65.8	63.8	<Baseline	69.6	75	N

+ - Façade measurement

Appendix H Regular Construction Noise Monitoring Results



Shatin Central Link Contract No. 1123
Exhibition Station and Western Approach Tunnel

Graphical Presentation of Impact Noise Monitoring Results

Date: February 2022

Appendix H

APPENDIX I

Event Action Plan

Appendix I Event Action Plan

Event / Action Plan for Construction Dust Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
ACTION LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC and ER; 2. Discuss with the Contractor and IEC on the remedial measures required; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing.	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; 3. Amend working methods agreed with the ER as appropriate.
Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; 4. Amend proposal as appropriate.

Appendix I Event Action Plan

EVENT	ACTION			
	ET	**IEC**	**ER**	**Contractor**
LIMIT LEVEL				
Exceedance for one sample	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; 3. Supervise implementation of remedial measures.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement the agreed proposals; 5. Amend proposal if appropriate.
Exceedance for two or more consecutive samples	1. Notify Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the results; 7. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix I Event Action Plan

Event and Action Plan for Construction Noise Monitoring

EVENT	ACTION			
	ET	IEC	ER	Contractor
Exceedance of Action Level	1. Notify the Contractor, IEC and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; and 3. Increase monitoring frequency to check mitigation effectiveness.	1. Review the investigation results submitted by the contractor; and 2. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of complaint in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise implementation of remedial measures.	1. Investigate the complaint and propose remedial measures; 2. Report the results of investigation to the IEC, ET and ER; 3. Submit noise mitigation proposals to the ER with copy to the IEC and ET within 3 working days of notification; and 4. Implement noise mitigation proposals.
Exceedance of Limit Level	1. Notify the Contractor, IEC, EPD and ER ; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency; 4. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC and ER to discuss the remedial measures to be taken; 6. Inform IEC, ER and EPD the causes and actions taken for the exceedances; 7. Review the effectiveness of Contractor's remedial measures and keep IEC, EPD and ER informed of the results; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with the ER, ET and Contractor on the potential remedial measures; and 4. Review and advise the ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET within 3 working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Appendix I Event Action Plan

Event and Action Plan for Continuous Noise Monitoring

EVENT	ACTION			
	ET	**IEC**	**ER**	**CONTRACTOR**
Action/Limit Level	1. Identify source ; 2. Repeat measurement. If two consecutive measurements exceed Action/Limit Level, the exceedance is then confirmed; 3. If exceedance is confirmed, notify IEC, ER and Contractor; 4. Investigate the cause of exceedance and ckeck Contractor's working procedures to determine possible mitigation to be implemented; 5. Discuss jointly with the IEC, ER and Contractor and formulate remedial measures; and 6. Assess effectiveness of Contractor's remedial actions and keep IEC and ER informed of the results.	1. Check monitoring data submitted by the Works Contract 1123 ET; 2. Check the Contractor's working method; 3. Discuss with the ER, Works Contract 1123 ET and Contractor on the potential remedial measures; and 4. Review and advise the Works Contract 1123 ET and ER on the effectiveness of the remedial measures proposed by the Contractor.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the Works Contract 1123 ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Ensure the proper implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source with the Works Contract 1123 ET; 2. If exceedance is confirmed, investigation the cause of exceedance and take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with copy to the IEC and ET of notification; 4. Implement the agreed proposals; 5. Liaise with ER to optimize the effectiveness of the agreed mitigation; 6. Revise and resubmit proposals if problem still not under control; and 7. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

APPENDIX J

Cumulative Statistics of Exceedances, Complaints, Notification of Summons and Successful Prosecutions

Appendix J

Cumulative Statistics on Complaints, Notifications of Summons and Successful Prosecutions

	Date Received	Subject	Status	Total no. received in this month	Total no. received since project commencement
Environmental complaints	-	-	-	0	17
Notification of summons	-	-	-	0	2
Successful Prosecutions	-	-	-	0	0

APPENDIX K

Waste Flow Table

MONTHLY SUMMARY WASTE FLOW TABLE

Contract No.:MTR SCL 1123 - Exhibition Station and Western Approach
Reporting Month: January 2022

Monthly Summary Waste Flow Table for 2022

Month	Actual Quantities of Inert C&D Materials Generated Monthly						Actual Quantities of C&D Wastes Generated Monthly					Actual Quantities of Marine Dumping 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	Type 1	Type 2
	(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)	(in '000m^3)	(in '000m^3)
Jan	1.394	0.000	0.000	0.000	1.394	0.000	4.120	1.370	0.230	0.000	0.290	0.000	0.000
Feb													
Mar													
Apr													
May													
Jun													
Sub-total	1.394	0.000	0.000	0.000	1.394	0.000	4.120	1.370	0.230	0.000	0.290	0.000	0.000
July													
August													
September													
October													
November													
December													
Total	1.394	0.000	0.000	0.000	1.394	0.000	4.120	1.370	0.230	0.000	0.290	0.000	0.000

Comments:

1) Assumption: The densities of Rock, Soil, Mixed Rock and Soil, and Regular Spoil are 2.0 ton/m^3; the density of general refuse is 1.0 ton/m^3; the density of waste oil is 1.0 kg/L.
2) The cut-off date of waste amount in January is 31/1/2022 for Public Fill Facilities and Landfill.
3) The amounts of waste in January are 289.9 tons for Landfill and 2788.05 tons for Public Fill.
4) The amount of import fill in January is 0 tons, for cut-off date as 31/1/2022.
5) The amount of metal waste generated in January is 4100 kg, for cut-off date as 31/1/2022.
6) The amount of paper waste generated in January is 0 kg, for cut-off date as 31/1/2022.
7) The amount of plastic waste generated in January is 0 kg, for cut-off date as 31/1/2022.

Appendix B

Final EM&A Review Report for January 2022 – SCL Works Contract 1121 NSL Cross Harbour Tunnels

MTR Corporation Limited

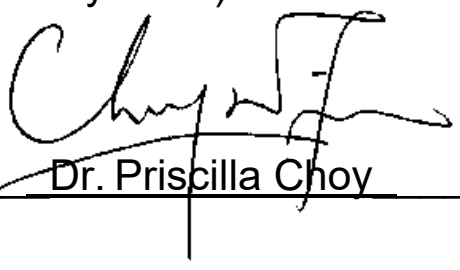
Shatin to Central Link –
Hung Hom to Admiralty Section

Final Environmental Monitoring and Audit Review Report

[Period from 1 March 2015 to 31 January 2022]

Works Contract 1121 – NSL Cross Harbour Tunnels

(February 2022)



Certified by: Dr. Priscilla Choy

Position: Environmental Team Leader

Date: 15th February 2022

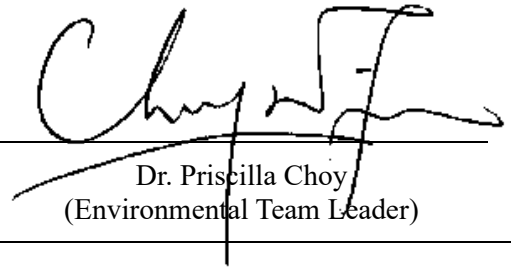
Penta Ocean – China State Joint Venture

Shatin to Central Link – Contract 1121 NSL Cross Harbour Tunnels

Final Environmental Monitoring and Audit Review Report

(version 2.0)

Certified By



Dr. Priscilla Choy
(Environmental Team Leader)

REMARKS:

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

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

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EXECUTIVE SUMMARY

Introduction

1. This is the Final Environmental Monitoring and Audit (EM&A) Review Report prepared by Wellab Limited for **MTR Shatin to Central Link (SCL) Works Contract 1121 – NSL Cross Harbour Tunnels** (hereinafter called "the Contract"). The report documents the key information of EM&A and environmental monitoring results from the Contract under Environmental Permit (Permit No: EP-436/2012/F) between 1 March 2015 and 31 January 2022.

2. As informed by the Contractor (Penta Ocean – China State Joint Venture - PCJV), all construction works with significant environmental impact of the Contract were substantially completed by 30 October 2021. The proposal for cessation of Construction Phase EM&A works for the Contract was submitted to EPD on 22 November 2021 and approved by EPD on 28 January 2022. Thus, the EM&A works under Contract 1121 were ceased since 1 February 2022.

Summary of Site Activities undertaken during the Construction Period

3. The major construction works of the Contract comprises the followings:
   - Construction only of the North Ventilation Building (NOV);
   - All Building services works for the NOV and tunnels;
   - All ABWF Works for NOV;
   - The tunnels connecting from NOV to the SCL tunnels (ME4 Tunnel) constructed under the Central – Wan Chai Bypass (CWB) project;
   - The walkways and various finishing works inside the tunnels, including a section of the ME4 Tunnel;
   - Site formation and establishment of the casting facility in Shek O;
   - Reinstatement and rehabilitation works of the Shek O casting facility;
   - Formation and removal of temporary reclamation;
   - Temporary marine traffic diversions in Victoria Harbour and CBTS; and
   - Demolition and reprovisioning of the existing Hung Hom Finger Pier.

4. Detail of Contractor's Construction Programmes could be found in the **Appendix A** of relevant Monthly EM&A Reports.

Environmental Monitoring Works

5. The environmental monitoring works of the Contract were conducted by the Environmental Team (ET) under the Environmental Permit in accordance with the Contract Specified EM&A Manual. The monitoring results were checked and reviewed. Site audits were conducted once per week. The implementation of the Environmental Mitigation Measures, Event Action Plans and Environmental Complaint Handing Procedures were also checked.

Construction Dust

6. The monitoring work of air quality monitoring station at Harbourfront Horizon (AM1) was taken over from MTR Contract 1112 by the ET of the Contract in November 2020.

Water Quality

Regular Water Quality Monitoring

7. The monitoring work of water monitoring stations in Shek O Basin at Stations C3, C4 and GB3 was carried out throughout the construction period of removal of earth bunds at Northern and Southern gates, i.e. during the period between March and April 2017 (removal of northern dock gate) and in November 2017 (removal of southern dock gate).

8. The monitoring work of water monitoring stations in Victoria Harbour at Stations C1, C2, 8, 14, 21, 34, A, WSD9 and WSD17 was carried out during the dredging and filling operation and at Station 9 during IMT construction within Causeway Bay Typhoon Shelter (CBTS). The monitoring work was commenced in April 2015. All dredging / filling operation in Victoria Harbour and IMT construction within CBTS was completed in December 2019 and in June 2019 respectively, the water quality monitoring at Victoria Harbour was eventually completed on 28 January 2020 and 26 July 2019 respectively.

9. Water Quality Monitoring at Stations 8 and 14 were suspended as the water intakes were not in use. The statuses of the intakes were kept in view such that once the water intakes were occupied, water quality monitoring would resume. In the presence of temporary reclamation in CBTS under this Contract, only Dissolved Oxygen (DO) level monitoring would be maintained at Station 8 for checking of potential odour concern.

Post-Project Water Quality Monitoring

10. The removal of southern dock gate at Shek O was completed on 20 November 2017. A four-week post-project water quality monitoring was carried out at the designated monitoring stations in Shek O Basin (C3, C4 and GB3) and was completed on 18 December 2017 in accordance with the requirements stipulated in the EM&A Manual in the same manner as the impact monitoring.

11. The four-week post-project water quality monitoring at Station 9 was commenced in response to the completion of IMT construction within CBTS in June 2019, and was completed on 26 July 2019.

12. The four-week post-project water quality monitoring at Stations C1, C2, 21, 34, A, WSD9 and WSD17 was commenced in response to the completion of dredging / filling operation in Victoria Harbour in December 2019, and was completed on 28 January 2020.

Cessation of Construction Phase EM&A Works

13. According to Condition 3.1 of Environmental Permit (EP) No.EP-436/2012/F, the Proposal for Cessation of Construction Phase EM&A Works for the Contract was submitted to EPD on 22 November 2021, and was approved by EPD on 28 January 2022, on the basis as below:

i) All construction activities with significant environmental impact of Contract 1121 were substantially completed by the Contractor by 30 October 2021. No major environmental impact was anticipated since then.

ii) Water Quality Monitoring was conducted since the commencement of the construction works. No project related Action and Limit Level exceedances of Water Quality Monitoring were recorded over the monitoring period.

iii) Impact Air Quality was conducted by Contract 1112 since the commencement of the construction works. The impact monitoring works were handed over from Contract 1112 to Contract 1121 in November 2020. No Action and Limit Level exceedance was recorded over the monitoring period of 24-hr TSP monitoring.

iv) One successful prosecution was received under this Contract in August 2017. The summons received in November 2016 was settled by the court. No environmental-related prosecution and summons was recorded under this Contract after August 2017. All complaints logged since the commencement of construction works have been settled.

14. Summary of the non-compliance of the construction phrase of the Contract is tabulated in **Table I and Table II**.

Table I Summary Table for Non-compliance (Exceedances) Recorded during Air Quality Monitoring

Monitoring Station(s)	Parameters	No. of Exceedance		No. of Exceedance Due to the Project		Total No. of Exceedance Due to the Project
		Action Level	Limit Level	Action Level	Limit Level	
AM1	1-hr TSP	0	0	0	0	0
	24-hr TSP	0	0	0	0	0

Table II Summary Table for Non-compliance (Exceedances) Recorded during Regular Water Quality Monitoring

Monitoring Station(s)	Parameters	No. of Exceedance		No. of Exceedance Due to the Project		Total No. of Exceedance Due to the Project
		Action Level	Limit Level	Action Level	Limit Level	
GB3	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
8	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
14	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
21	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	16	10	0	0	0

Monitoring Station(s)	Parameters	No. of Exceedance		No. of Exceedance Due to the Project		Total No. of Exceedance Due to the Project
		Action Level	Limit Level	Action Level	Limit Level	
34	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	18	9	0	0	0
A	DO	0	0	0	0	0
	Turbidity	1	0	0	0	0
	SS	0	43	0	0	0
WSD9	DO	0	0	0	0	0
	Turbidity	1	0	0	0	0
	SS	0	40	0	0	0
WSD17	DO	0	0	0	0	0
	Turbidity	4	1	0	0	0
	SS	0	37	0	0	0
9	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	3	5	0	0	0

15. Summary of the non-compliance of the post-project monitoring is tabulated in **Table III**.

Table III Summary Table for Non-compliance (Exceedances) Recorded during Post-Project Monitoring

Monitoring Station(s)	Parameters	No. of Exceedance		No. of Exceedance Due to the Project		Total No. of Exceedance Due to the Project
		Action Level	Limit Level	Action Level	Limit Level	
GB3	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
8	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
14	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
21	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
34	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
A	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0

Monitoring Station(s)	Parameters	No. of Exceedance		No. of Exceedance Due to the Project		Total No. of Exceedance Due to the Project
		Action Level	Limit Level	Action Level	Limit Level	
WSD9	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
WSD17	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	0	0	0	0	0
9	DO	0	0	0	0	0
	Turbidity	0	0	0	0	0
	SS	5	0	0	0	0

24-hour TSP Monitoring

16. All 24-hour TSP monitoring was conducted as scheduled by the ET of the Contract starting from November 2020. No Action and Limit Level exceedances were recorded for 24-hour TSP monitoring throughout the whole monitoring period.

Water Quality Monitoring

Regular Water Quality Monitoring

17. All regular water quality monitoring was conducted as scheduled during the construction period. Six (6) Action Level exceedances and one (1) Limit Level exceedance for turbidity, and 37 Action Level exceedances and 144 Limit Level exceedances for Suspended Solids of impact water quality monitoring were recorded during the reporting period. After investigation, all exceedances were considered non-project related.

Post-Project Water Quality Monitoring

18. All post-project water quality monitoring was conducted as scheduled. Five (5) Action Level exceedances for Suspended Solids of post-project water quality monitoring were recorded. After investigation, all exceedances were considered non-project related.

Environmental Licenses and Permits

19. Licenses/Permits granted to the Contract include the Environmental Permit (EP), Notifications of Works under APCO, Water Discharge Licences, Registration of a Chemical Waste Producer, Billing Account for Disposal of Construction Waste, Construction Noise Permits and Marine Dumping Permit.

Environmental Mitigation Implementation Schedule

20. According to the EIA Report and Environmental Review Reports, air quality, noise, water quality, waste management, cultural heritage, ecology, fisheries impact, as well as landscape and visual would be the key environmental issues and mitigation measures shall be implemented during the period covering the EM&A programme. Details of the implementation of mitigation measures are provided in the **Appendix G**.

Summary of Complaints and Prosecutions

21. No environmental non-compliance was recorded in the construction period.

22. Eighteen (18) environmental complaints (Six (6) project-related and twelve (12) non project-related), one (1) notification of summons and one (1) successful prosecution were received in the whole construction period. The complaint and prosecution log is present in **Appendix H**.

Conclusion

23. The EM&A programme was found to be effective and efficient in monitoring impacts arising from the Contract. The findings of the environmental monitoring programme suggest that no adverse impacts on sensitive receivers at the designated monitoring locations were resulted by the Contract. The environmental mitigation measures provided by the Contractor were generally acceptable apart from some minor deficiencies which were rectified timely by the Contractor.

24. In conclusion, the Project was environmentally acceptable in terms of air quality, noise and water quality.

1. INTRODUCTION

Background

1.1 The construction of the SCL (HUH-ADM) has been divided into a series of civil construction Works Contracts and this Works Contract 1121 comprises of the Permanent Works and the associated Temporary works required for the construction of the North Ventilation Building (NOV) at the Hung Hom Landfall, and construction of cut & cover tunnel and Immersed Tunnel (IMT) sections extending across the harbour from the NOV to the Causeway Bay Typhoon Shelter (CBTS). This construction contract was awarded to Penta Ocean – China State Joint Venture (PCJV) in December 2014. The site layout plans for the Works Contract 1121 are shown in **Figures 1a-1b**.

Site Description

1.2 The major construction works of the Contract comprises the followings:

- Construction only of the North Ventilation Building (NOV);
- All Building services works for the NOV and tunnels;
- All ABWF Works for NOV;
- The tunnels connecting from NOV to the SCL tunnels (ME4 Tunnel) constructed under the Central – Wan Chai Bypass (CWB) project;
- The walkways and various finishing works inside the tunnels, including a section of the ME4 Tunnel;
- Site formation and establishment of the casting facility in Shek O;
- Reinstatement and rehabilitation works of the Shek O casting facility;
- Formation and removal of temporary reclamation;
- Temporary marine traffic diversions in Victoria Harbour and CBTS; and
- Demolition and reprovisioning of the existing Hung Hom Finger Pier.

Construction Progarmme and Activities

1.3 The IMT construction within CBTS was completed in June 2019. The silt screen at Windsor House was handed over to Central-Wan Chai Bypass Project.

1.4 The Dredging / filling operation in Victoria Harbour was completed in December 2019. The silt screens maintained under this Contract at water intakes 21, 34, 35, WSD9 and WSD17 were removed in mid-June 2020.

1.5 All construction activities with significant environmental impact of Contract 1121 were substantially completed by the Contractor by 30 October 2021.

1.6 Detail of Contractor's Construction Programmes could be found in the **Appendix A** of relevant Monthly EM&A Reports.

Project Organizations

1.7 The project organizational chart and contact details are shown in **Figure 2**.

Summary of EM&A Requirements

1.8 The EM&A programme under Works Contract 1121 requires regular dust and water quality monitoring as well as environmental site audits. The EM&A requirements 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 study final report; and
- Environmental requirements in contract documents.

1.9 The advice on the implementation status of environmental protection and pollution control/mitigation measures is summarized in **Section 4** of this report.

1.10 This Final EM&A Review report represents the monitoring results, observation and locations of the required monitoring parameter, namely air quality, marine water quality monitoring and audit works conducted for the Contract in the period between 1 March 2015 and 31 January 2022.

2. AIR QUALITY

Regular Construction Dust Monitoring

2.1 In accordance with the EM&A Manual, impact 24-hour TSP monitoring should be conducted to monitor the air quality throughout the construction period. The impact monitoring works was handed over to MTR Contract 1121 from MTR Contract 1112 in November 2020. Impact 24-hour TSP monitoring was conducted for at least once in every six days at one air quality monitoring station. **Appendix A** shows the established Action and Limit Levels for the air quality monitoring work.

Monitoring Locations

2.2 Impact air quality monitoring was conducted at one designated air quality monitoring station, namely AM1, according to the EM&A Manual. The location of the air quality monitoring station are described in **Table 2.1** and illustrated in **Figure 4**. The locations of air sensitive receivers is shown in **Figure 5.**

Table 2.1 Location for Air Quality Monitoring Station

Monitoring Station	Location	Location of Measurement
AM1^	Harbourfront Horizon	Roof of the Site Office Building next to Harbourfront Horizon*

^Different IDs were used in various EM&A Manuals for dust monitoring location at Harbourfront Horizon, DMS-12 was used in EM&A Manual for SCL(TAW-HUH), AM2 were used in EM&A Manual and EIA report for SCL(MKK-HUH), and DMS-1 Works Contract 1112 were used in EM&A Manual and EIA report for HHS. AM1 was used in EM&A Manual and EIA report for SCL(HUH-ADM). For ease of reference, the monitoring station namely as AM1, was adopted for EM&A reporting for Works Contract 1121 when referring to this monitoring location after the termination of MTR Contract 1112 EM&A programme.

*Air quality monitoring location at Harbourfront Horizon is the same as monitoring station CD6a as proposed in the EM&A Manual for "Kwun Tong Line Extension (KTE)". Access to Harbourfront Horizon was rejected by the owner during preparation for baseline monitoring for the KTE in early 2011. A representative monitoring location at the adjacent Finger Pier, at about 25m from Harbourfront Horizon, was adopted as an alternative monitoring location for KTE. This monitoring location was considered the most appropriate alternative monitoring location for AM2 and was adopted for dust monitoring for MTR Contract 1112.

2.3 The air quality monitoring was terminated on 31 January 2022.

Prediction and Evaluation of Environmental Impact

2.4 The maximum predicted 24-hour average TSP levels for construction of the Project were predicted and evaluated during EIA period. **Table 2.2** summarizes the EIA predictions during construction period.

Table 2.2 EIA Predictions of 24-hour Average TSP Levels

Monitoring Station(s)	Predicted Mitigated 24-hour Average TSP concentrations in $\mu g/m^3$			
	Assessment height (5 mAGL)	Assessment height (10 mAGL)	Assessment height (15 mAGL)	Assessment height (20 mAGL)
AM1	105	102	98	95

Monitoring Parameters, Frequency and Duration

2.5 **Table 2.3** summarizes the monitoring parameters and frequencies of impact dust monitoring for the whole construction period.

Table 2.3 Impact Dust Monitoring Parameters, Frequency and Duration

Parameters	Frequency
24-hour TSP	once every 6 days

Monitoring Equipment

2.6 24-hour TSP air quality monitoring was performed using High Volume Sampler (HVS) located at the designated monitoring stations. The HVS was calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates could be referred to the respective monthly EM&A Reports.

Monitoring Methodology and QA/QC Procedure

2.7 The air quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Details of the instrumentation, HVS installation, filters preparation and operating/analytical procedures and maintenance/calibration could be referred to the respective monthly EM&A Reports.

Results and Observations

2.8 As described in Section 2.1, the impact 24-hour TSP monitoring work was handed over to MTR Contract 1121 from MTR Contract 1112 in November 2020. The monitoring results were submitted and verified by IEC.

2.9 Impact air quality monitoring was conducted by the ET in accordance with the requirements stipulated in the EM&A Manual after taking over until 31 January 2021.

2.10 A summary of the impact air quality monitoring results in the monitoring period is given in **Table 2.4**.

Table 2.4 Summary of 24-hour TSP Monitoring Results in the Monitoring Period

Monitoring Station(s)	Average $\mu g/m^3$	Maximum $\mu g/m^3$	Minimum $\mu g/m^3$	Action Level $\mu g/m^3$	Limit Level $\mu g/m^3$
AM1	50.2	137.0	15.4	182	260

2.11 All 24-hour TSP monitoring was conducted as scheduled during the construction period. No Action and Limit Level exceedances were recorded. Summary of exceedance is presented in **Appendix E**.

2.12 The air quality monitoring data collected during construction period were generally in line with the prediction of the approved EIA Report.

2.13 The monitoring data and graphical presentations of 24-hour TSP monitoring results during monitoring period are shown in **Appendix B**. The weather information during construction period is summarized in **Appendix D**.

3. WATER QUALITY MONITORING

Regular Water Quality Monitoring

3.1 In accordance with the EM&A Manual and the ERRs, marine water quality monitoring should be carried out during the dredging and filling operation, and IMT construction within CBTS (for Station 9 only); and throughout the construction period of removal of earth bunds at Northern and Southern gates.

Post-Project Water Quality Monitoring

3.2 In accordance with the EM&A Manual, upon completion of all marine activities, a post project monitoring exercise on water quality shall be carried out for four weeks in the same manner as the impact monitoring.

3.3 Under consultancy agreement no. C11033B, Action and Limit Levels for water quality monitoring at the monitoring stations were established in the baseline water quality monitoring conducted by AECOM during June and July 2014. Action and Limit Levels for water quality is summarised in **Appendix A**.

Monitoring Locations

3.4 The water quality monitoring stations and control stations of the Contract are shown in **Figure 3**. The co-ordinates of the monitoring stations are listed in **Table 3.1**. As shown in **Table 3.1**, the locations are classified as Impact Station and Control Station according to their functions. The locations of water sensitive receivers is shown in **Figure 6.**

3.5 Water Quality Monitoring at Stations 8 and 14 is suspended as the water intakes were not in use. The statuses of the intakes were kept in view such that once the water intakes were occupied, water quality monitoring would resume. In the presence of temporary reclamation in CBTS under this Contract, only Dissolved Oxygen (DO) level monitoring would be maintained at Station 8 for checking of potential odour concern.

3.6 The monitoring work of water monitoring stations in Shek O Basin was carried out throughout the construction period of removal of earth bunds at Northern and Southern gates, i.e. during the period between March and April 2017 (removal of northern dock gate) and in November 2017 (removal of southern dock gate).

3.7 The monitoring work of water monitoring stations in Victoria Harbour at Stations C1, C2, 8, 14, 21, 34, A, WSD9 and WSD17 was carried out during the dredging and filling operation and at Station 9 during IMT construction within Causeway Bay Typhoon Shelter (CBTS). The monitoring work was commenced in April 2015. All dredging / filling operation in Victoria Harbour and IMT construction within CBTS was completed in December 2019 and in June 2019 respectively, the water quality monitoring at Victoria Harbour was eventually completed on 28 January 2020 and 26 July 2019 respectively.

Table 3.1 Locations for Water Quality Monitoring

Station	Description	Coordinates	
		Easting	North
Shek O Casting Basin			
GB3	Turtle Cove Beach	841120	810280
C3	Control Station for ebb tide	841200	806210
C4	Control Station for flood tide	843330	807320
Victoria Harbour			
8	Cooling Water Intake for Excelsior Hotel and World Trade Centre / No. 27 – 63 Paterson Street	837036	816008
9	Cooling Water Intake for Windsor House	837223	816150
14	Flushing Water Intake for Kowloon Station	834477	817891
21	Cooling Water Intake for East Rail Extension	836484	817642
34	Cooling Water Intake for Metropolis	836828	817844
A	Wan Chai WSD Flushing Water Intake (Reprovisioned)(1)	836268	816045
WSD9	Tai Wan WSD Flushing Water Intake(2)	837930	818357
WSD17	Quarry Bay WSD Flushing Water Intake	839863	817077
C1	Control Station 1	833977	817442
C2	Control Station 2	841088	817223

Notes:

(1) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location A (Easting: 836286, Northing: 816024) is the exact location taken from the design of reprovisioned Wan Chai Salt Water Pumping Station and Salt Water Intake Culvert. Based on actual site condition for taking water sampling, minor adjustment was made on monitoring location.

(2) According to the Baseline Water Quality Monitoring Report for SCL (MKK-HUH & HUH-ADM), the original coordinates of monitoring location WSD9 (Easting: 838133, Northing: 817790) as proposed in WQMP were moved closer to sensitive receiver according to the actual site condition.

Prediction and Evaluation of Environmental Impact

3.8 The suspended solids concentrations for construction of the Project in the presence of mitigation measures were predicted and evaluated during EIA period. **Table 3.2** summarizes the EIA predictions during construction period.

Table 3.2 EIA predictions of Suspended Solids Concentrations (Mean)

Monitoring Station(s)	SS concentration (absolute value) in mid-depth (mg/L)	
	Dry Season	Wet Season
GB3	N/A	N/A
8	2.88	2.94
9	3.00	3.58
14	N/A	N/A
21	4.78	6.94
34	4.54	6.55
A	1.95	3.14
WSD9	1.85	2.07
WSD17	1.88	2.49

Monitoring Parameters, Frequency and Duration

3.9 Water quality monitoring was conducted in accordance with the requirements stipulated in the approved SCL (HUH-ADM) EM&A Manual and the ERRs. **Table 3.3** summarized the monitoring frequency and water quality parameters for the impact monitoring.

Table 3.3 Water Quality Impact Monitoring Programme

	Impact Monitoring
Monitoring Period	Victoria Harbour During the dredging and filling operation CBTS (Station 9 only) During IMT construction within CBTS Shek O Casting Basin Throughout the construction period of removal of earth bunds at Northern and Southern gates.
Monitoring Frequency(1)	3 Days in a Week, at mid-flood and mid-ebb tides
Monitoring Locations(3)(4)	GB3, C3, C4, 8, 9, 14, 21, 34, A, WSD9, WSD17, C1 and C2
Monitoring Parameters(2)	DO, temperature, turbidity, pH, salinity and SS
Intervals between 2 Sets of Monitoring	Not less than 36 hours
Tidal Range	Individual flood and ebb tides not less than 0.5m

Notes:
1. For selection of tides for in-situ measurement and water sampling, tidal range of individual flood and ebb tides should be not less than 0.5 m.
2. Turbidity, DO, pH, temperature and salinity should be measured in situ whereas SS should be determined by laboratory.
3. Water Quality Monitoring at Station 8 and 14 were suspended as the water intakes are not in use.

Monitoring Equipment

3.10 Water quality monitoring was performed using water samplers, YSI EXO1 Multiparameter Sondes, monitoring position equipment and water depth detectors. The in-situ equipment was calibrated regularly in accordance with the EM&A Manual. Copies of calibration certificates could be referred to the respective monthly EM&A Reports.

Monitoring Methodology and QA/QC Procedure

3.11 Water quality monitoring was conducted in accordance with the requirements stipulated in the EM&A Manual. Details of the instrumentation, operating/analytical procedures, maintenance/calibration and laboratory measurement / analysis for marine water could be referred to the respective monthly EM&A Reports.

Results and Observations

3.12 The water quality monitoring work was conducted by the ET in accordance with the EM&A Manual. The monitoring results were submitted and verified by IEC.

3.13 The dredging / filling operation in Victoria Harbour was completed on 31 December 2019. A post-project water quality monitoring at Stations C1, C2, 21, 34, A, WSD9 and WSD17 in Victoria Harbour was completed on 28 January 2020 for four weeks.

3.14 The IMT construction within CBTS was completed in June 2019. A post-project water quality monitoring at Station 9 in Victoria Harbour was completed on 26 July 2019 for four weeks.

3.15 The removal of southern dock gate was completed on 20 November 2017. A post-project water quality monitoring was completed on 18 December 2017 in Shek O for four weeks.

3.16 A summary of the suspended solids concentrations in the construction period and post-project monitoring is given in **Table 3.4**. Water monitoring results and graphical presentations are shown in **Appendix C**.

Table 3.4 Summary of Water Quality Monitoring Results (Suspended Solids) in the Monitoring Period

Monitoring Station	Average (Depth average)	Range	Action Level	Limit Level
Wet Season				
GB3	3.0	<2.5 – 4.3	4.5	4.5
9	4.7	<2.5 – 16.5	6.9	9.1
21	5.2	<2.5 – 19.3	6.9	9.1
34	5.0	<2.5 – 17.8	6.9	9.1
A	5.0	<2.5 – 13.8	6.0	6.0
WSD9	4.8	<2.5 – 17.0	6.0	6.0
WSD17	4.9	<2.5 – 17.0	6.0	6.0
Dry Season				
GB3	5.6	2.8 – 8.8	9.3	9.3
9	4.6	<2.5 – 7.5	8.0	10.4
21	5.2	<2.5 – 7.8	8.0	10.4
34	5.1	<2.5 – 7.8	8.0	10.4
A	5.0	<2.5 – 6.8	6.9	6.9
WSD9	4.8	<2.5 – 5.9	6.9	6.9
WSD17	4.9	<2.5 – 6.8	6.9	6.9
Post-Project				
GB3	7.4	4.7 – 9.2	4.5	4.5
9	5.2	2.5 – 9.0	6.9	9.1
21	6.0	3.7 – 7.3	8.0	10.4
34	5.8	3.0 – 7.8	8.0	10.4
A	5.8	4.0 – 6.8	6.9	6.9
WSD9	6.0	4.0 – 6.8	6.9	6.9
WSD17	5.8	3.3 – 6.8	6.9	6.9

3.17 All water quality monitoring was conducted as scheduled during the monitoring period. Six (6) Action Level exceedances and one (1) Limit Level exceedance for turbidity, and 37 Action Level exceedances and 144 Limit Level exceedances for Suspended Solids of

impact water quality monitoring were recorded during the monitoring period. After investigation, all exceedances were considered non-project related. Summary of exceedance is presented in **Appendix E**.

3.18 Details of investigation of the exceedances are provided in the respectively monthly EM&A reports. According to the investigation, the exceedances are considered not due to the Contract generally due to the following reasons:

1) Mitigation measure was implemented properly and no pollution discharge from site activity was observed.
2) Result from control stations also exceeded the Baseline Action and Limit Level.
3) The exceeded results were similar or within the range of baseline monitoring results.
4) Monitoring stations are situated at the upstream of the construction sites.
5) Continuous rainfall was recorded during the periods of monitoring. It was considered that the heavy rainfall had caused surface runoff that dumped sediment and pollutants into the harbor and resulted in increase of suspended solids.

3.19 The water quality monitoring data collected during construction period were generally in line with the prediction of the approved EIA Report.

4. REVIEW OF THE EM&A PROGRAMME

Implementation Status of Environmental Mitigation Measures

4.1 The mitigation measures detailed in the EM&A Manual were implemented throughout the whole construction period. A summary of the EMIS is provided in **Appendix G**. Status of required submissions under the EP during the reporting period is summarized in **Table 4.1**.

Table 4.1 Status of Required Submission under Environmental Permit

EP Condition	Submission	Submission Date
Condition 2.10	Silt Curtain Deployment Plan for Hung Hom Landfall and Trial Trench in Victoria Harbour	17 February 2015 (1st submission) 2 April 2015 (2nd submission) 27 October 2015 (3rd submission) 29 March 2016 (4th submission) 19 December 2017(5th submission) 15 January 2018 (approved)
Condition 2.11	Silt Screen Deployment Plan	13 February 2015
Condition 2.14	Visual, Landscape and Tree Planting & Tree Protection Plan (Ver. E)	9 February 2015
Condition 2.23.1	Silt Curtain Deployment Plan for Shek O	4 February 2015 (1st submission) 4 March 2015(2nd submission) 9 March 2015 (approved)
Condition 3.4	Monthly EM&A Report (March 2015)	14 April 2015
Condition 3.4	Monthly EM&A Report (April 2015)	14 May 2015
Condition 3.4	Monthly EM&A Report (May 2015)	12 June 2015
Condition 3.4	Monthly EM&A Report (June 2015)	14 July 2015
Condition 3.4	Monthly EM&A Report (July 2015)	13 August 2015
Condition 3.4	Monthly EM&A Report (August 2015)	14 September 2015
Condition 3.4	Monthly EM&A Report (September 2015)	14 October 2015
Condition 3.4	Monthly EM&A Report (October 2015)	12 November 2015
Condition 3.4	Monthly EM&A Report (November 2015)	14 December 2015
Condition 3.4	Monthly EM&A Report (December 2015)	14 January 2016
Condition 3.4	Monthly EM&A Report (January 2016)	12 February 2016
Condition 3.4	Monthly EM&A Report (February 2016)	14 March 2016
Condition 3.4	Monthly EM&A Report (March 2016)	14 April 2016
Condition 3.4	Monthly EM&A Report (April 2016)	13 May 2016
Condition 3.4	Monthly EM&A Report	14 June 2016

EP Condition	Submission	Submission Date
	(May 2016)	
Condition 3.4	Monthly EM&A Report (June 2016)	14 July 2016
Condition 3.4	Monthly EM&A Report (July 2016)	12 August 2016
Condition 3.4	Monthly EM&A Report (August 2016)	14 September 2016
Condition 3.4	Monthly EM&A Report (September 2016)	14 October 2016
Condition 3.4	Monthly EM&A Report (October 2016)	14 November 2016
Condition 3.4	Monthly EM&A Report (November 2016)	14 December2016
Condition 3.4	Monthly EM&A Report (December 2016)	13 January 2017
Condition 3.4	Monthly EM&A Report (January 2017)	14 February 2017
Condition 3.4	Monthly EM&A Report (February 2017)	14 March 2017
Condition 3.4	Monthly EM&A Report (March 2017)	13 April 2017
Condition 3.4	Monthly EM&A Report (April 2017)	12 May 2017
Condition 3.4	Monthly EM&A Report (May 2017)	14 June 2017
Condition 3.4	Monthly EM&A Report (June 2017)	14 July 2017
Condition 3.4	Monthly EM&A Report (July 2017)	14 August 2017
Condition 3.4	Monthly EM&A Report (August 2017)	14 September 2017
Condition 3.4	Monthly EM&A Report (September 2017)	16 October 2017
Condition 3.4	Monthly EM&A Report (October 2017)	14 November 2017
Condition 3.4	Monthly EM&A Report (November 2017)	14 December 2017
Condition 3.4	Monthly EM&A Report (December 2017)	12 January 2018
Condition 3.4	Monthly EM&A Report (January 2018)	14 February 2018
Condition 3.4	Monthly EM&A Report (February 2018)	14 March 2018
Condition 3.4	Monthly EM&A Report (March 2018)	13 April 2018
Condition 3.4	Monthly EM&A Report (April 2018)	14 May 2018
Condition 3.4	Monthly EM&A Report (May 2018)	14 June 2018
Condition 3.4	Monthly EM&A Report (June 2018)	13 July 2018
Condition 3.4	Monthly EM&A Report (July 2018)	14 August 2018
Condition 3.4	Monthly EM&A Report	14 September 2018

EP Condition	Submission	Submission Date
	(August 2018)	
Condition 3.4	Monthly EM&A Report (September 2018)	12 October 2018
Condition 3.4	Monthly EM&A Report (October 2018)	14 November 2018
Condition 3.4	Monthly EM&A Report (November 2018)	14 December 2018
Condition 3.4	Monthly EM&A Report (December 2018)	14 January 2019
Condition 3.4	Monthly EM&A Report (January 2019)	14 February 2019
Condition 3.4	Monthly EM&A Report (February 2019)	14 March 2019
Condition 3.4	Monthly EM&A Report (March 2019)	12 April 2019
Condition 3.4	Monthly EM&A Report (April 2019)	14 May 2019
Condition 3.4	Monthly EM&A Report (May 2019)	14 June 2019
Condition 3.4	Monthly EM&A Report (June 2019)	12 July 2019
Condition 3.4	Monthly EM&A Report (July 2019)	14 August 2019
Condition 3.4	Monthly EM&A Report (August 2019)	13 September 2019
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Condition 3.4	Monthly EM&A Report (October 2019)	14 November 2019
Condition 3.4	Monthly EM&A Report (November 2019)	13 December 2019
Condition 3.4	Monthly EM&A Report (December 2019)	14 January 2020
Condition 3.4	Monthly EM&A Report (January 2020)	14 February 2020
Condition 3.4	Monthly EM&A Report (February 2020)	13 March 2020
Condition 3.4	Monthly EM&A Report (March 2020)	14 April 2020
Condition 3.4	Monthly EM&A Report (April 2020)	14 May 2020
Condition 3.4	Monthly EM&A Report (May 2020)	11 June 2020
Condition 3.4	Monthly EM&A Report (June 2020)	14 July 2020
Condition 3.4	Monthly EM&A Report (July 2020)	14 August 2020
Condition 3.4	Monthly EM&A Report (August 2020)	14 September 2020
Condition 3.4	Monthly EM&A Report (September 2020)	14 October 2020
Condition 3.4	Monthly EM&A Report (October 2020)	13 November 2020
Condition 3.4	Monthly EM&A Report	14 December 2020

EP Condition	Submission	Submission Date
	(November 2020)	
Condition 3.4	Monthly EM&A Report (December 2020)	14 January 2021
Condition 3.4	Monthly EM&A Report (January 2021)	11 February 2021
Condition 3.4	Monthly EM&A Report (February 2021)	12 March 2021
Condition 3.4	Monthly EM&A Report (March 2021)	14 April 2021
Condition 3.4	Monthly EM&A Report (April 2021)	14 May 2021
Condition 3.4	Monthly EM&A Report (May 2021)	11 June 2021
Condition 3.4	Monthly EM&A Report (June 2021)	14 July 2021
Condition 3.4	Monthly EM&A Report (July 2021)	13 August 2021
Condition 3.4	Monthly EM&A Report (August 2021)	14 September 2021
Condition 3.4	Monthly EM&A Report (September 2021)	13 October 2021
Condition 3.4	Monthly EM&A Report (October 2021)	12 November 2021
Condition 3.4	Monthly EM&A Report (November 2021)	14 December 2021
Condition 3.4	Monthly EM&A Report (December 2021)	14 January 2022

4.2 No non-compliance was recorded during the site audits throughout the construction period. Observations and recommendations recorded during the site audits were summarized in the Monthly EM&A Reports.

Review of Environmental Monitoring Procedures

4.3 The monitoring works conducted by the monitoring team were inspected regularly. The following observations have been recorded for the monitoring works:

Air Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, within and outside the construction site.
- The monitoring team recorded the temperature and weather conditions on the monitoring days.

Water Quality Monitoring

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- Major pollution sources were identified and recorded. The monitoring team also recorded the sea conditions and weather conditions on the monitoring days.

Site Audits

4.4 Site audits were carried out by ET on weekly basis to monitor the timely implementation of proper environmental management practices and mitigation measures in the Project site. Reminders and recommendations were given to the Contractor, and the Contractor rectified and implemented environmental management practices and mitigation measures timely and properly in the Project site. Joint site audits with the representative with IEC, ER, the Contractor was also conducted regularly. Details of site audit findings were summarized in the respective Monthly EM&A Reports.

Status of Waste Management

4.5 Waste generated from this Project includes inert construction and demolition (C&D) materials, non-inert C&D materials and marine sediments. 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. With reference to relevant handling records of this Contract, the quantities of different types of waste generated in the reporting period are summarised in **Table 4.2**. Details of the waste management data is shown in **Appendix I**.

Table 4.2 Quantities of Waste Generated from the Contract

	C&D Materials (inert) [(a)]	Sediments (in bulk volume)	C&D Materials (non-inert)[(b)]				
			General Refuse	Chemical Waste	Recycled materials		
					Paper/ cardboard	Plastics	Metals
Quantity	114,495.0 m^3	*639,093.0 m^3*	6,428.3 *tonne*	3,836.0 *kg*	*67,302.7 kg*	1,080.2 *kg*	1,899,295.4 *kg*

Notes:
(a) Inert C&D materials include soft materials, rocks and artificial hard materials to be delivered to TKO 137 and TM 38 public fill reception sites or, alternatively, receptor sites to be identified for beneficial reuse as proposed by the Contractor.
(b) Non-inert C&D materials include C&D waste which cannot be reused or recycled and has to be disposed of at North East New Territories (NENT) Landfill. It also includes steel, paper/cardboard packaging waste, plastics. Steel materials generated from the project are grouped into non-inert C&D materials as the materials were not disposed of with other inert C&D materials.

4.6 Most of the necessary mitigation measures have been implemented and recommended follow-up actions have been discharged by the Contractor regarding to waste management in the reporting period. Observations and recommendations recorded during the site audits were summarized in the respective Monthly EM&A Reports.

Implementation Status of Landscape and Visual Mitigation Measures

4.7 Bi-weekly inspection of the implementation of landscape and visual mitigation measures was carried out on site in accordance with the EM&A Manual to ensure that the implementation and maintenance of landscape and visual mitigation measures were achieved.

4.8 No non-compliance was recorded during the works period of the Contract. Details of site audit findings were summarized in the respective Monthly EM&A Reports. The implementation status for Landscape and Visual mitigation measures is provided in **Appendix G**.

5. ENVIRONMENTAL NON-CONFORMANCE

Summary of Exceedances

5.1 The Event/ Action Plans for air quality and water quality are presented in **Appendix F**.

24-hour Monitoring

5.2 24-hour TSP monitoring was conducted as scheduled during the monitoring period. No Action and Limit Level exceedances of 24-hour TSP monitoring were recorded throughout the whole construction period.

Water Quality Monitoring

5.3 All regular and post-project water quality monitoring was conducted as scheduled during the monitoring period. Six (6) Action Level exceedances and one (1) Limit Level exceedance for turbidity, and 37 Action Level exceedances and 144 Limit Level exceedances for Suspended Solids of impact water quality monitoring were recorded during the reporting period. Five (5) Action Level exceedances for Suspended Solids of post-project water quality monitoring were recorded. After investigation, all exceedances were considered non-project related. Summary of exceedances is presented in **Appendix E**.

Summary of Environmental Non-Compliance

5.4 No environmental non-compliance was recorded in the construction period.

Summary of Complaint, Prosecutions, Reporting Changes and Notification of Summons

5.5 Eighteen (18) environmental complaints (Six (6) project-related and twelve (12) non project-related) were received in the whole construction period, in which seven (7) complaints regarding noise impact, seven (7) complaints regarding water pollution, one (1) complaint regarding chemical handling, one (1) complaint regarding odour nuisance, one (1) complaint regarding dumping activities, and one (1) complaint regarding air nuisance. The complaint handling procedures according to the EM&A Manual were undertaken and investigation was carried out. All the complaints were settled, no further complaint was received after the implementation of the mitigation measures.

5.6 One (1) notification of summons and one (1) successful prosecution were received in the whole construction period. The notification of summons was related to Type 3 Sediment Disposal and was received in November 2016. It was settled by the court in August 2017 as a successful prosecution. Violation of Sections 8 (1) (a) and 25 (1) (b) of the Dumping at Sea Ordinance due to the rupture of "Geocontainer" was the reason of the summons. After the incident, the disposal method of Type 3 sediment was reviewed by the Contractor. The hopper barge was further modified and supervision and control on preparation of Type 3 sediment disposal were enhanced.

5.7 The complaint and prosecution log is present in **Appendix H**.

6. COMMENTS, CONCLUSIONS AND RECOMMENDATIONS

Review of the validity of EIA Prediction and Identification of Shortcomings in EIA Recommendations

6.1 No Project related exceedances were recorded for the air quality and water quality monitoring during the reporting period. The monitoring results were generally in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

6.2 The mitigation measures in EIA prediction, ERRs and the approved EM&A Manual, have been effectively implemented during the construction period.

6.3 Based on the site inspection records related to landscape and visual, the Contractor implemented the landscape and visual mitigation measures properly. The result was in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

6.4 Based on the waste flow record, the Contractor implemented the waste management mitigation measures properly. The result was in line with EIA prediction that with the implementation of mitigation measures and no shortcomings in EIA recommendations were identified.

Comments on Overall EM&A Programme

6.5 The EM&A Programme requires construction phase monitoring for air quality, regular and post-project water quality monitoring as well as environmental site audit. Timely implementation of mitigation measures were carried out according to the environmental data obtained during construction phase. According to the information from the Contractor, all construction works with significant environmental impact of the Contract were substantially completed by 30 October 2021. The EM&A works under Contract 1121 were ceased since 1 February 2022.

6.6 During the construction phase, the weekly site audits by ET and monthly IEC audits were effective to ensure the implementation and efficiency of the mitigation measures. As a result, environmental nuisance to the public could be reduced to a minimal.

6.7 Therefore, the overall performance of the monitoring methodology adopted and environmental management system in this Project was effective.

Overall EM&A Data

6.8 Environmental monitoring works were performed during the monitoring period and all monitoring results were checked and reviewed. Impact air quality and water quality monitoring were carried out according to the requirements in the EM&A Manual.

24-hour Monitoring

6.9 24-hour TSP monitoring was conducted as scheduled during construction period. No exceedances of Action and Limit Levels were recorded throughout the whole construction period.

Water Quality Monitoring

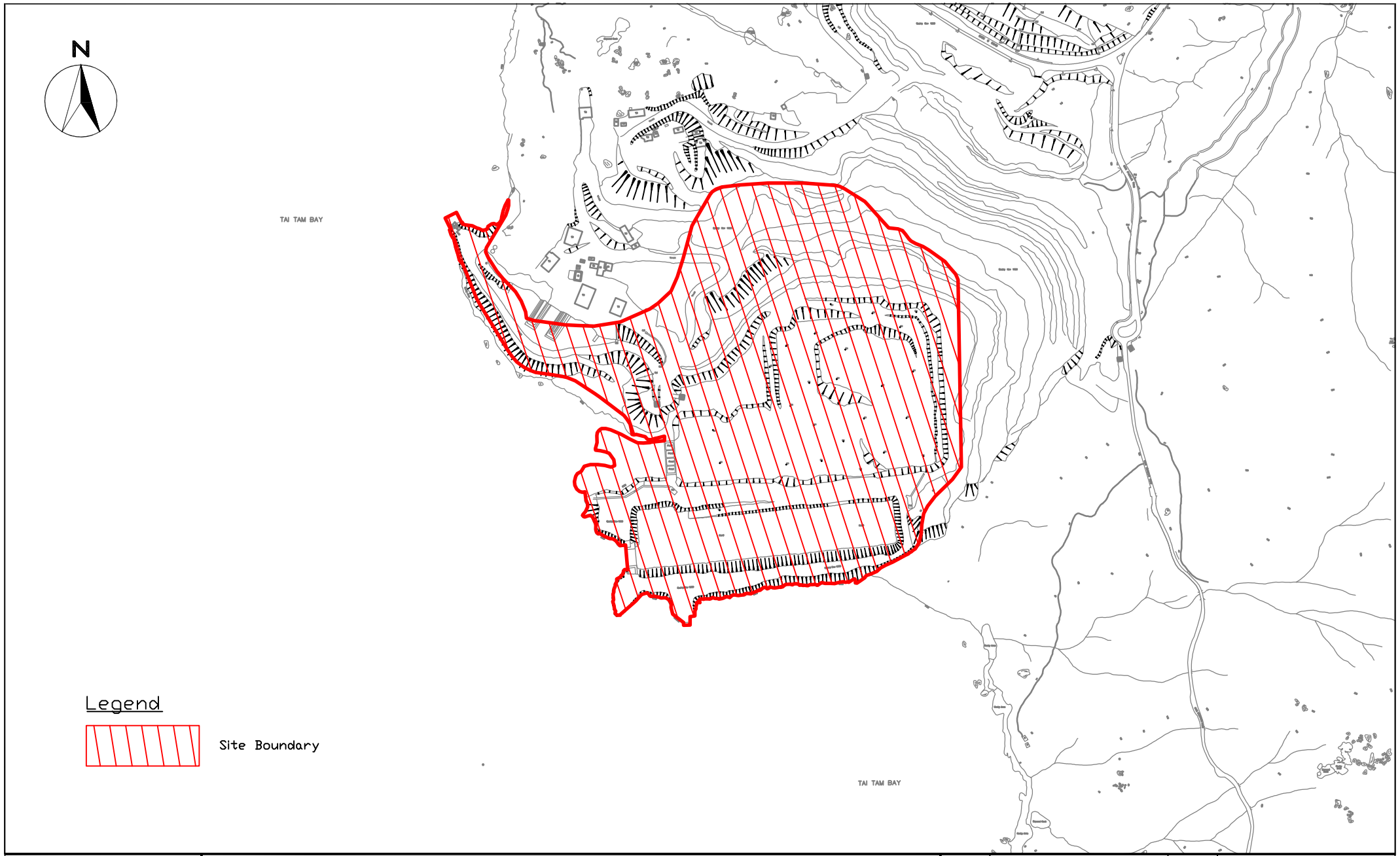
6.10 All regular and post-project water quality monitoring was conducted as scheduled during the monitoring period. Six (6) Action Level exceedances and one (1) Limit Level exceedance for turbidity, and 37 Action Level exceedances and 144 Limit Level exceedances for Suspended Solids of impact water quality monitoring were recorded during the reporting period. Five (5) Action Level exceedances for Suspended Solids of post-project water quality monitoring were recorded. After investigation, all exceedances were considered non-project related.

Recommendations and Conclusions

6.11 The EM&A programme was found to be effective and efficient in monitoring impacts arising from the Contract. The findings of the environmental monitoring programme suggest that no adverse impacts on the sensitive receivers were brought about by the Contract. The environmental mitigation measures provided by the Contractor were generally acceptable apart from some minor deficiencies, which were rectified timely by the Contractor. In conclusion, the Project was environmentally acceptable in terms of air quality, noise and water quality.

6.12 With the success of the overall EM&A programme, the deterioration of the environment caused by the Project was cost-effectively identified and necessary prompt effective mitigation measures were implemented to avoid any unacceptable impacts.

FIGURES



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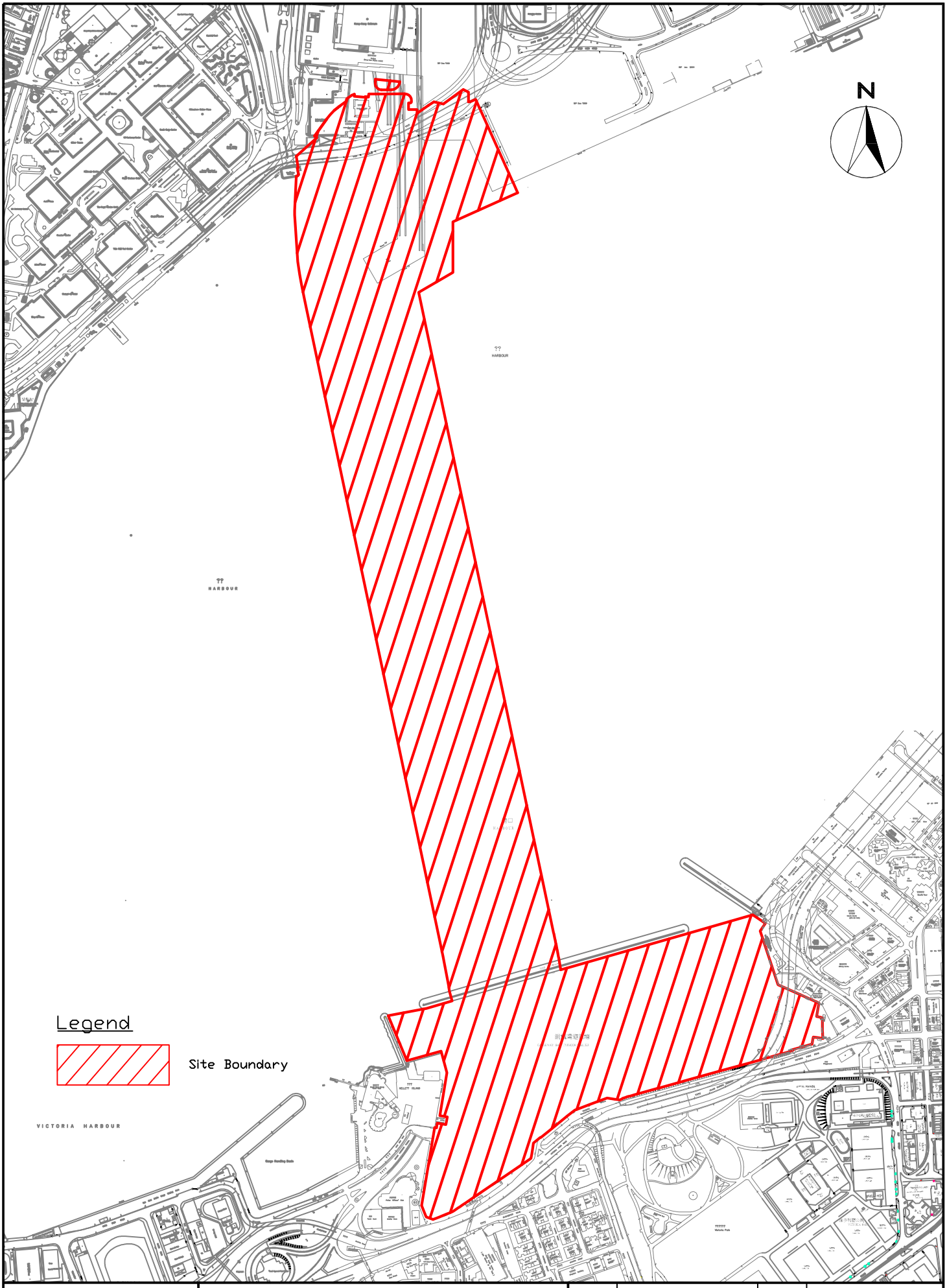
SCL 1121 - NSL Cross Harbour Tunnels

Site Layout Plan (Shek O)

SCALE	1:150	DATE	12/2014
CHECK	CHECK	DRAWN	VW
JOB No.	MA14047	FIGURE NO.	1a
		REV	-



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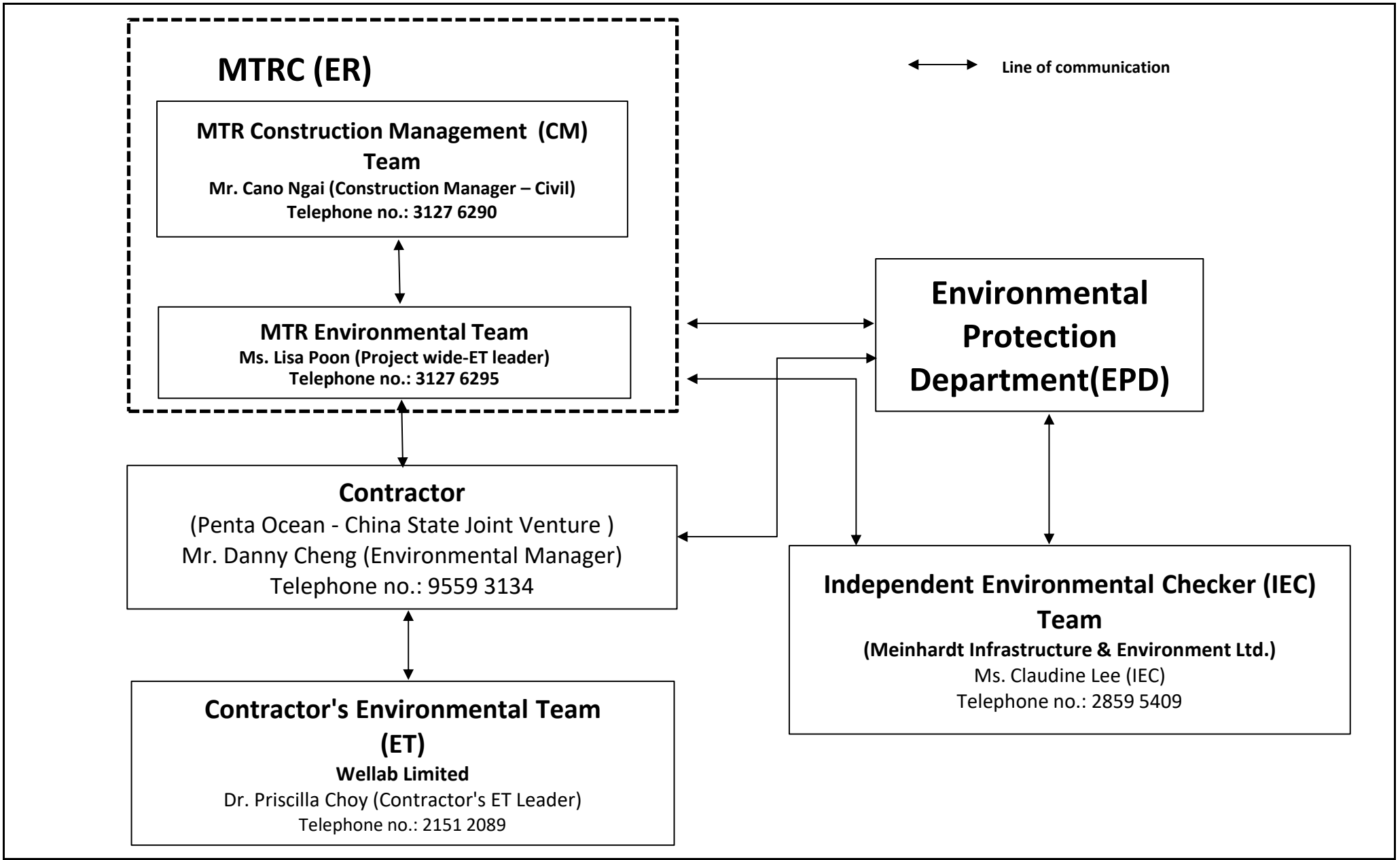
SCL 1121 - NSL Cross Harbour Tunnels

Site Layout Plan
(Victoria Harbour)

SCALE	1:220	DATE	1/2015
CHECK	JF	DRAWN	VW
JOB No.	MA14047	FIGURE NO.	1b
		REV	-

F:/Project_drawings



Title	Scale	Project No.
SCL Contract 1121 The Shatin to Central Link - NSL Cross Harbour Tunnels Project Organisation for Environmental Works	N.T.S	MA14047
	Date: Jul-21	Figure: 2

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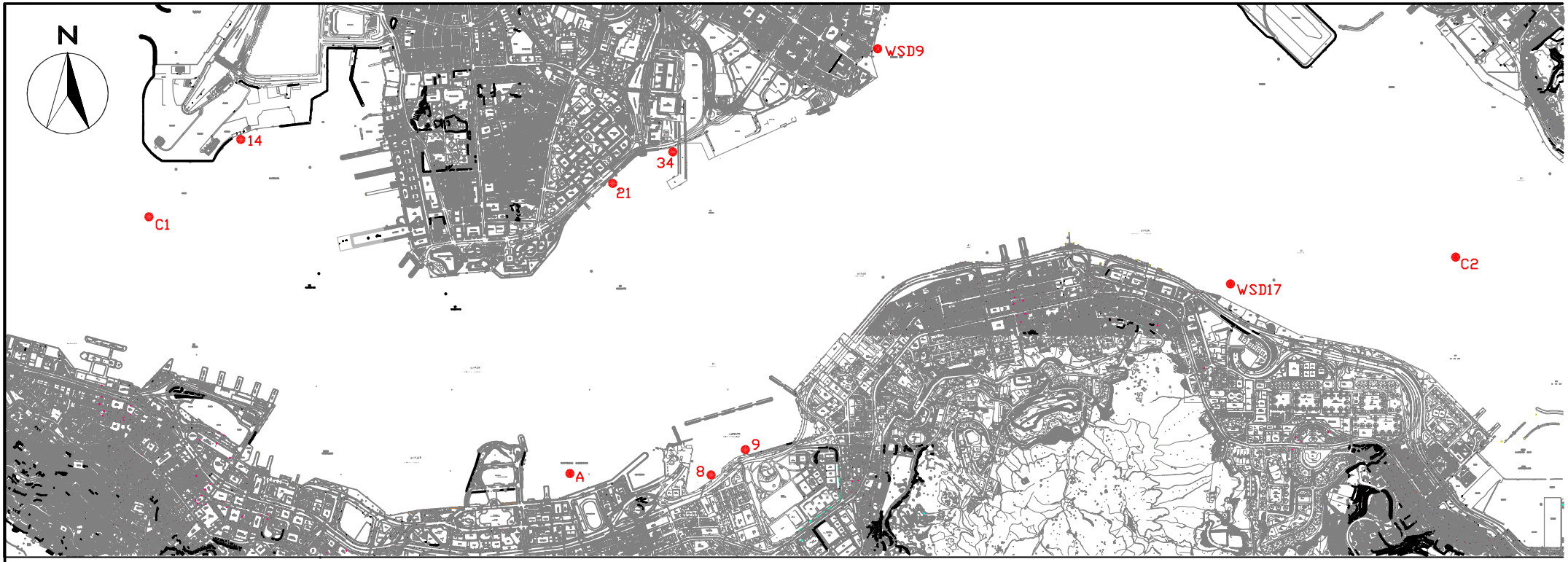

COORDINATE	EASTING	NORTHING
A	836268	816045
14	834477	817891
WSD9	837930	818357
WSD17	839863	817077
C1	833977	817442
C2	841088	817223
8	837036	816008
9	837223	816150
21	836484	817642
34	836828	817844

LEGEND

Water Quality Monitoring Station

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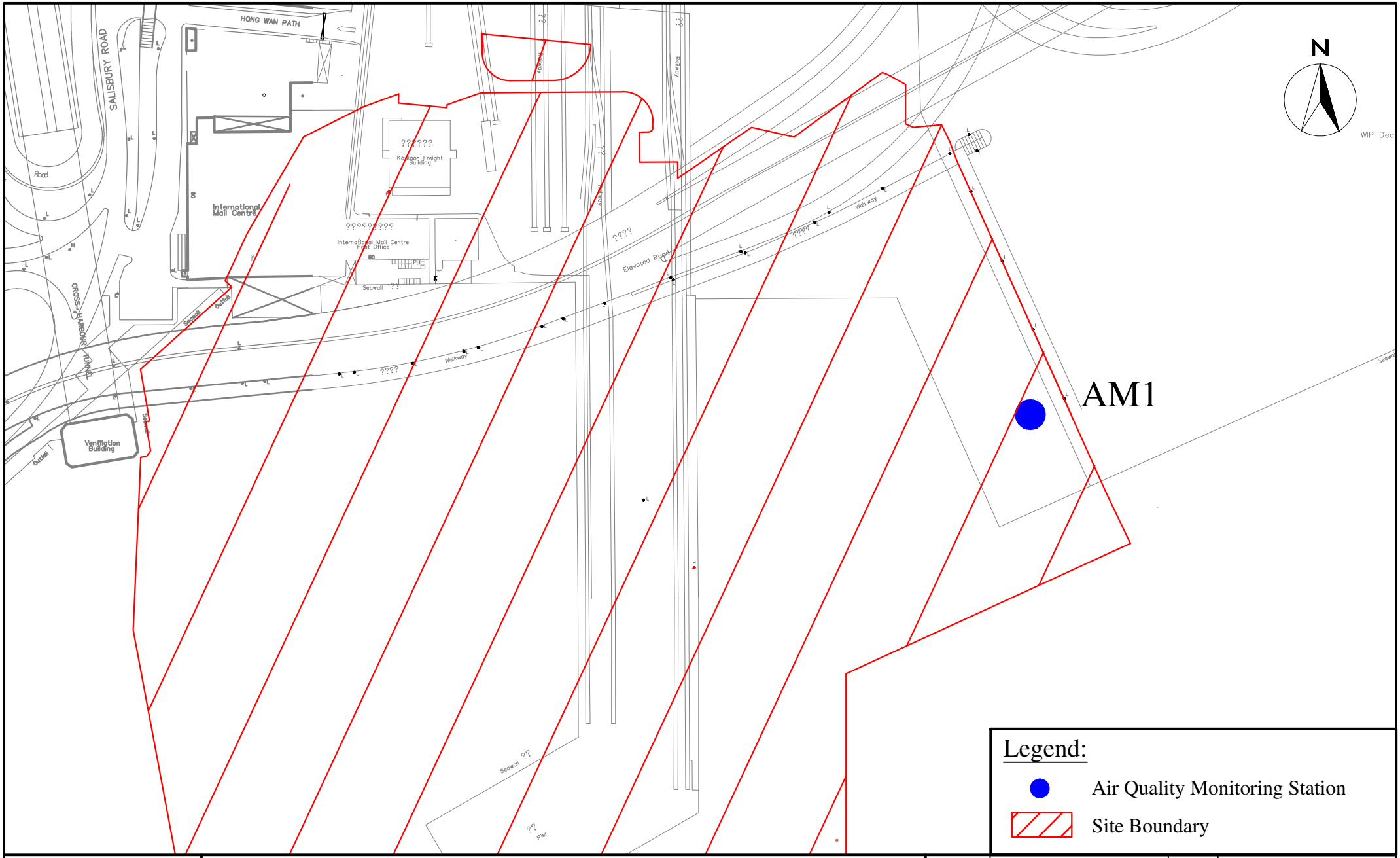
SCL 1121 - NSL Cross Harbour Tunnels

Locations of Water Quality Monitoring station in the Victoria Harbour

SCALE	1:30	DATE	1/2015
CHECK	JF	DRAWN	VW
JOB No.	MA14047	FIGURE NO. 3	REV –



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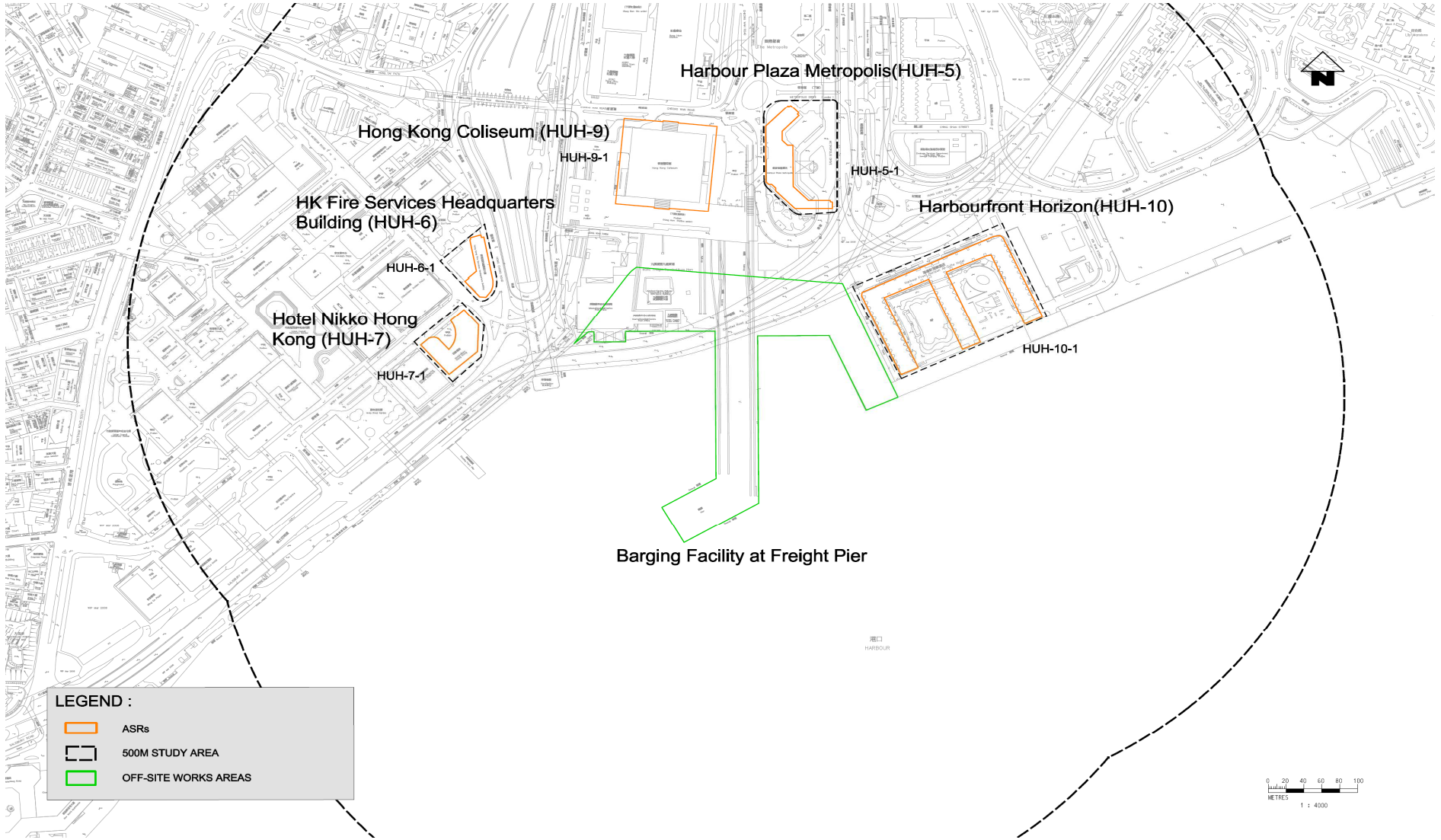
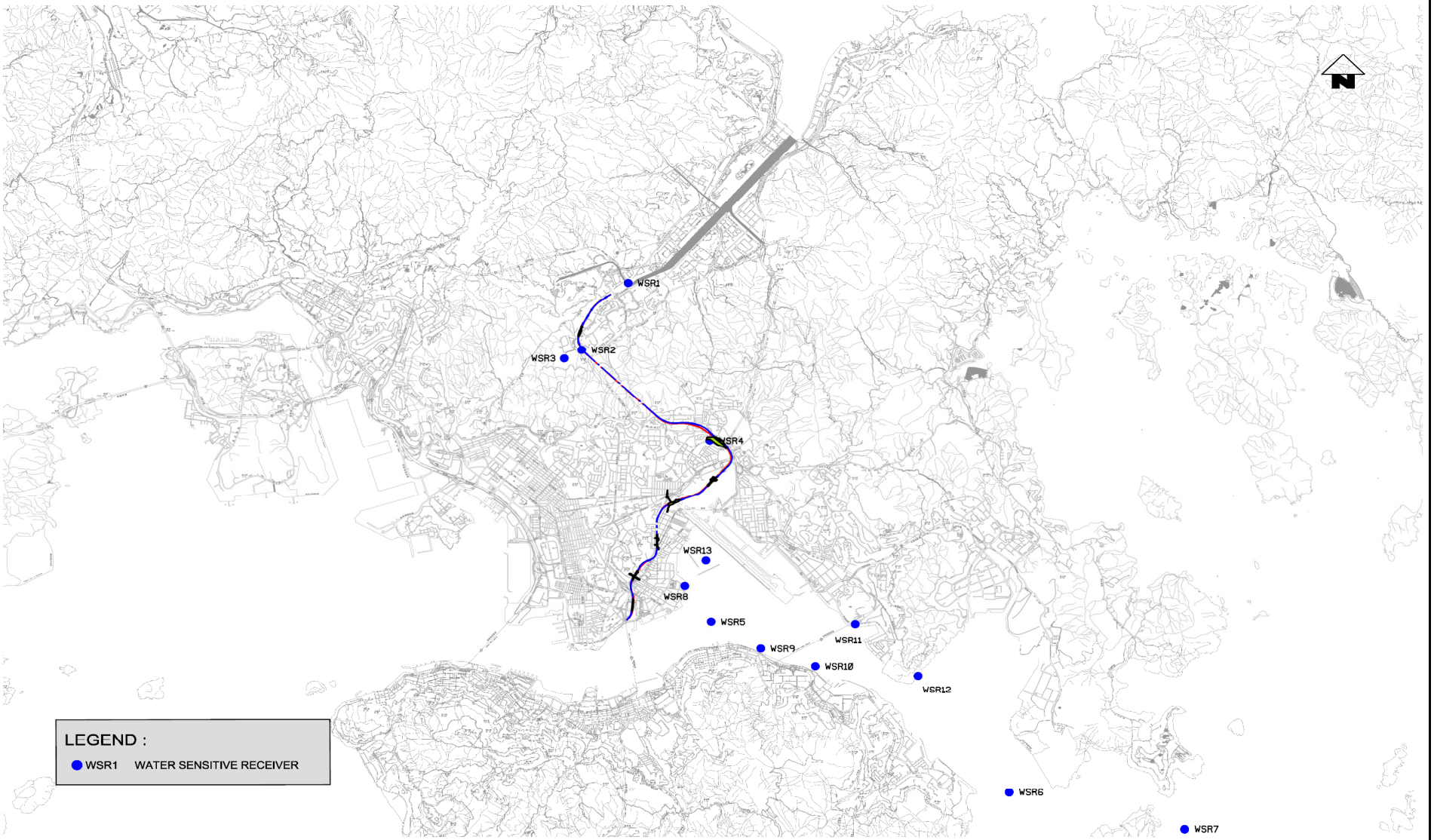
SCL 1121 - NSL Corss Harbour Tunnels

Air Quality Monitoring Station

SCALE	A4 @ 1:5000	DATE	Nov 2020
CHECK	EH	DRAWN	HC
Project No.	MA14047	FIGURE NO. 4	REV –



Shatin to Central Link – Contract 1121 NSL Cross Harbour Tunnels Locations of Air Sensitive Receivers	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Feb-22	Figure 5	



Shatin to Central Link – Contract 1121 NSL Cross Harbour Tunnels Locations of Water Sensitive Receivers	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Feb-22	Figure 6	

APPENDIX A
ACTION AND LIMIT LEVELS FOR AIR QUALITY AND WATER QUALITY

APPENDIX A – Action and Limit Levels

Derived Action and Limit Levels for Water Quality (Wet Season)

Parameters	Action Level	Limit Level
WSD Salt Water Intake (Station 14, A, WSD9, WSD17)		
DO in mg/L	<2.1	<2
SS in mg/L	6.0	6.0
Turbidity in NTU	4.7	6.5
Cooling Water Intake (Station 8, 9, 21 & 34)		
DO in mg/L	2.8	2.7
SS in mg/L	6.9	9.1
Turbidity in NTU	11.3	17.2
GB3		
DO in mg/L	5.5	5.3
SS in mg/L	4.5	4.5
Turbidity in NTU	2.1	2.4

Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Derived Action and Limit Levels for Water Quality (Dry Season)

Parameters	Action Level	Limit Level
WSD Salt Water Intake (Station 14, A, WSD9, WSD17)		
DO in mg/L	<2.1	<2
SS in mg/L	6.9	6.9
Turbidity in NTU	5.0	7.0
Cooling Water Intake (Station 8, 9, 21 & 34)		
DO in mg/L	3.3	3.2
SS in mg/L	8.0	10.4
Turbidity in NTU	12.2	18.5
GB3		
DO in mg/L	6.8	6.5
SS in mg/L	9.3	9.3
Turbidity in NTU	5.0	5.6

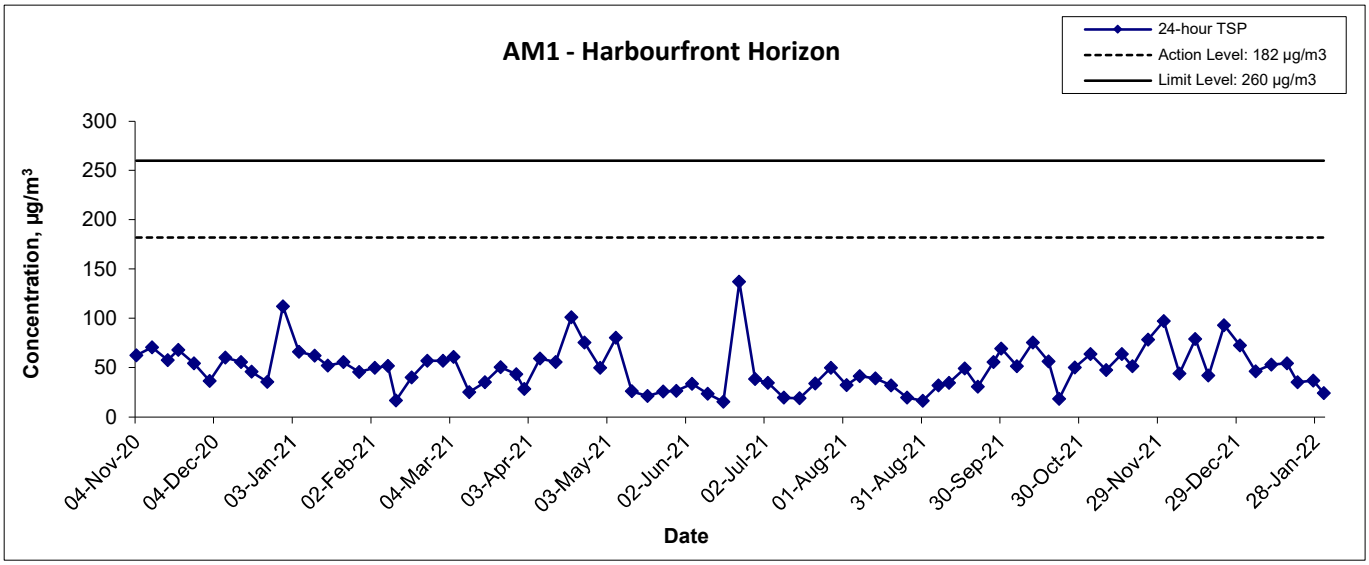
Notes:
1. For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.
2. For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

Action and Limit Levels for Air Quality

Monitoring Station	Action Level (ug/m^3)	Limit Level (ug/m^3)
AM1	182	260

APPENDIX B
24-HOUR TSP MONITORING RESULTS
GRAPHICAL PRESENTATIONS

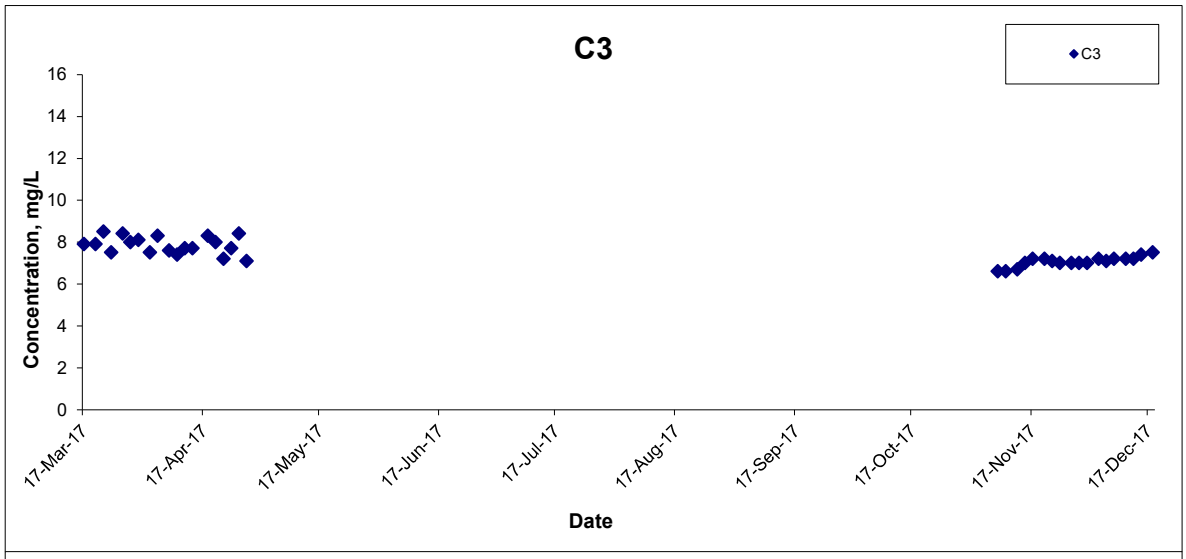
24-hr TSP Concentration Levels

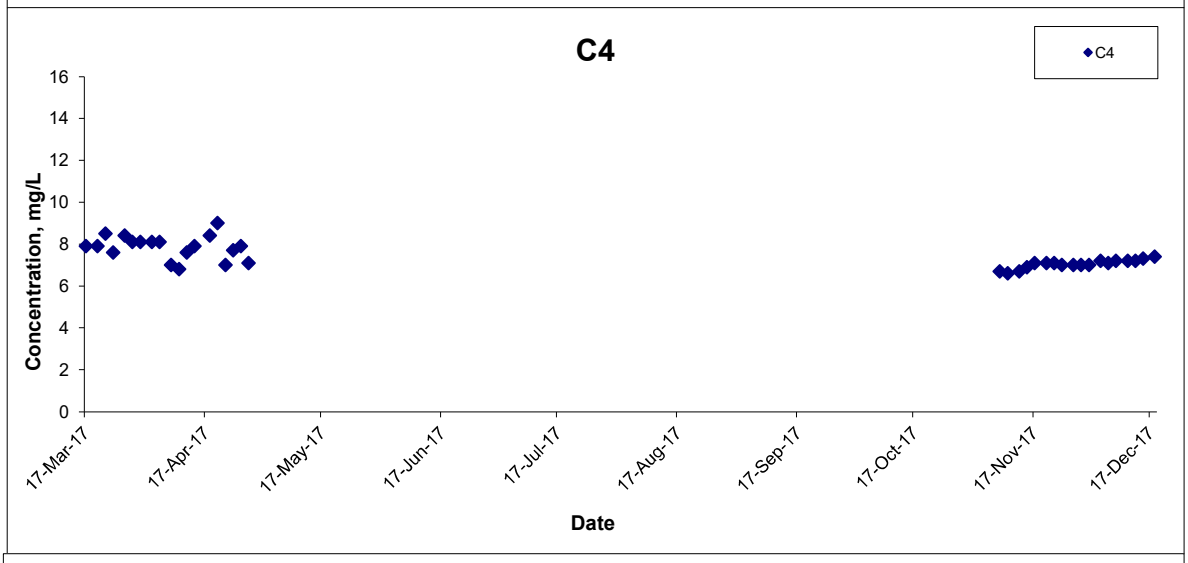


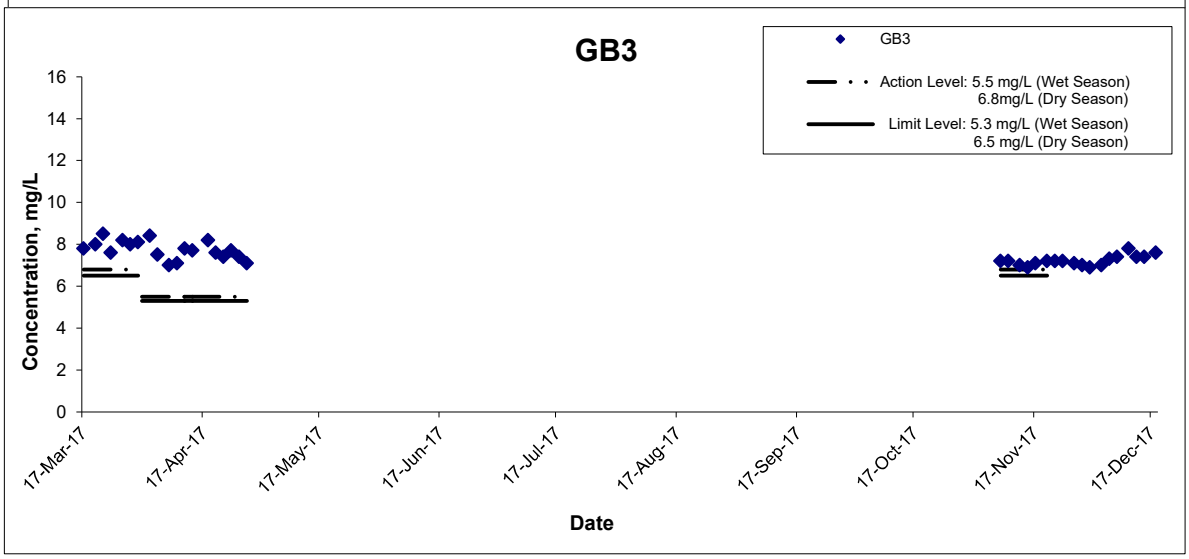
Title	Contract No. 1121 Shatin to Central Link NSL Cross Harbour Tunnels Graphical Presentation of 24-hour TSP Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
		Date Jan 22	Appendix B	

APPENDIX C
WATER QUALITY MONITORING RESULTS
GRAPHICAL PRESENTATIONS

Dissolved Oxygen (Surface) at Mid-Ebb Tide

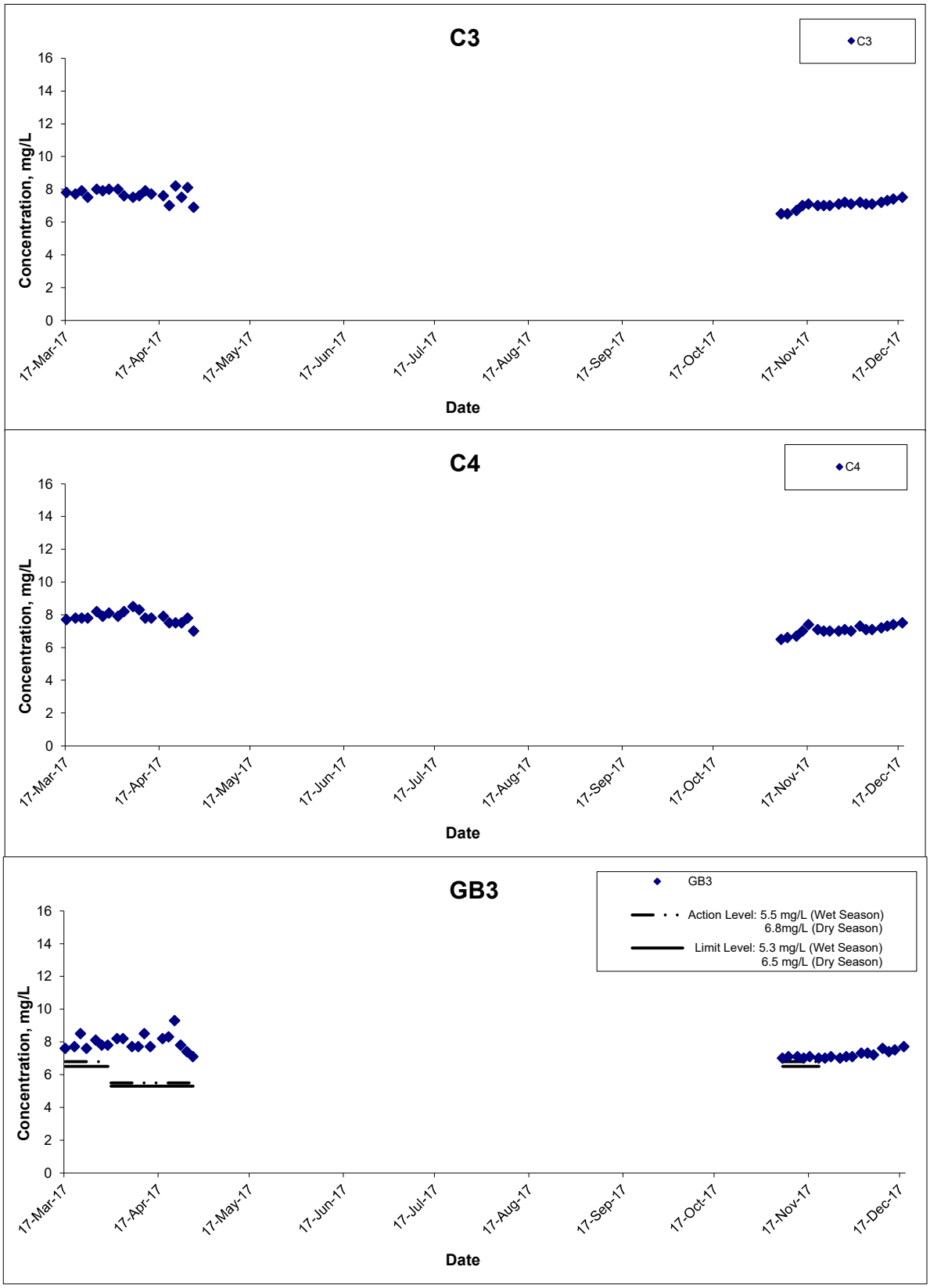






Title		Scale	Project No.	
	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels	N.T.S	MA14047	WELLAB 匯力 consulting . testing . research
	Graphical Presentation of Water Quality Monitoring Results	Date Dec 17	Appendix C	

Dissolved Oxygen (Surface) at Mid-Flood Tide



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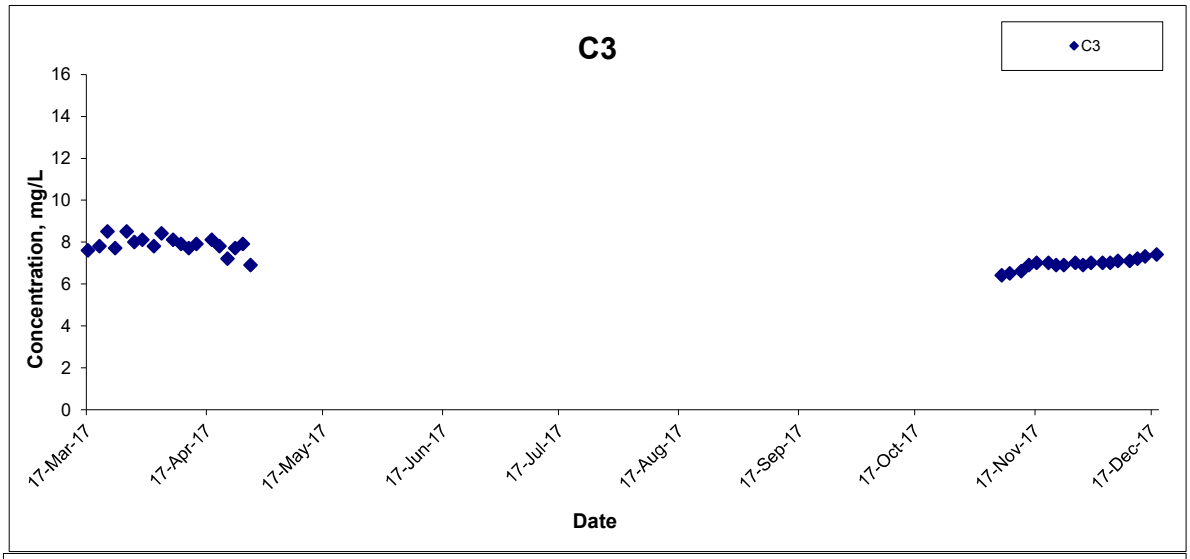
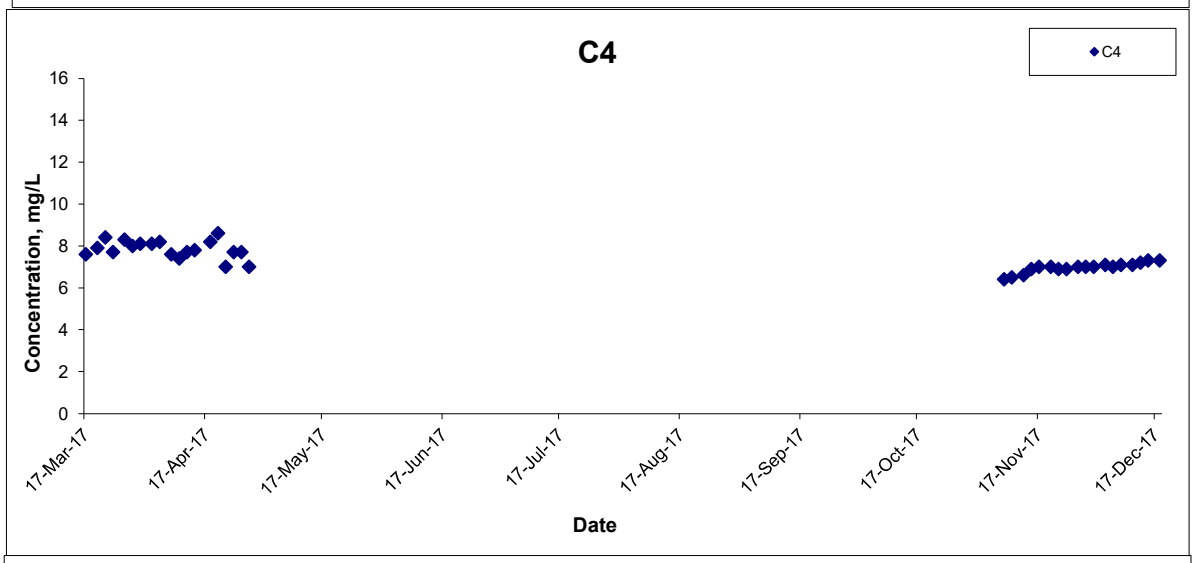
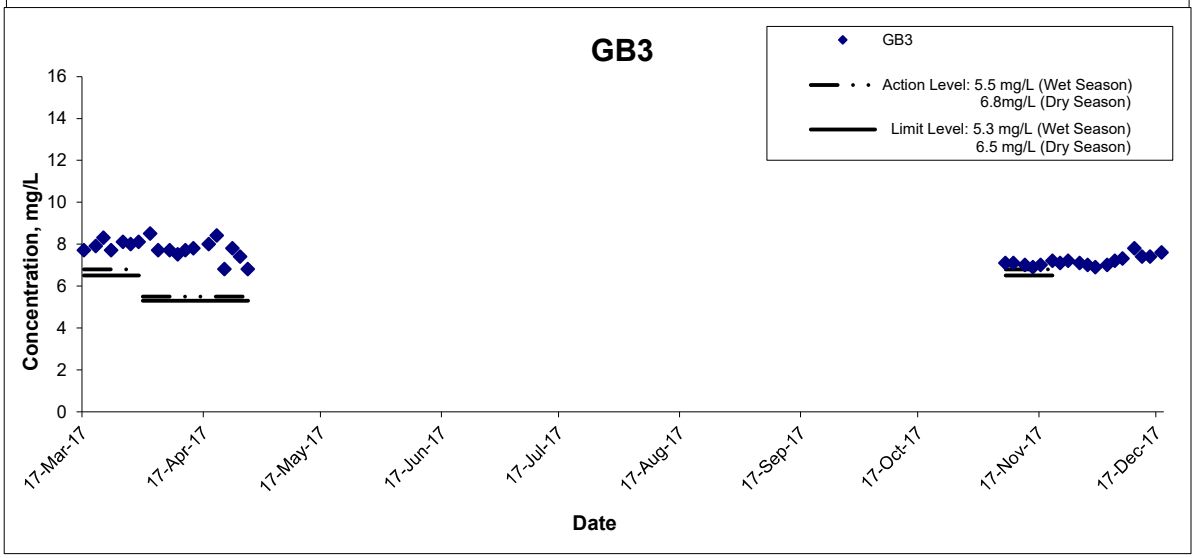
Dissolved Oxygen (Middle) at Mid-Ebb Tide







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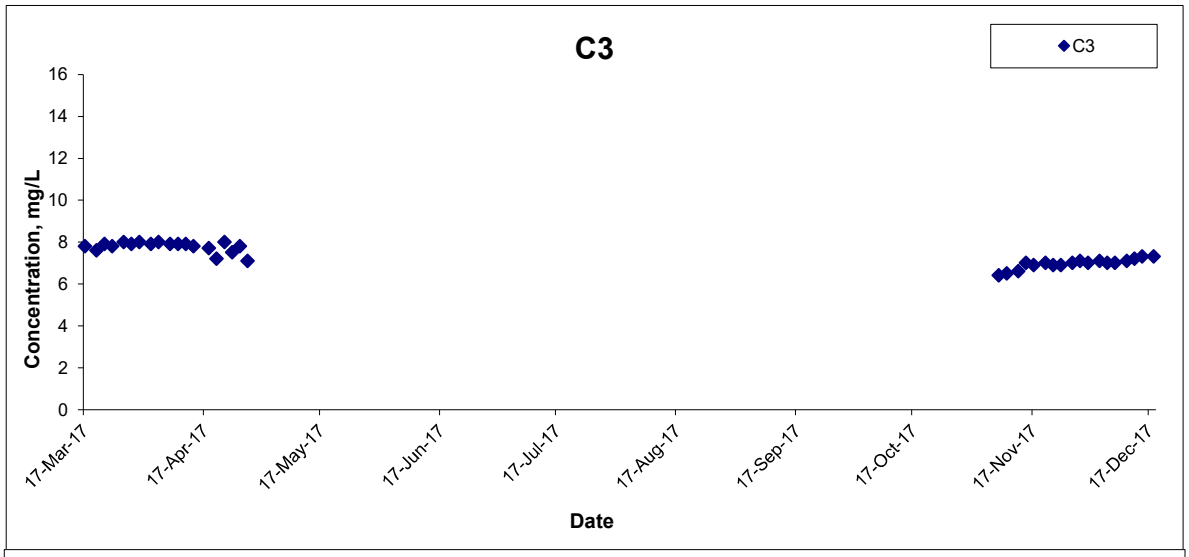
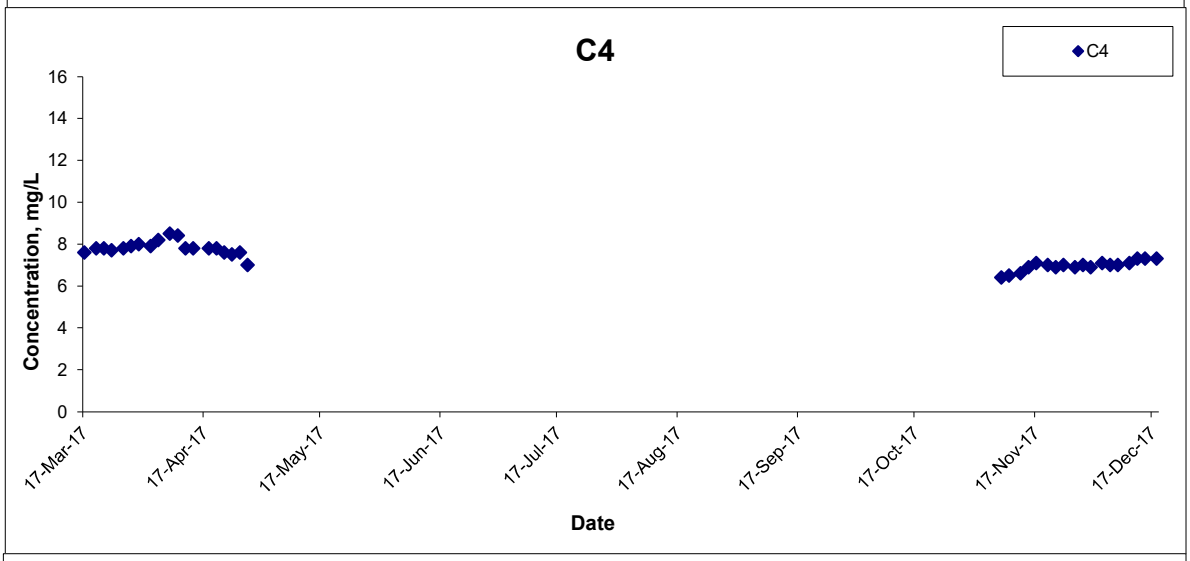
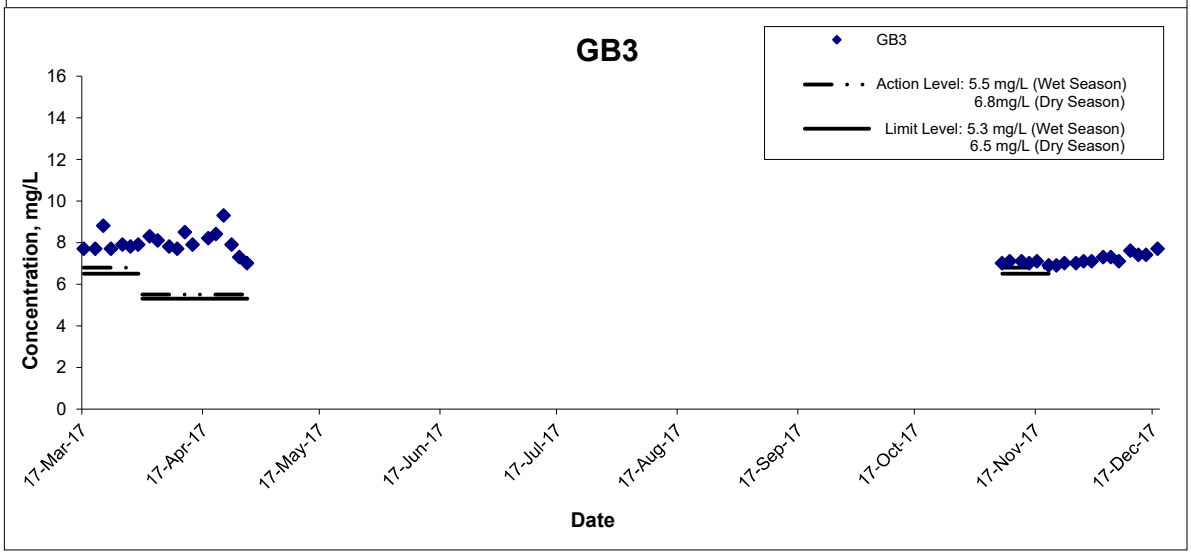
Dissolved Oxygen (Middle) at Mid-Flood Tide







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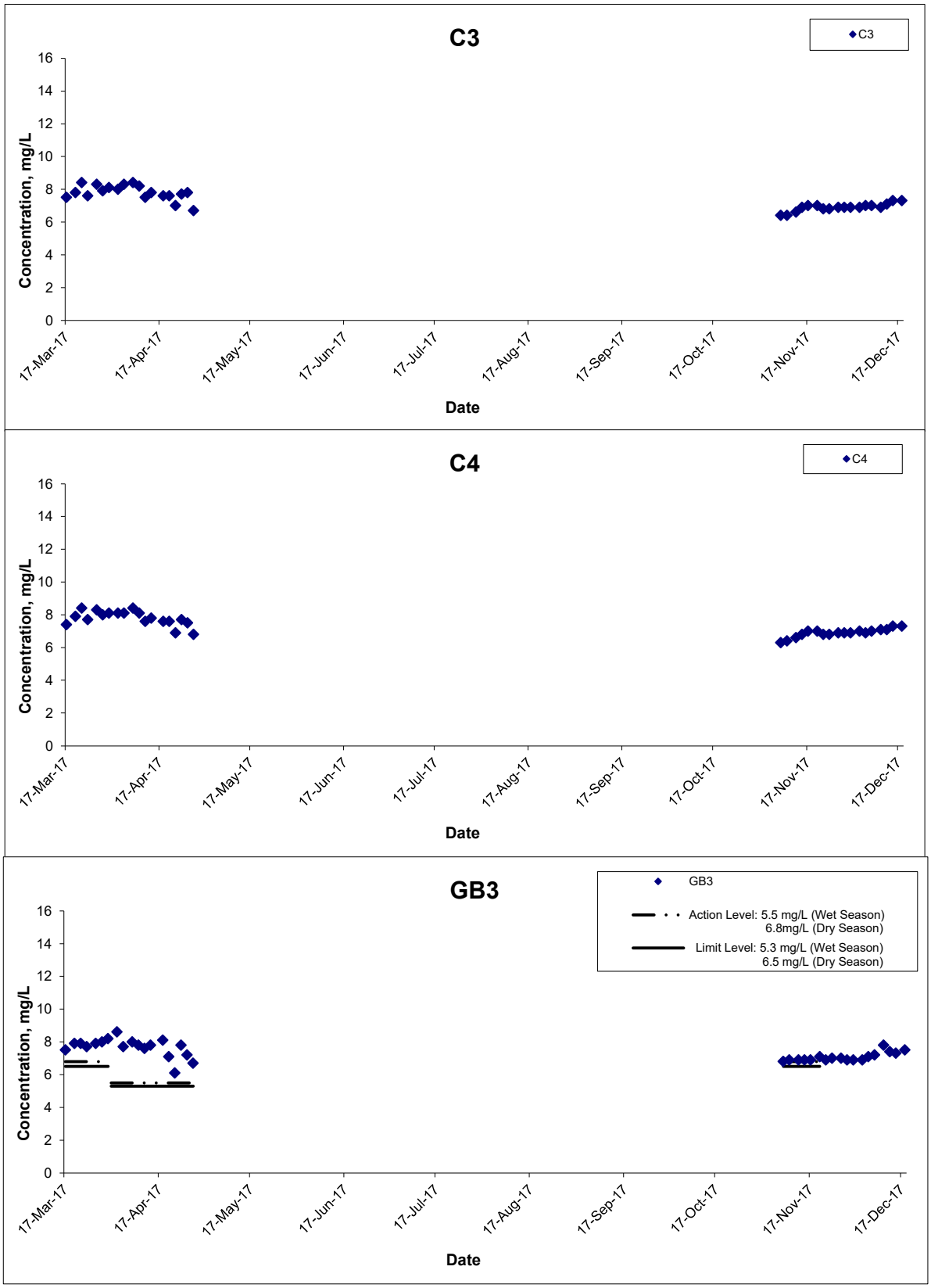
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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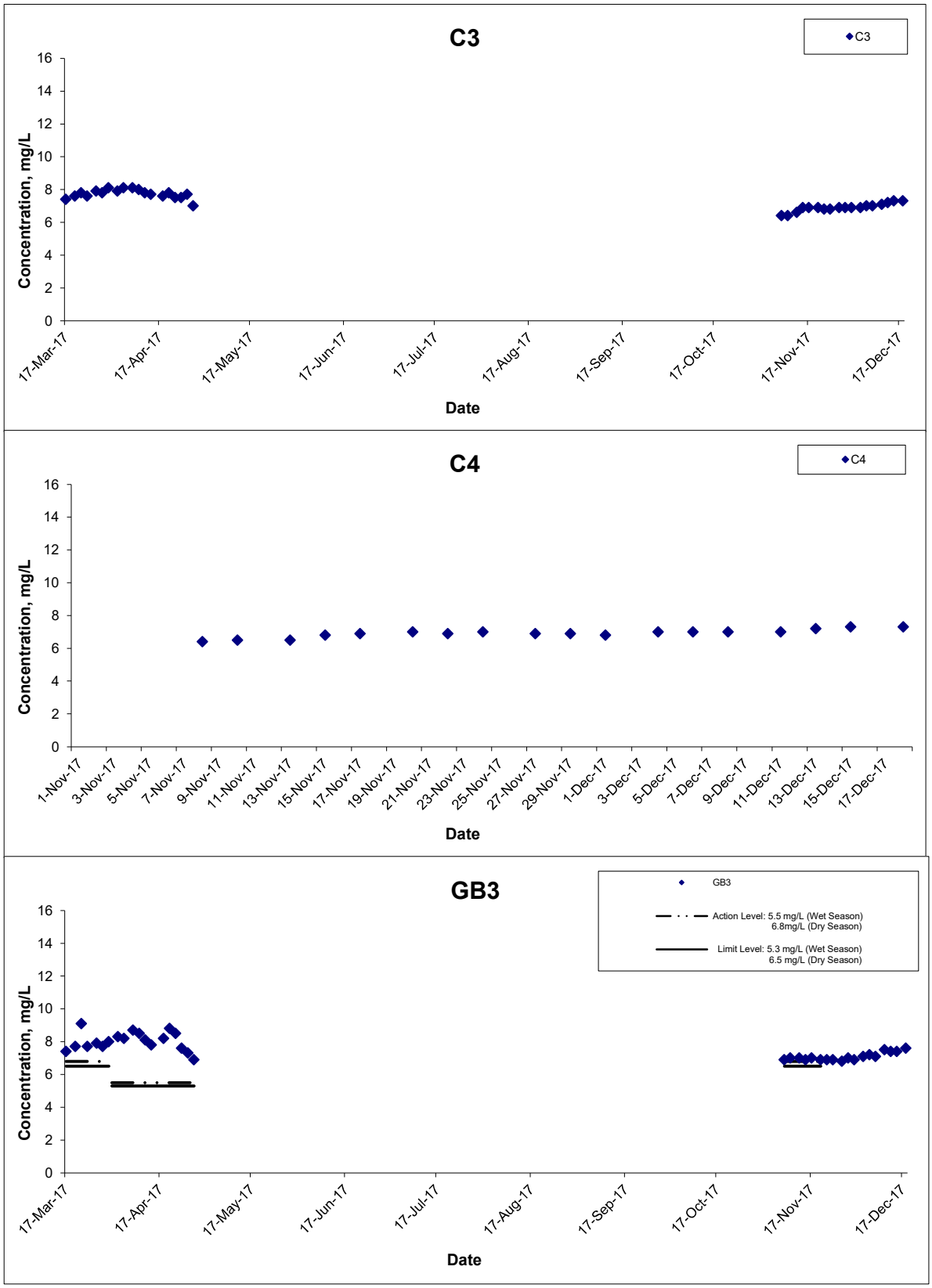
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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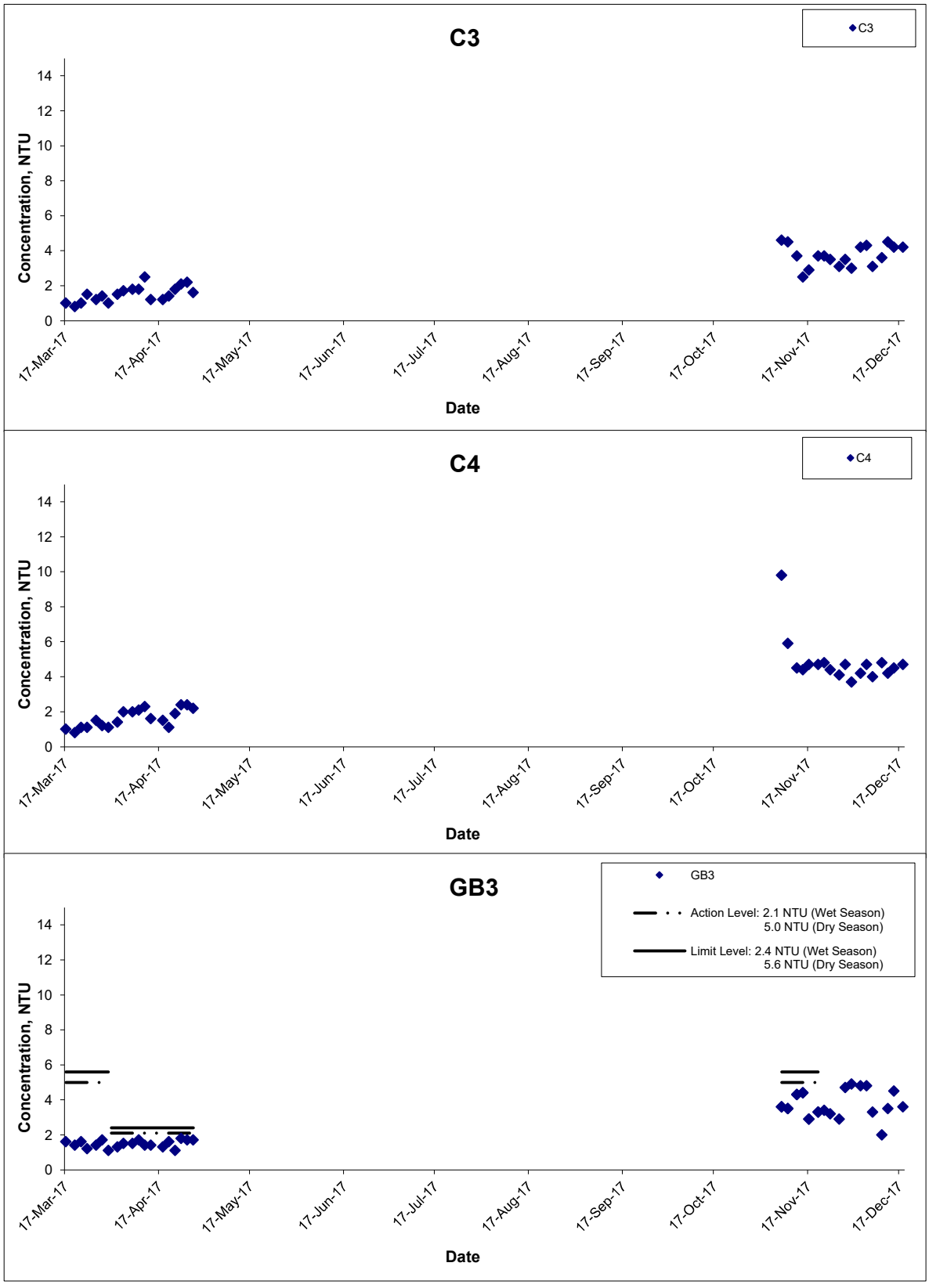
Turbidity (Depth-averaged) at Mid-Ebb Tide



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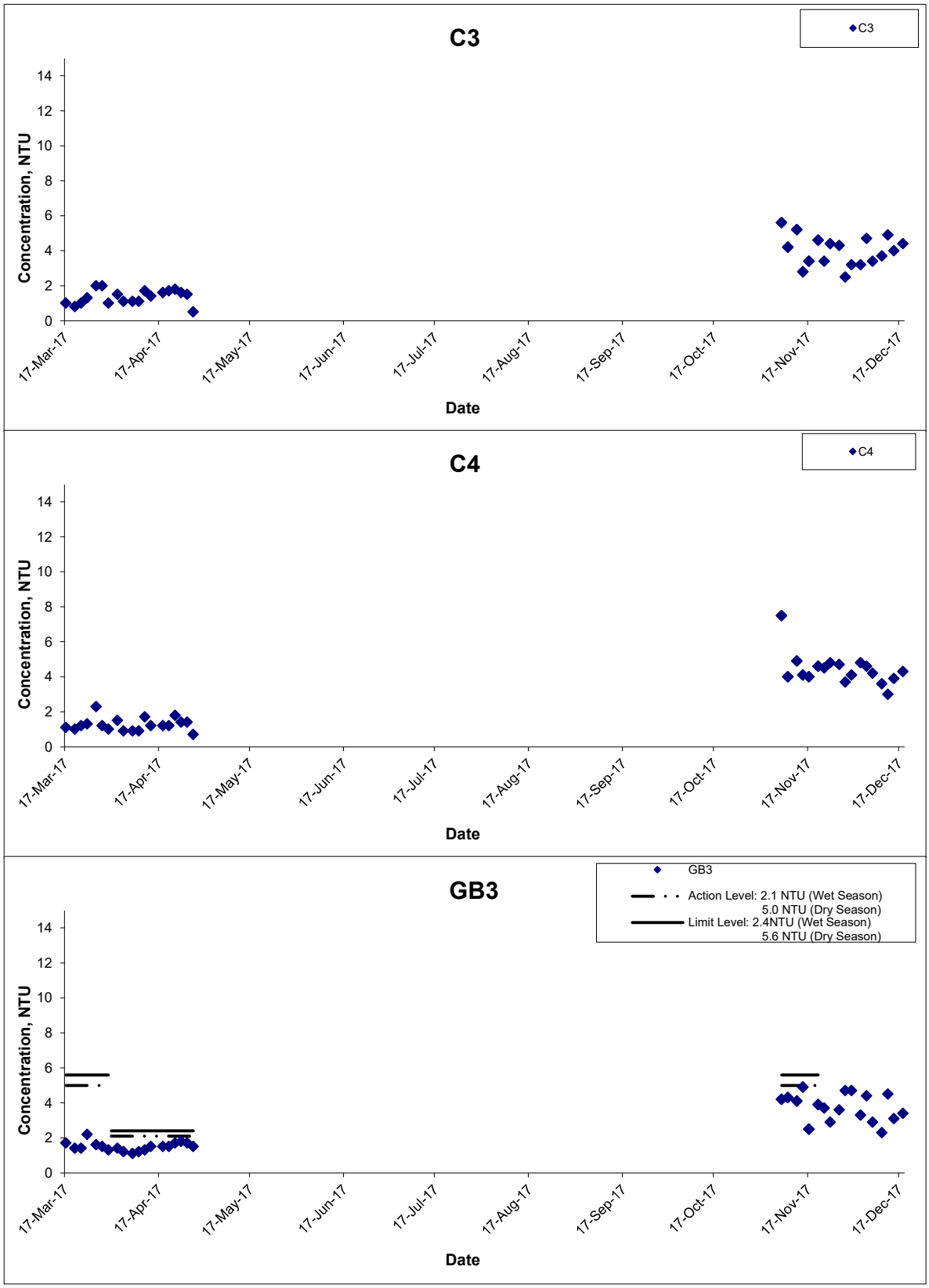
Turbidity (Depth-averaged) at Mid-Flood Tide



Title	Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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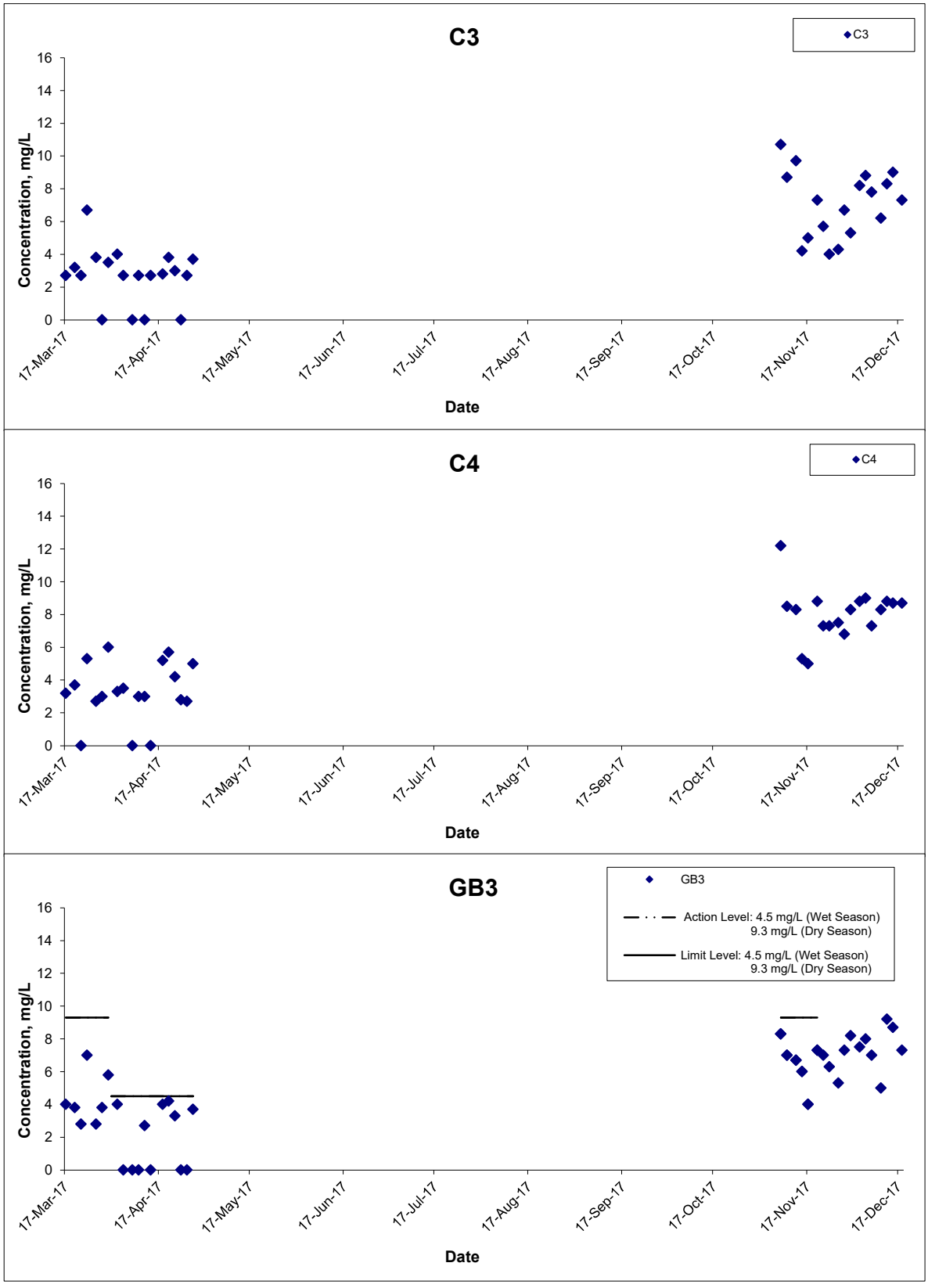
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	WELLAB 匯力 consulting . testing . research
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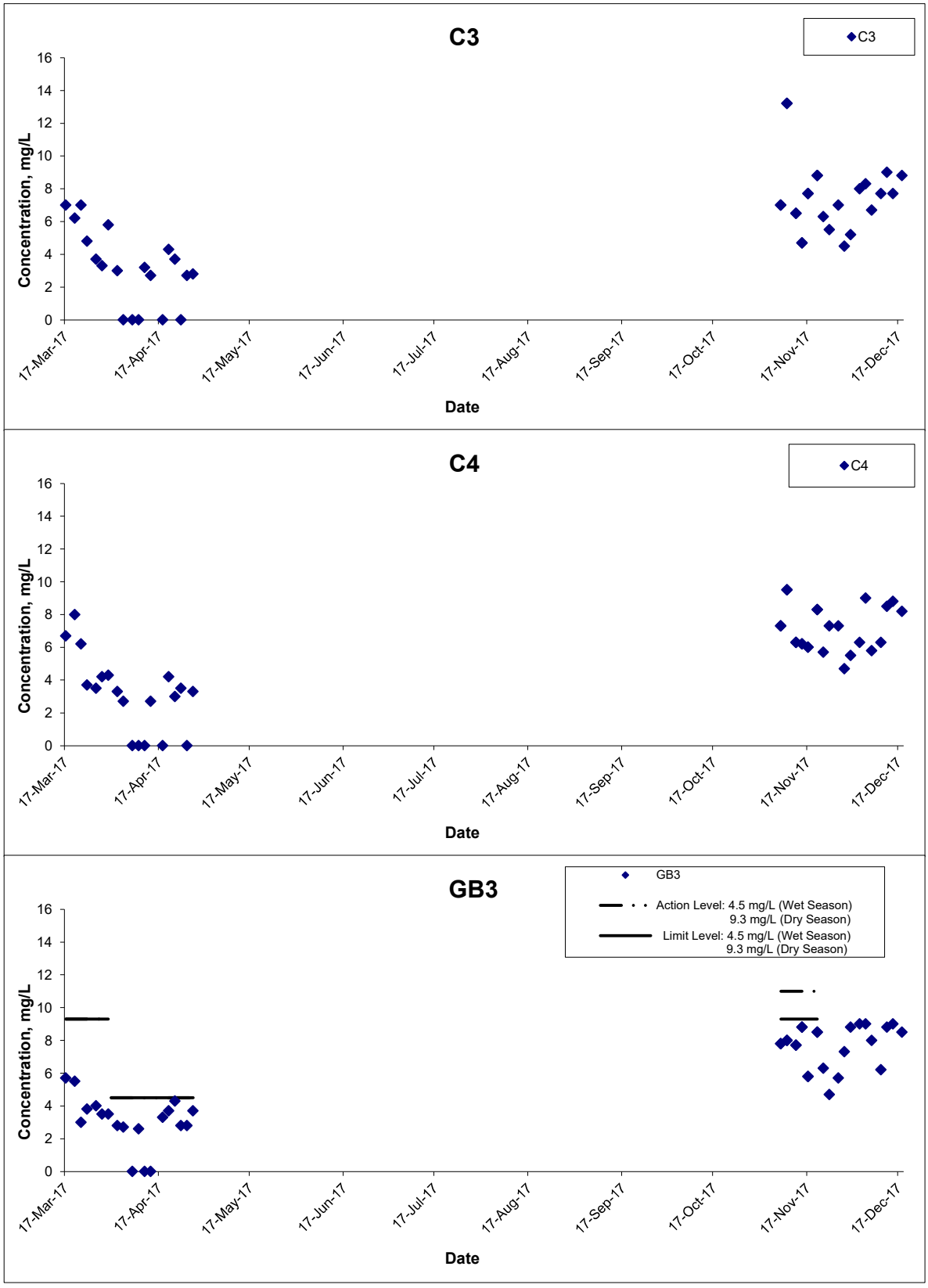
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Title: Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA14047	WELLAB 匯力 consulting . testing . research
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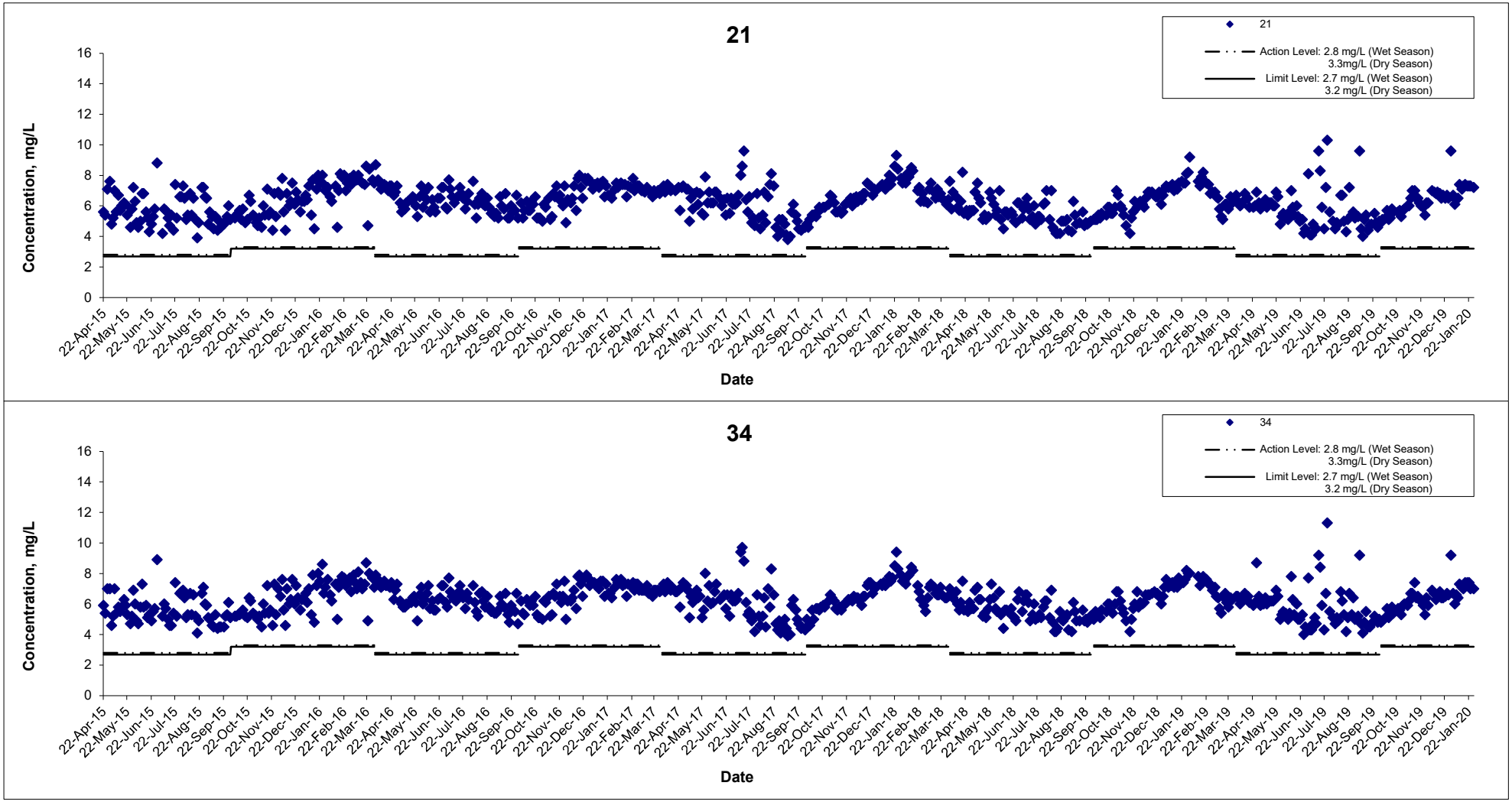
Dissolved Oxygen (Surface) at Mid-Ebb Tide



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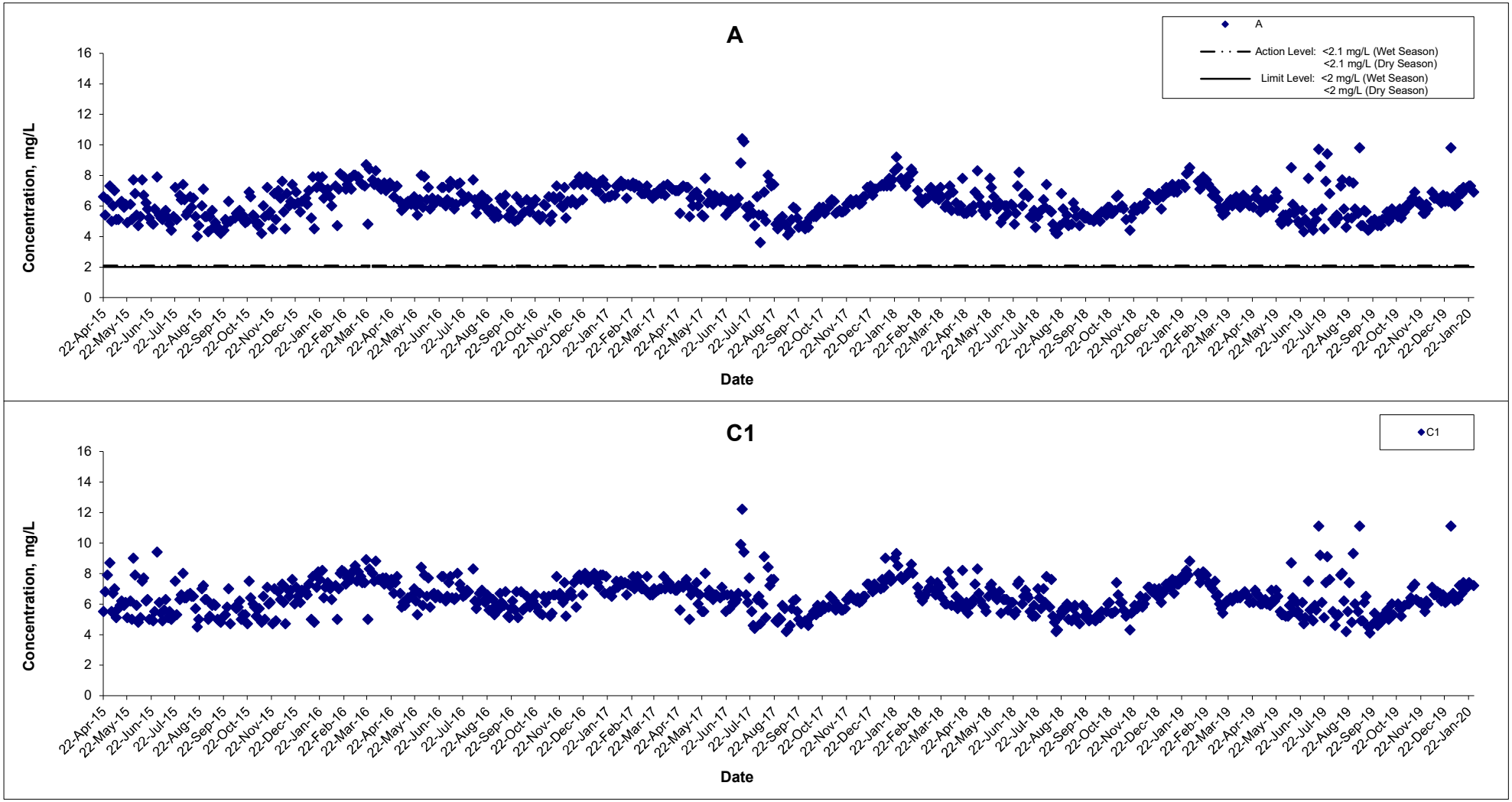
Dissolved Oxygen (Surface) at Mid-Ebb Tide



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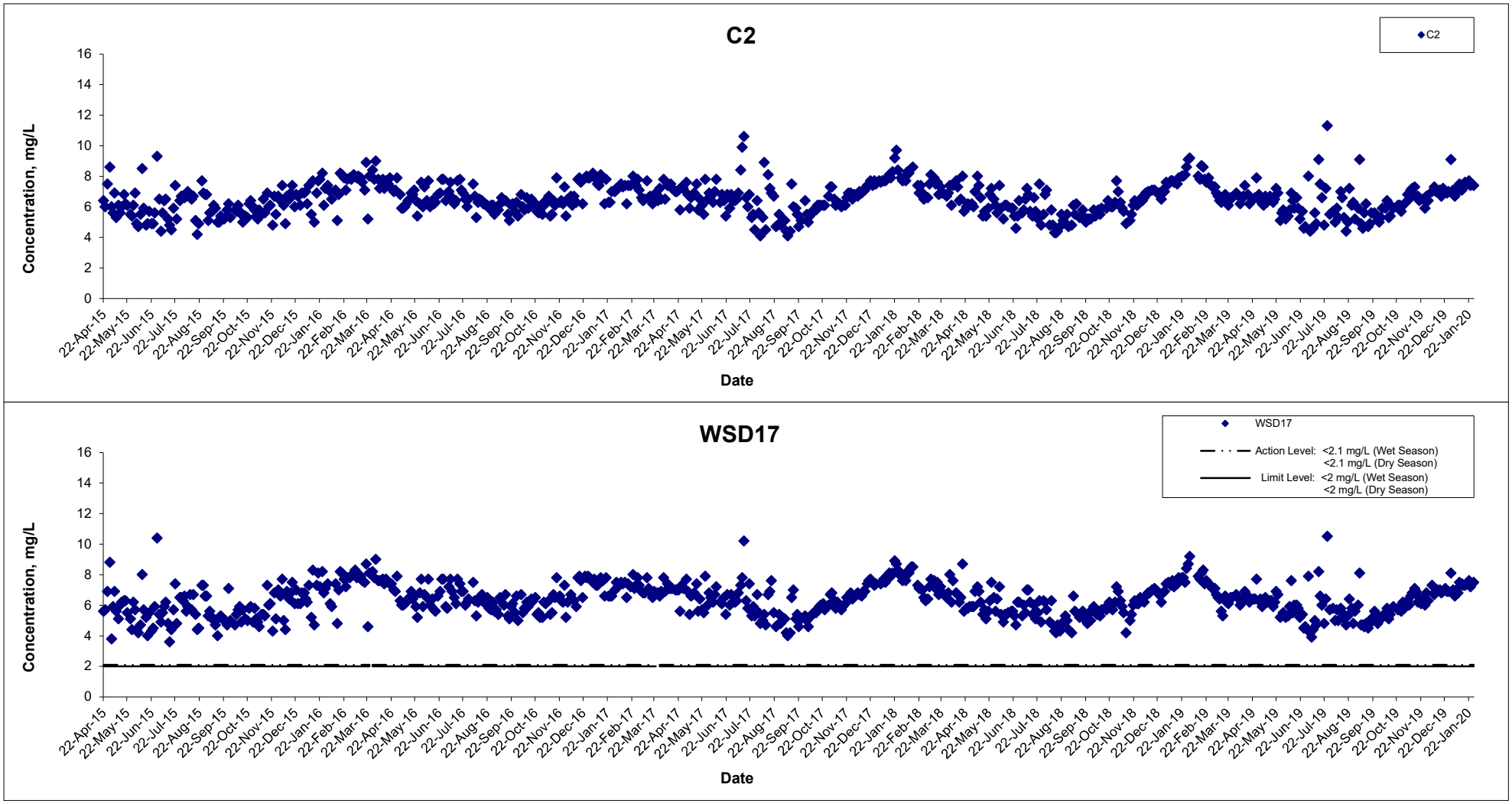
Dissolved Oxygen (Surface) at Mid-Ebb Tide



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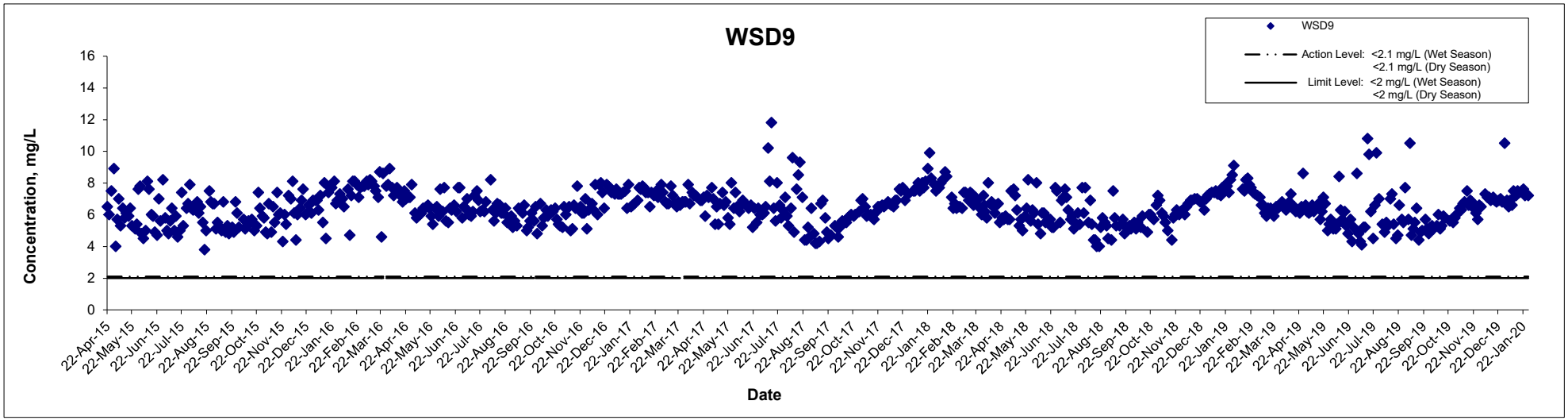
Dissolved Oxygen (Surface) at Mid-Ebb Tide



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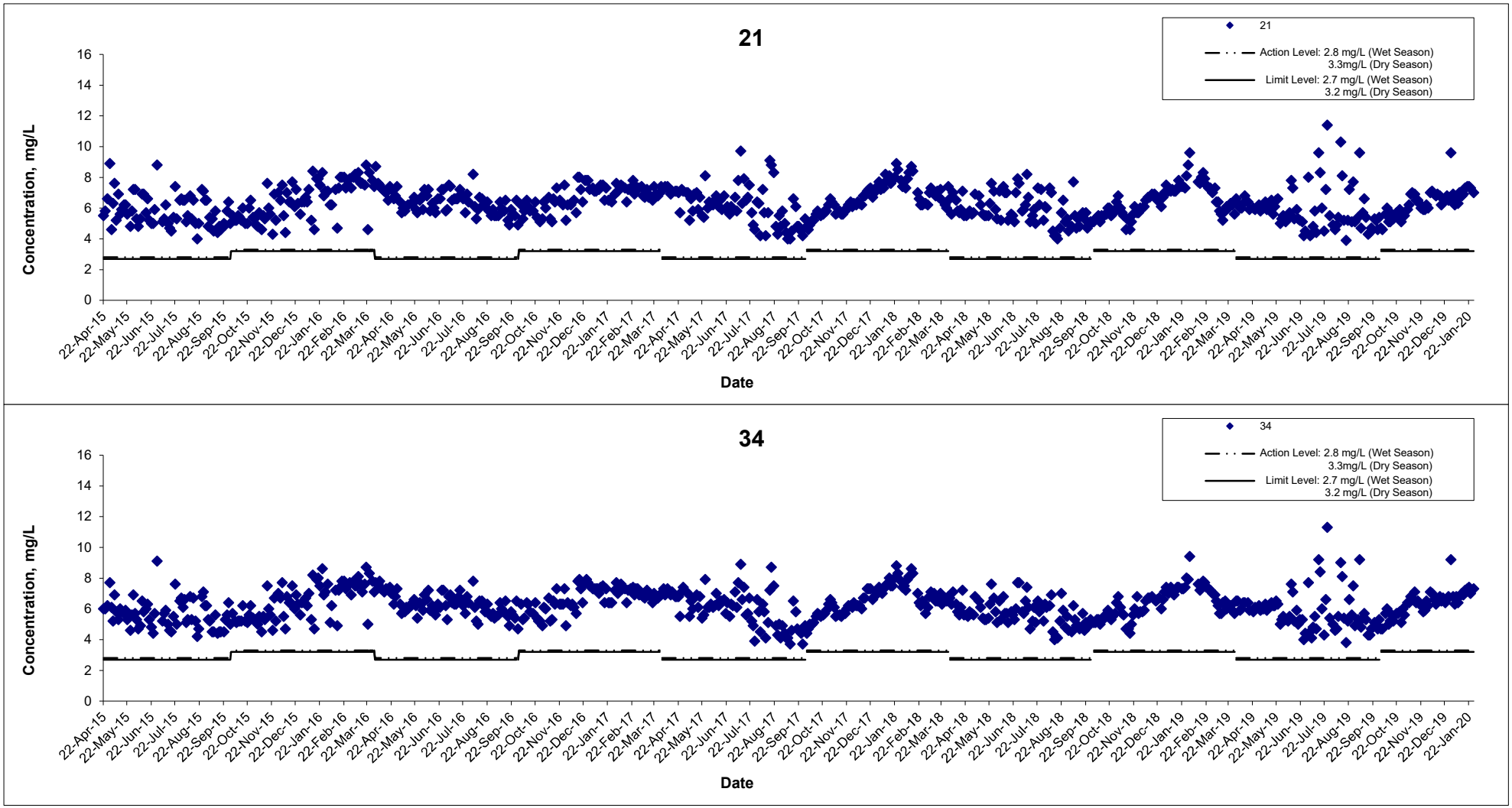
Dissolved Oxygen (Surface) at Mid-Flood Tide



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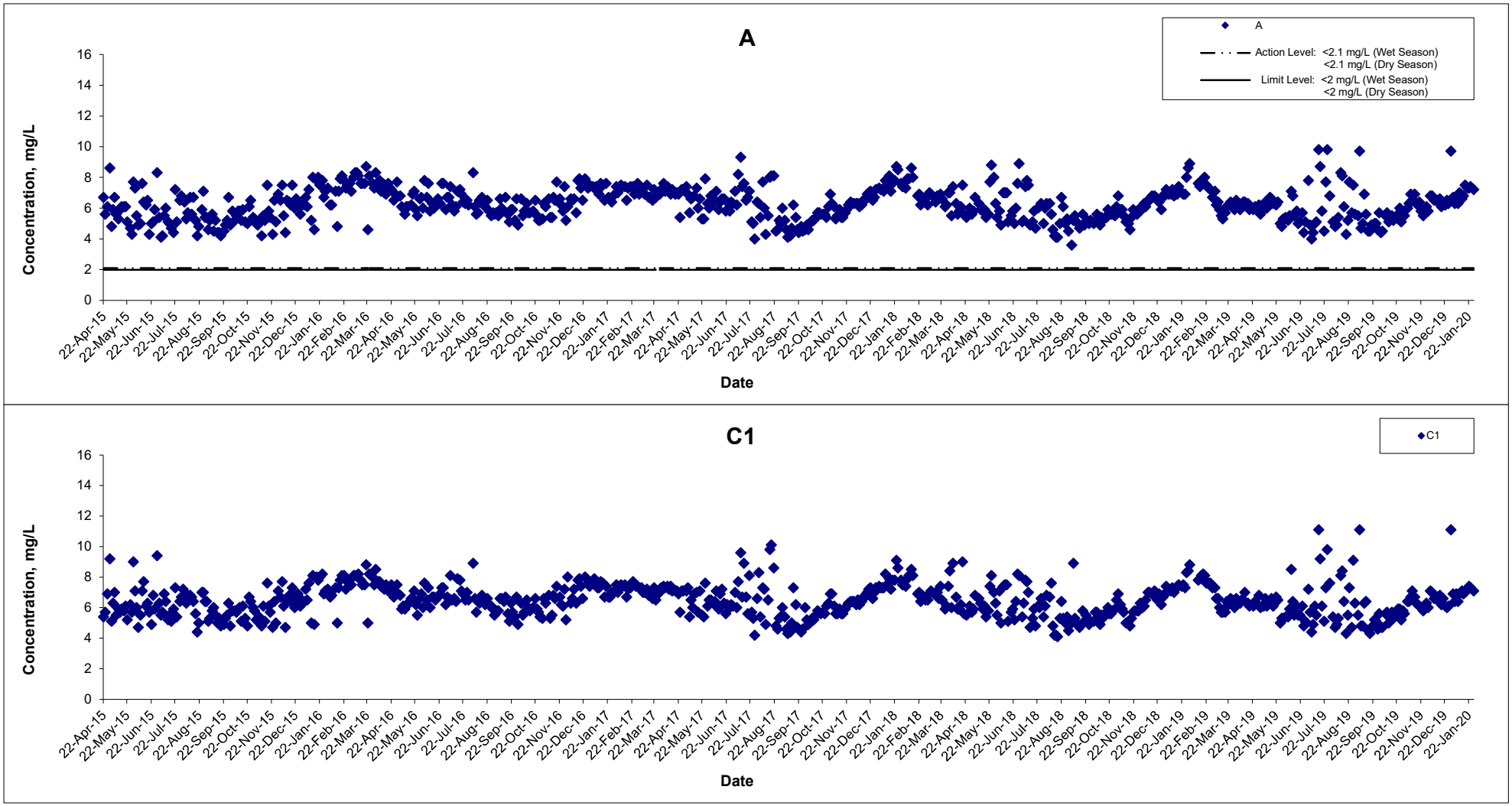
Dissolved Oxygen (Surface) at Mid-Flood Tide



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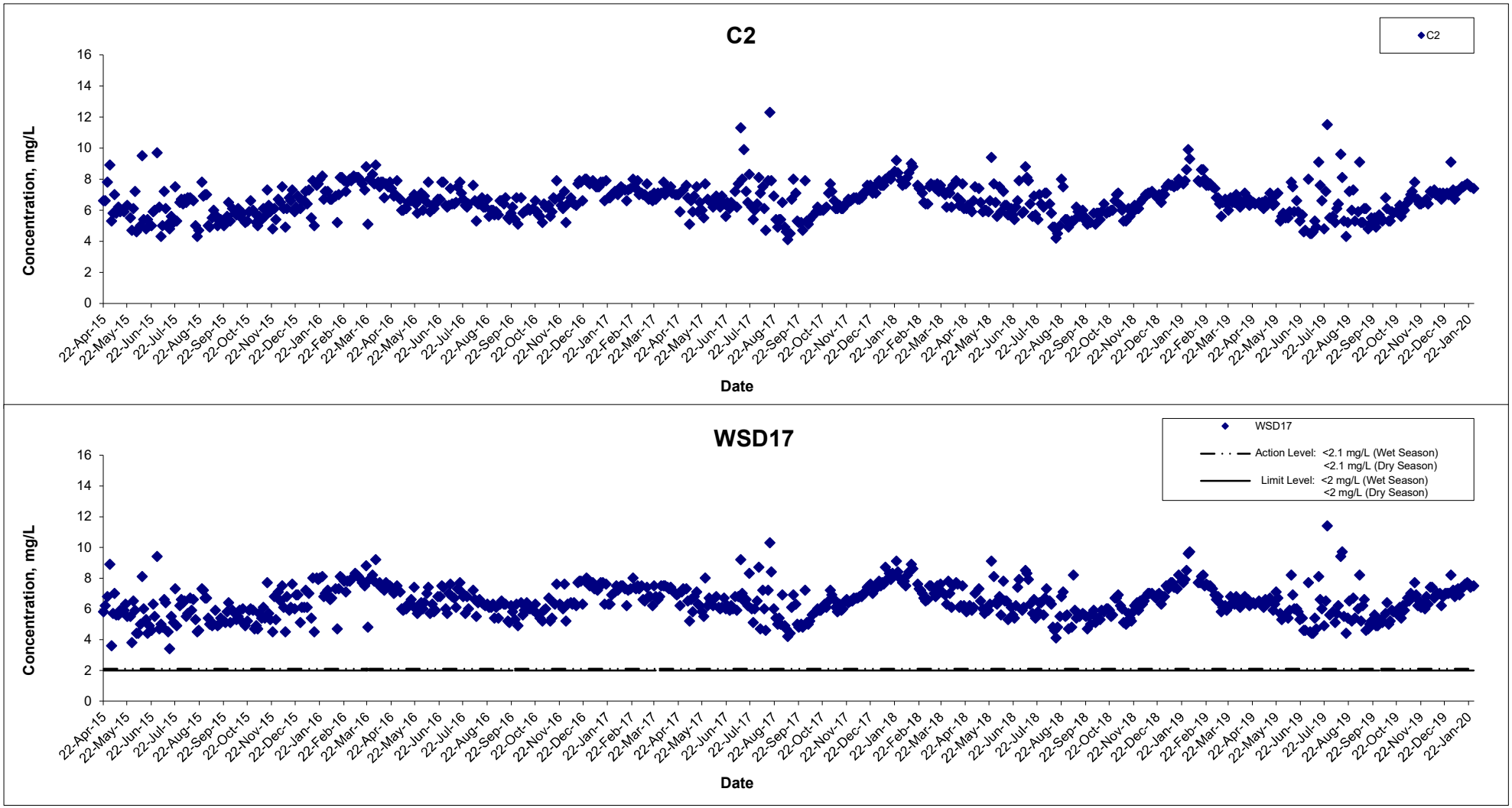

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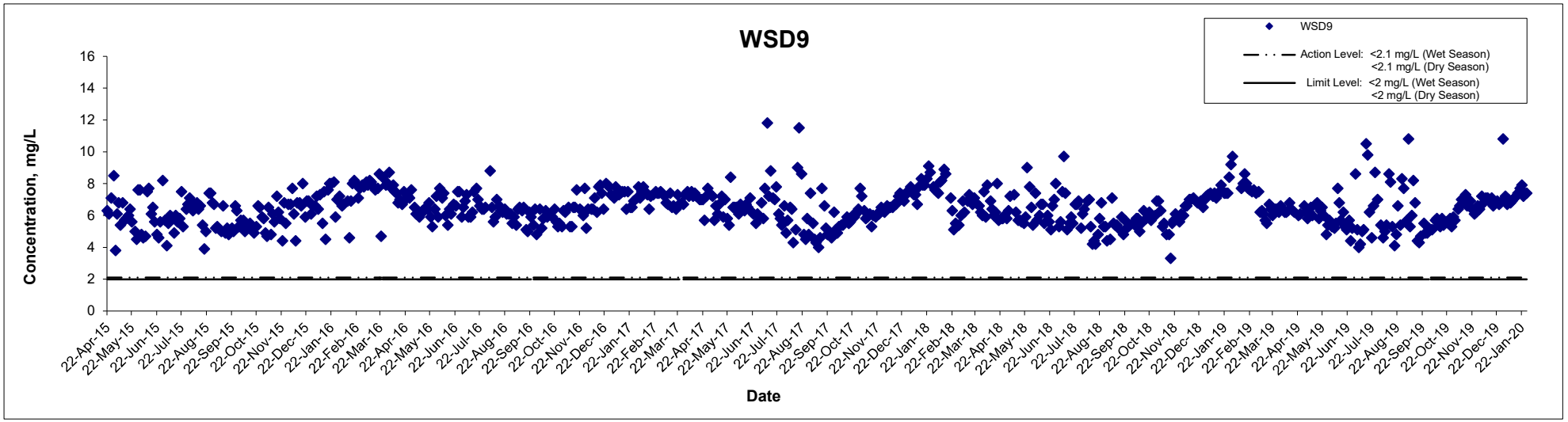

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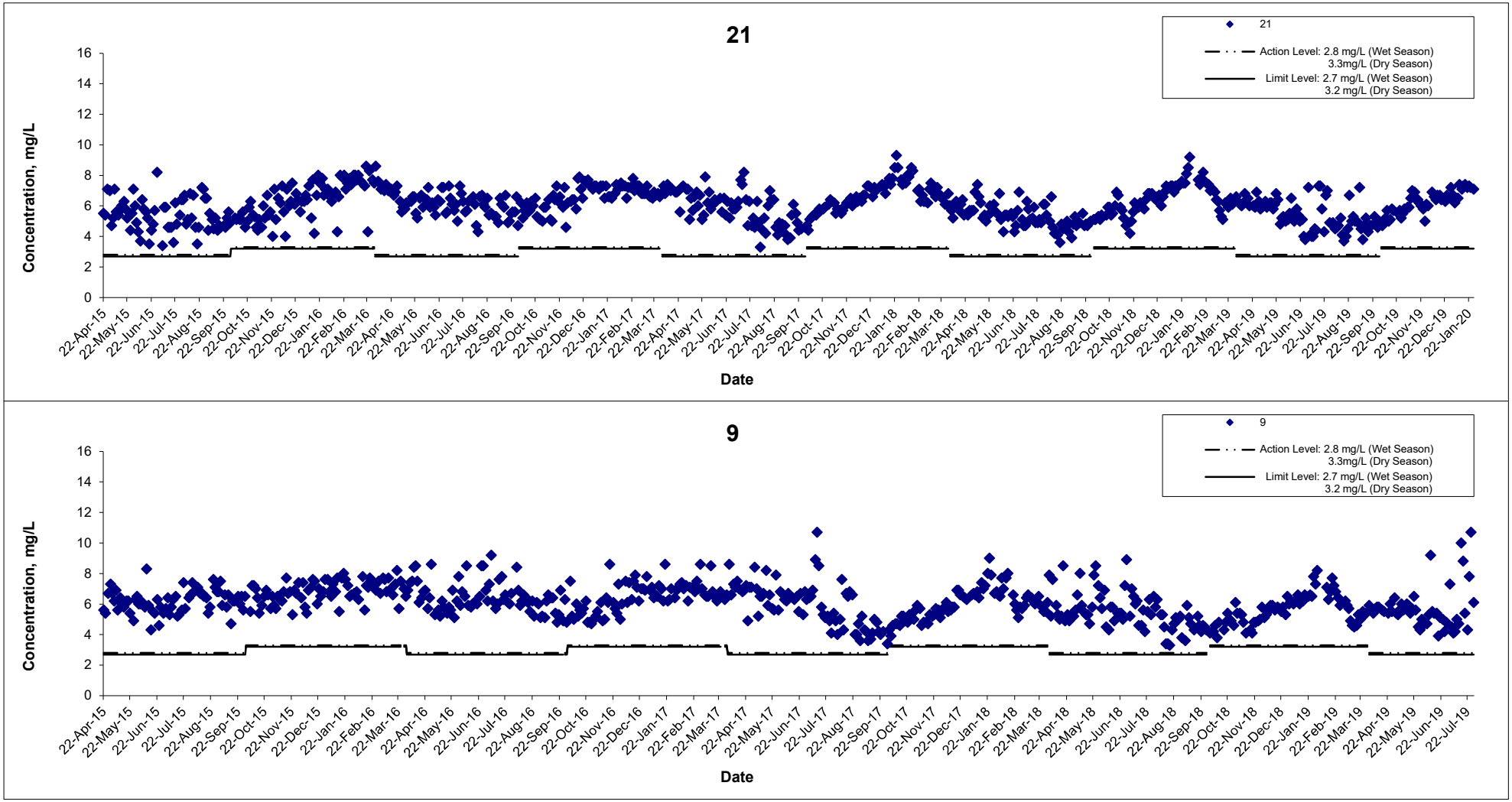
Dissolved Oxygen (Middle) at Mid-Ebb Tide



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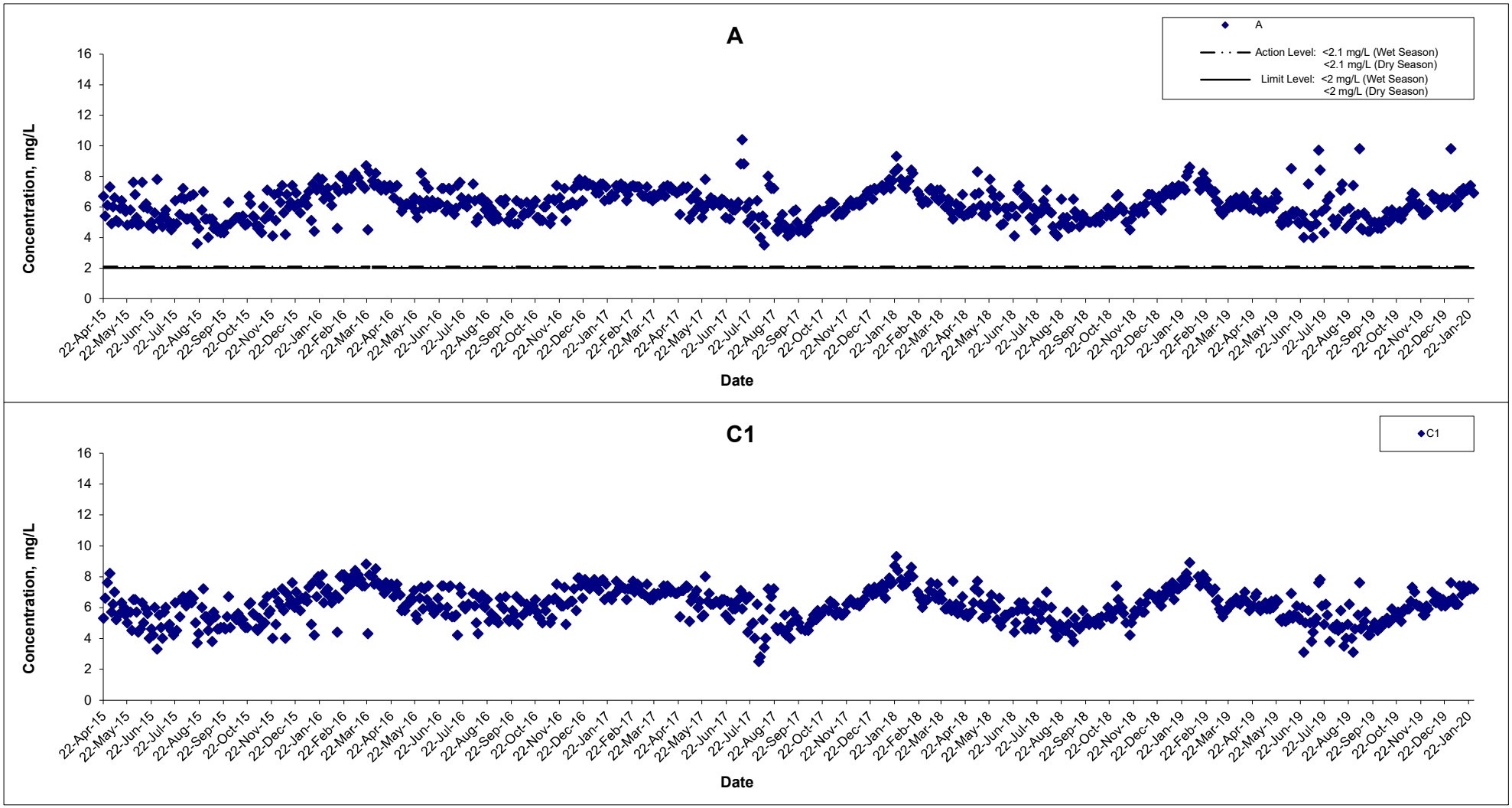
Dissolved Oxygen (Middle) at Mid-Ebb Tide



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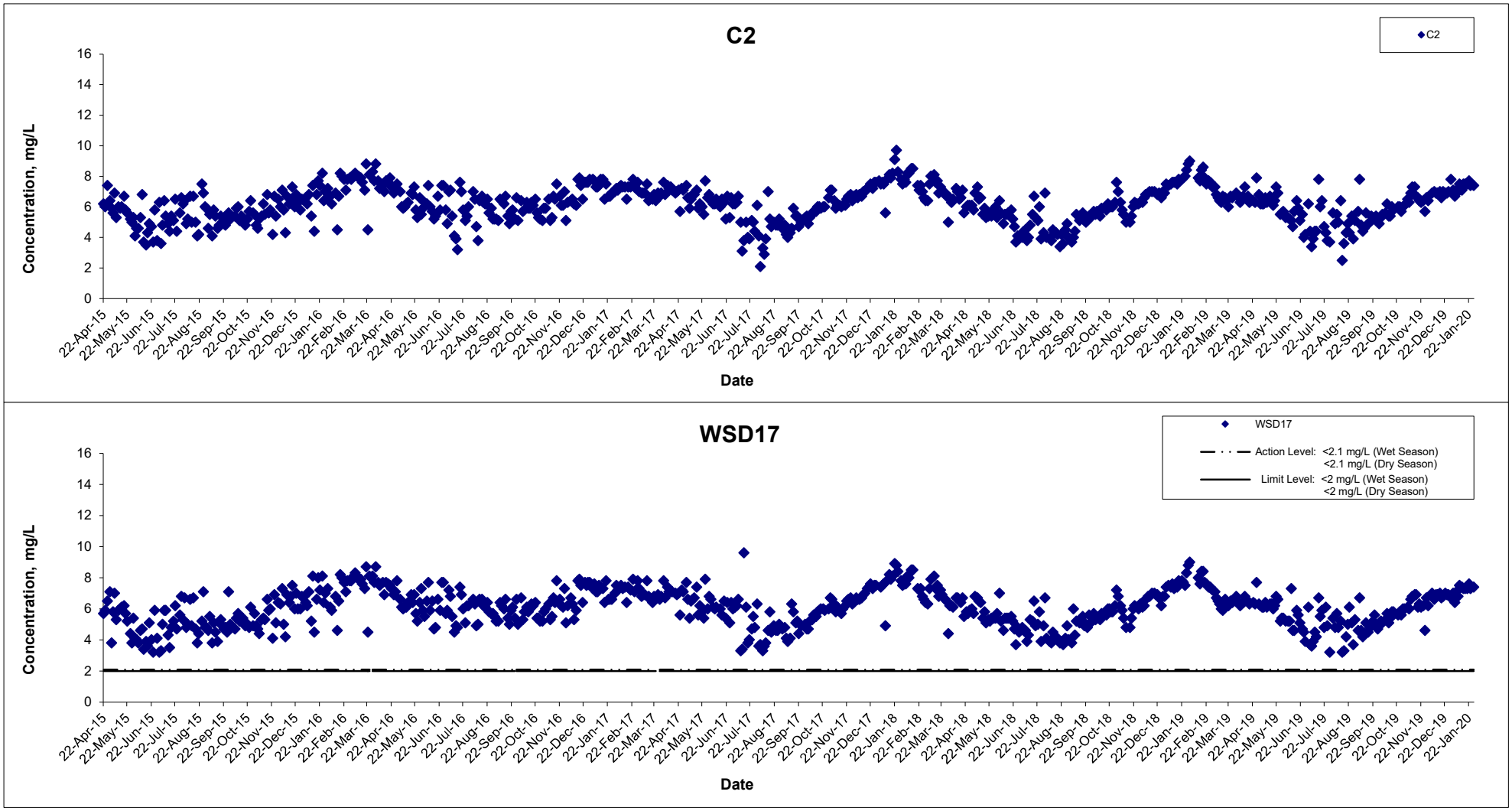
Dissolved Oxygen (Middle) at Mid-Ebb Tide



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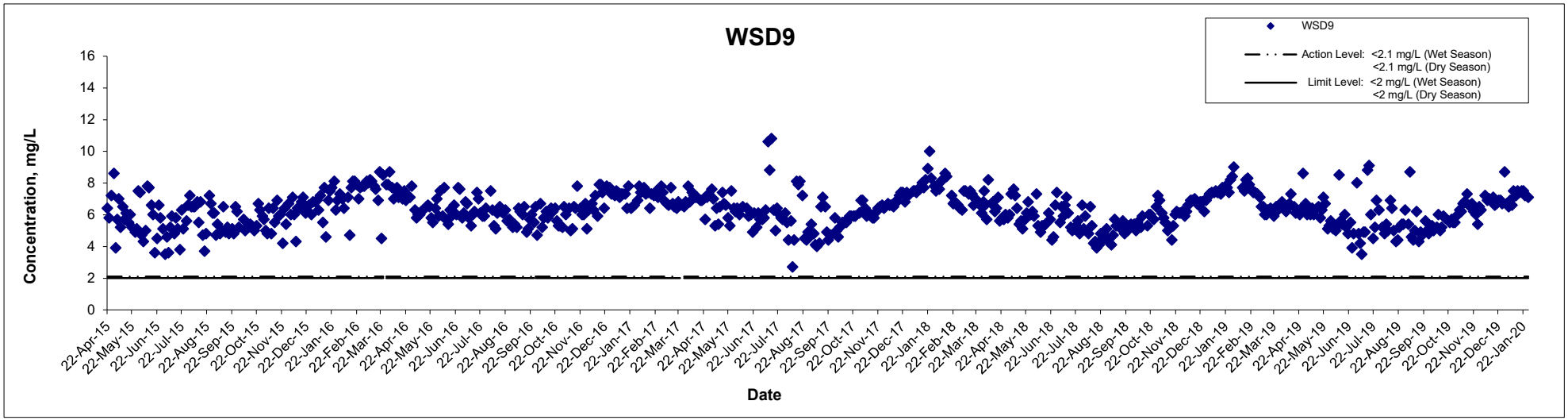

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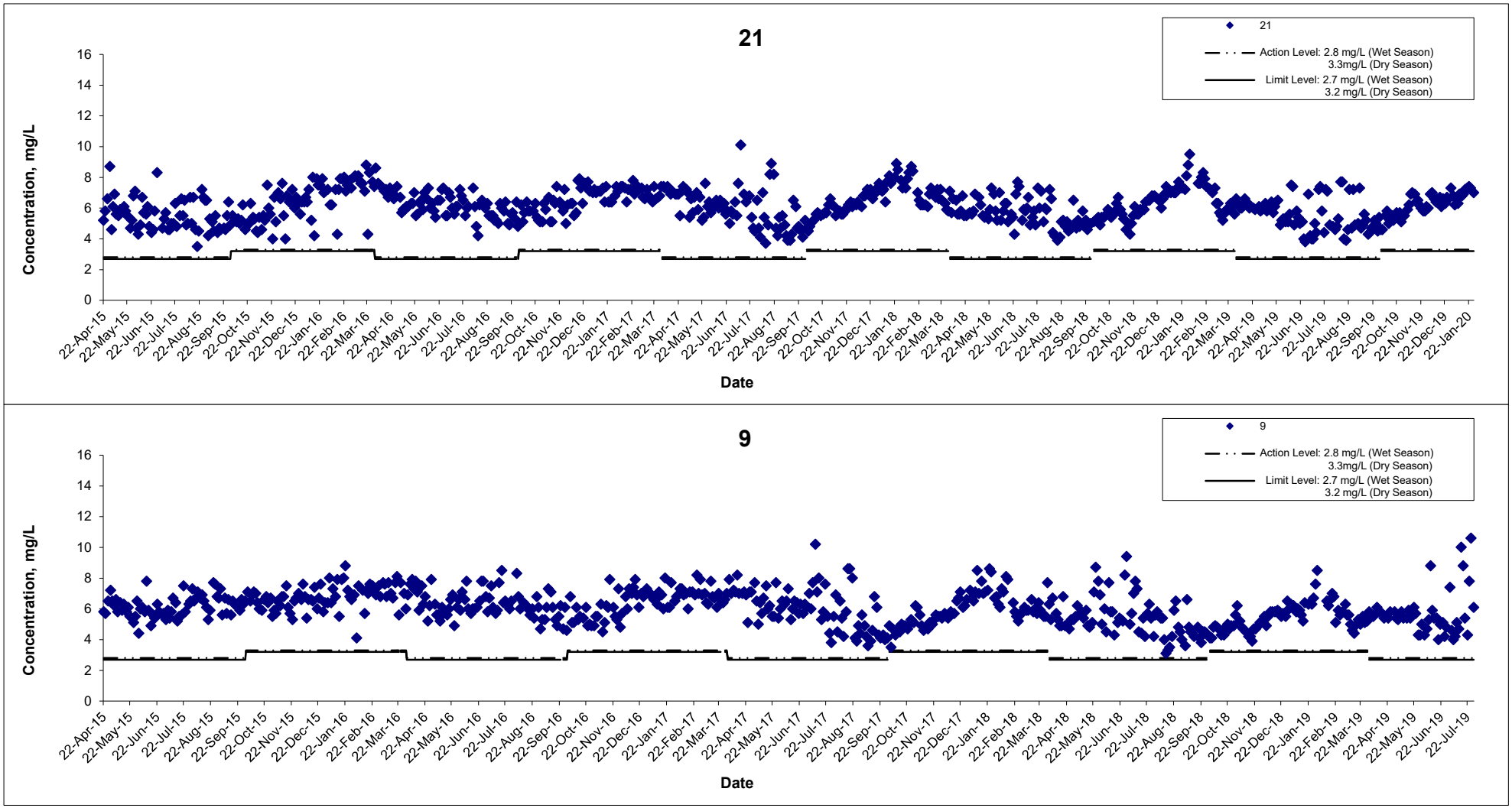
Dissolved Oxygen (Middle) at Mid-Flood Tide



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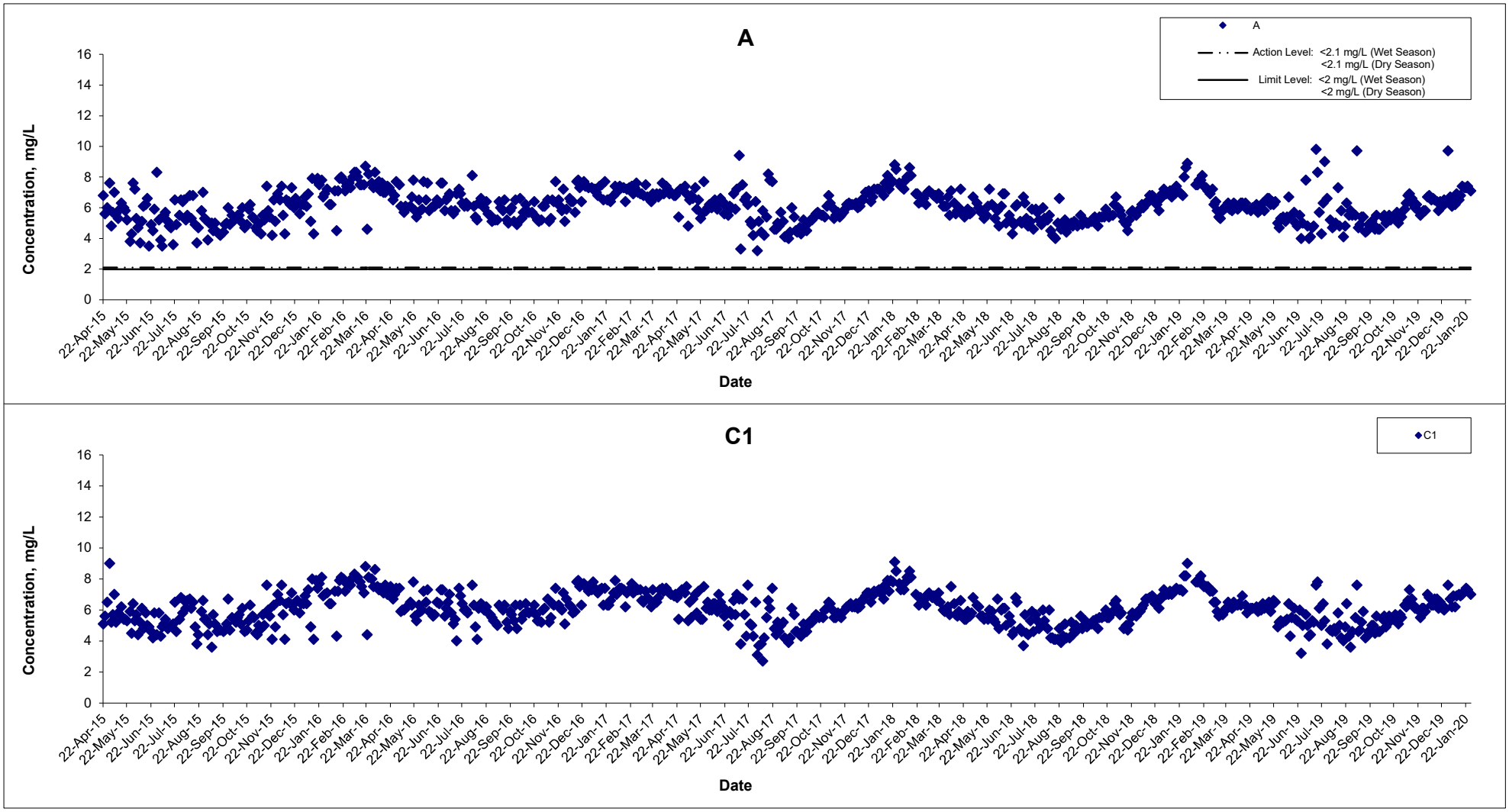

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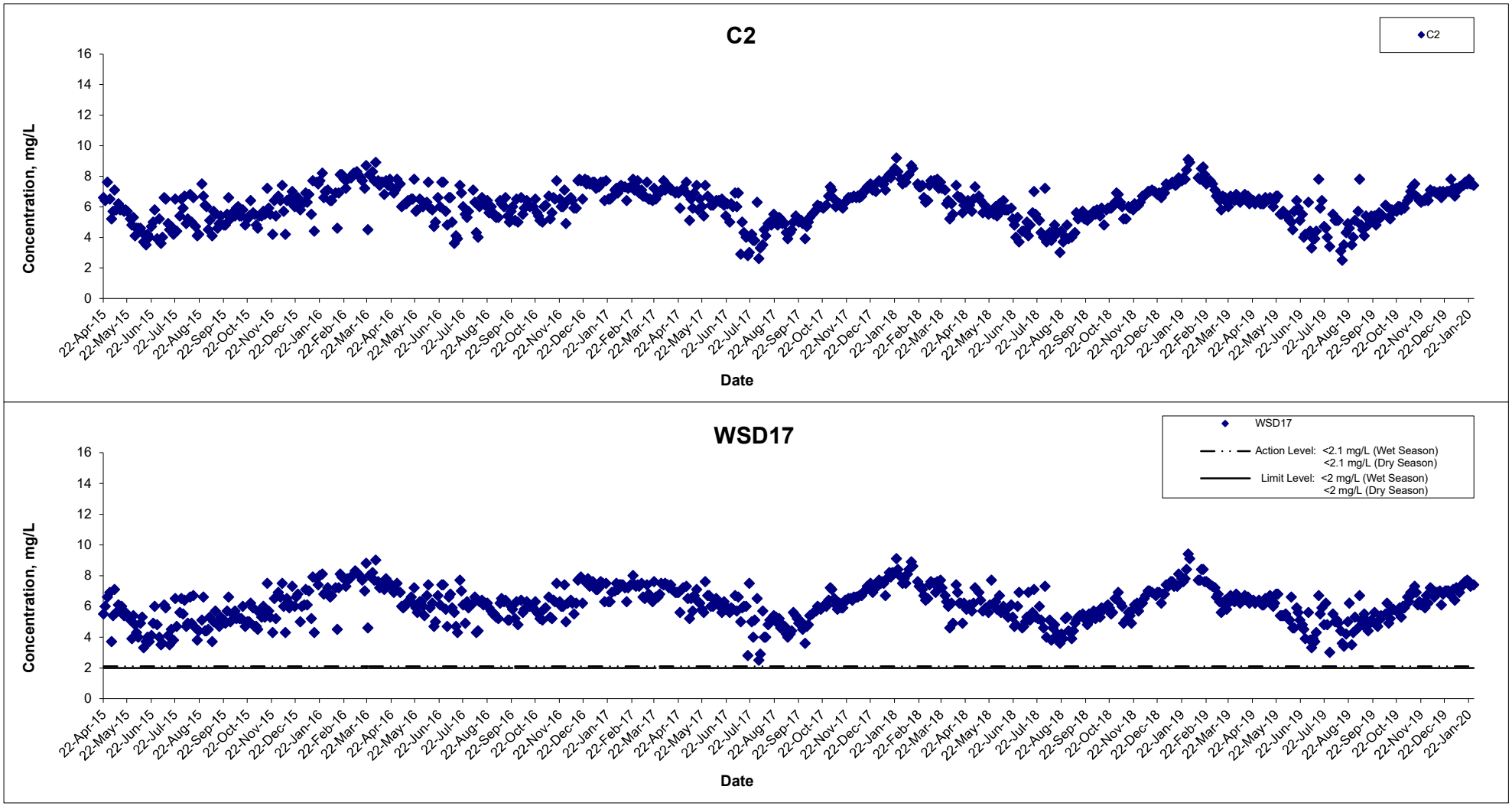

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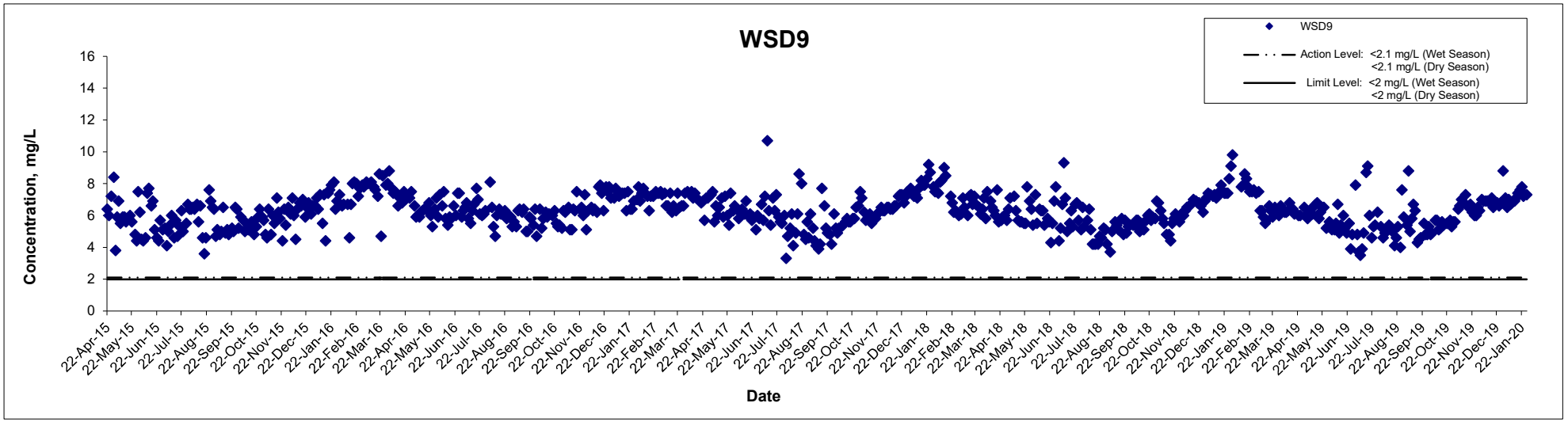
Dissolved Oxygen (Middle) at Mid-Flood Tide



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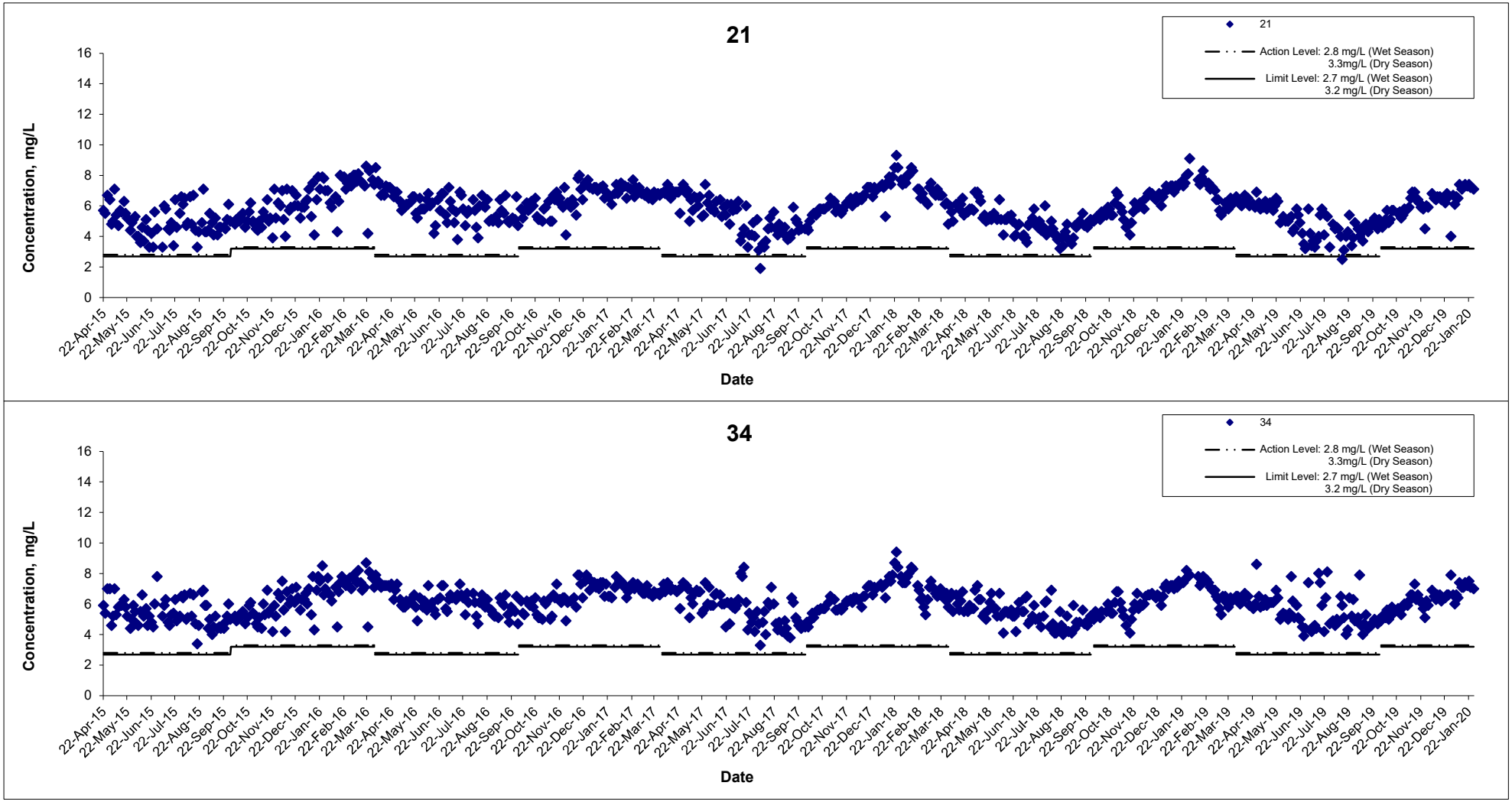
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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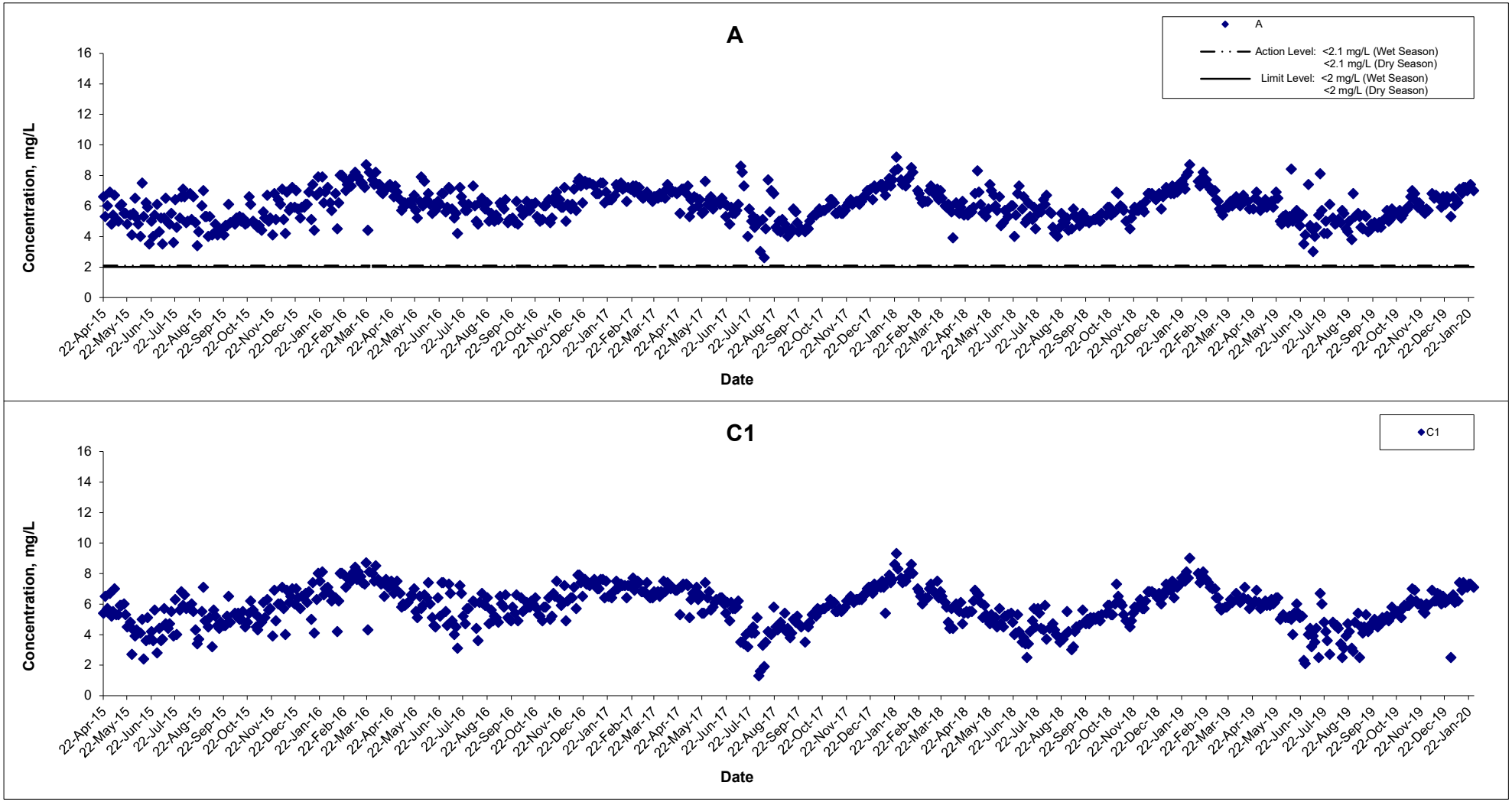
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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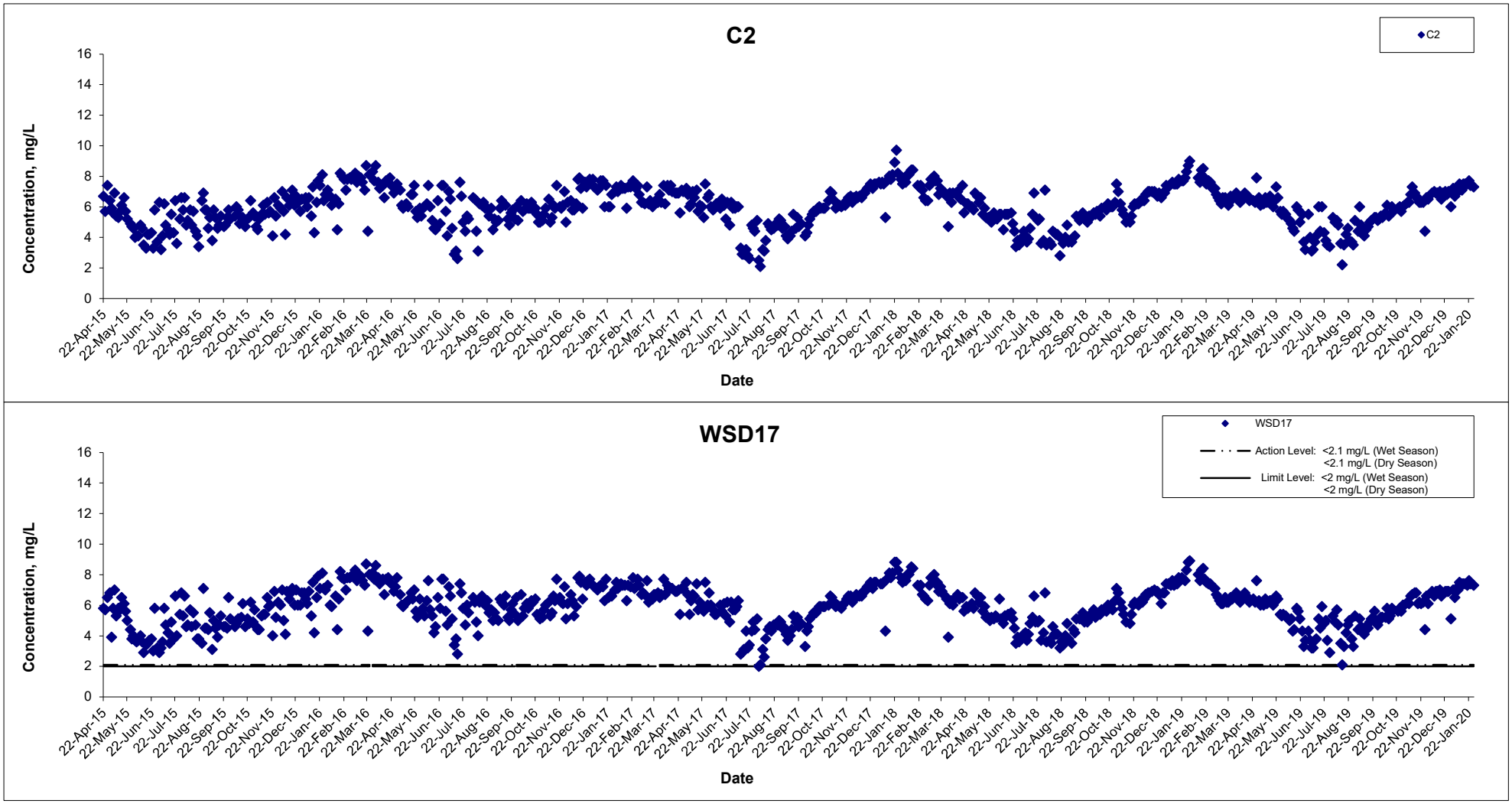
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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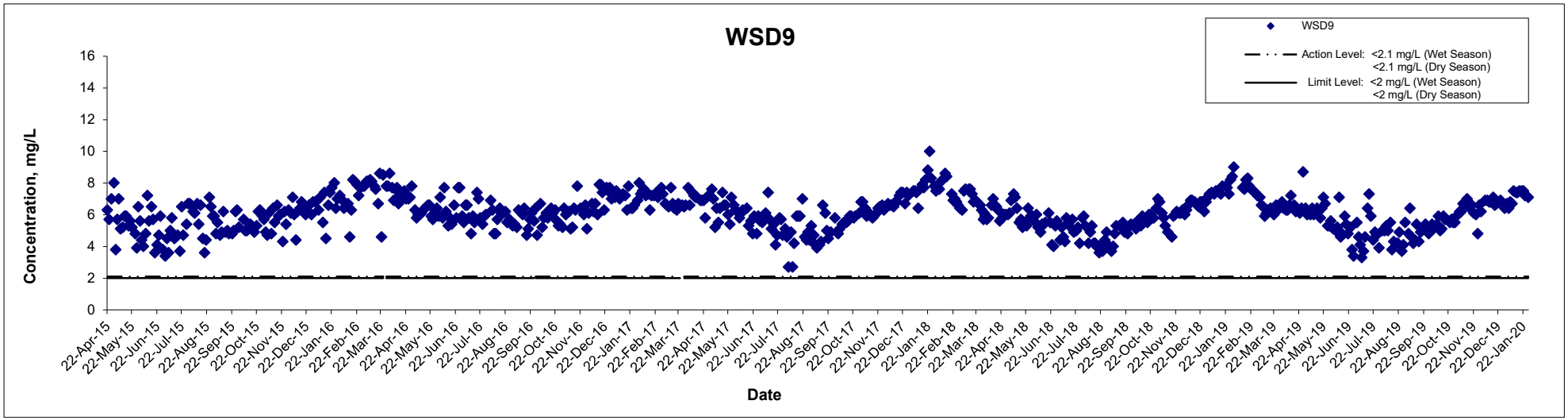
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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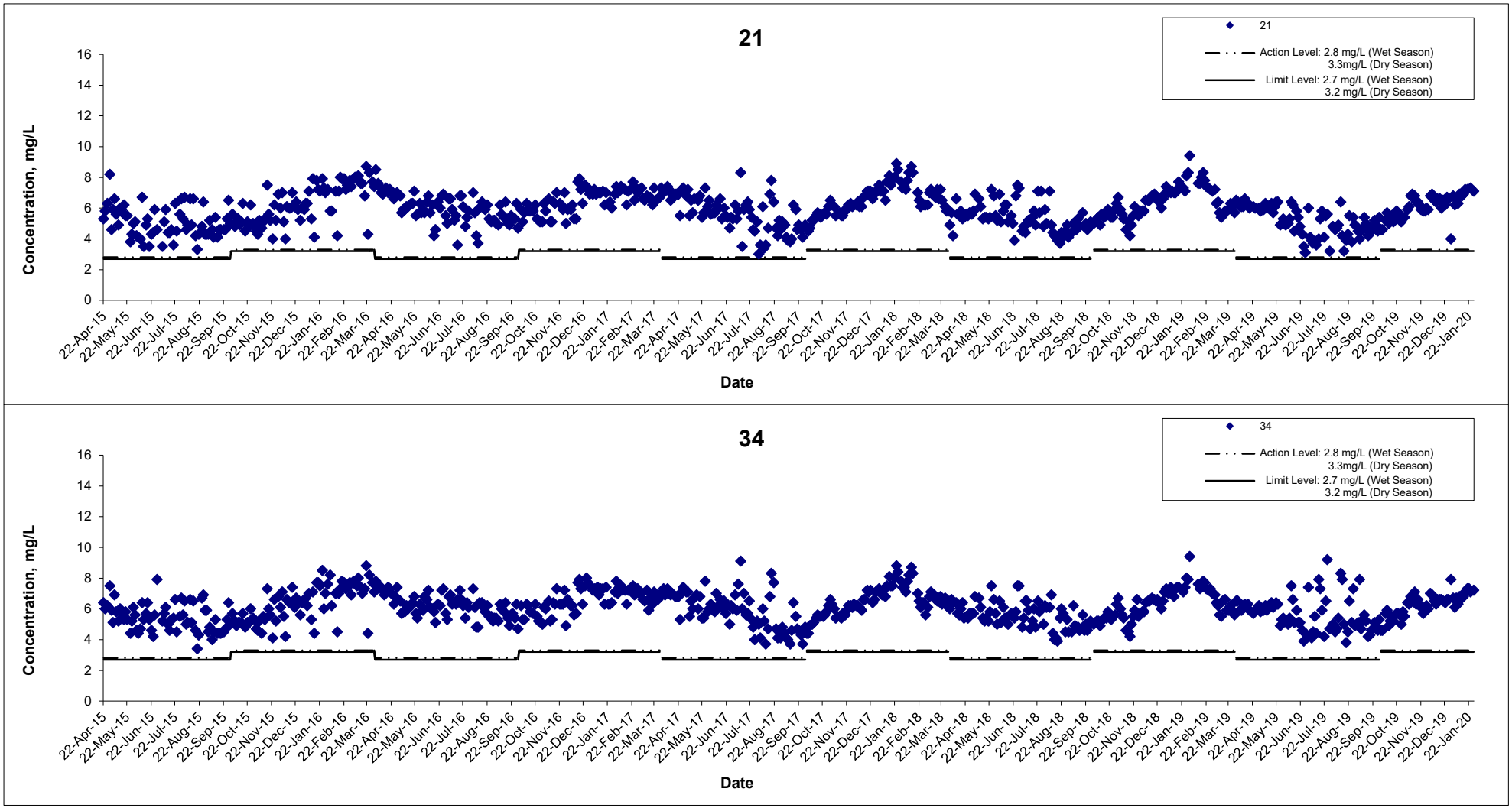
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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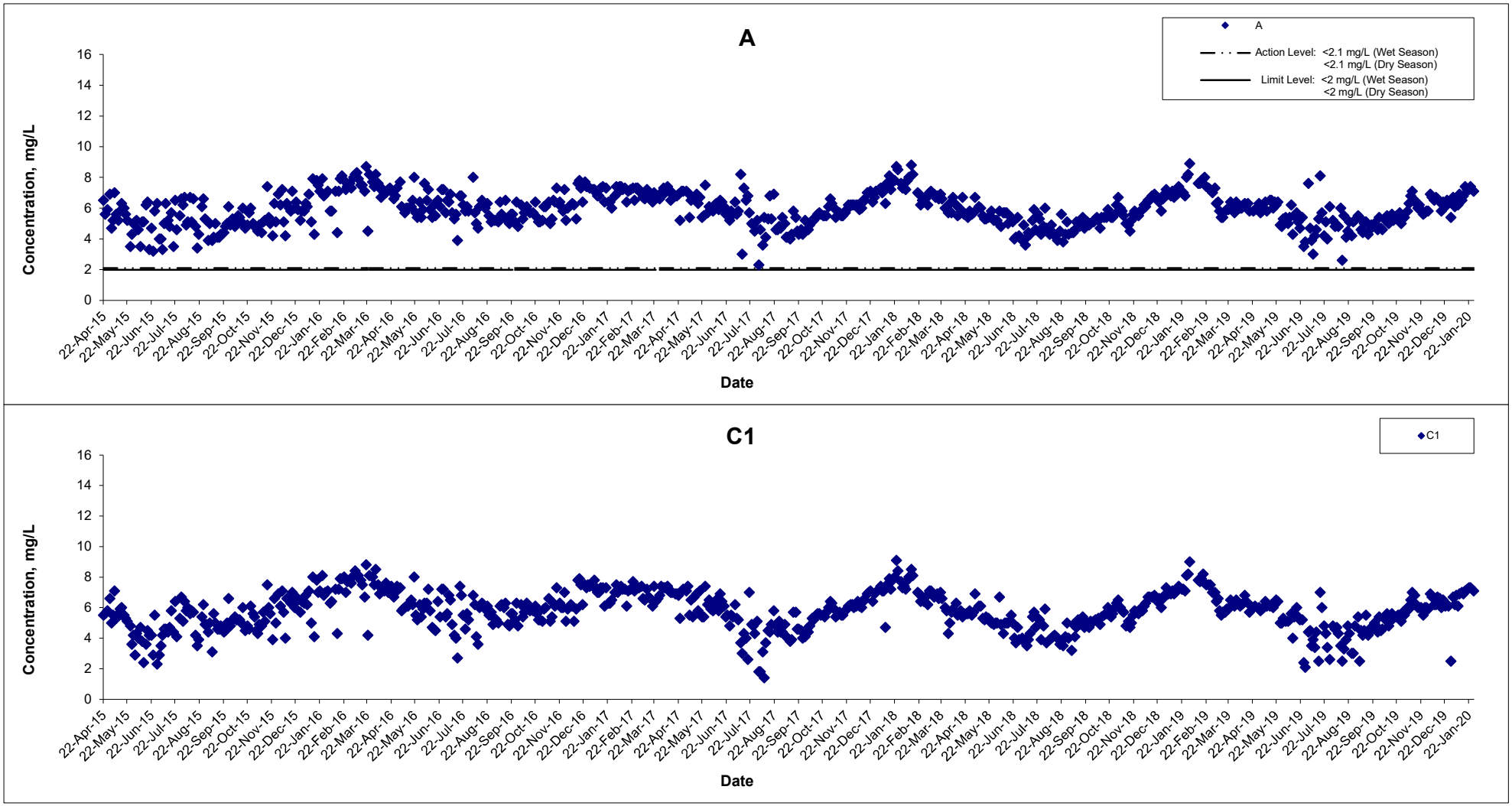
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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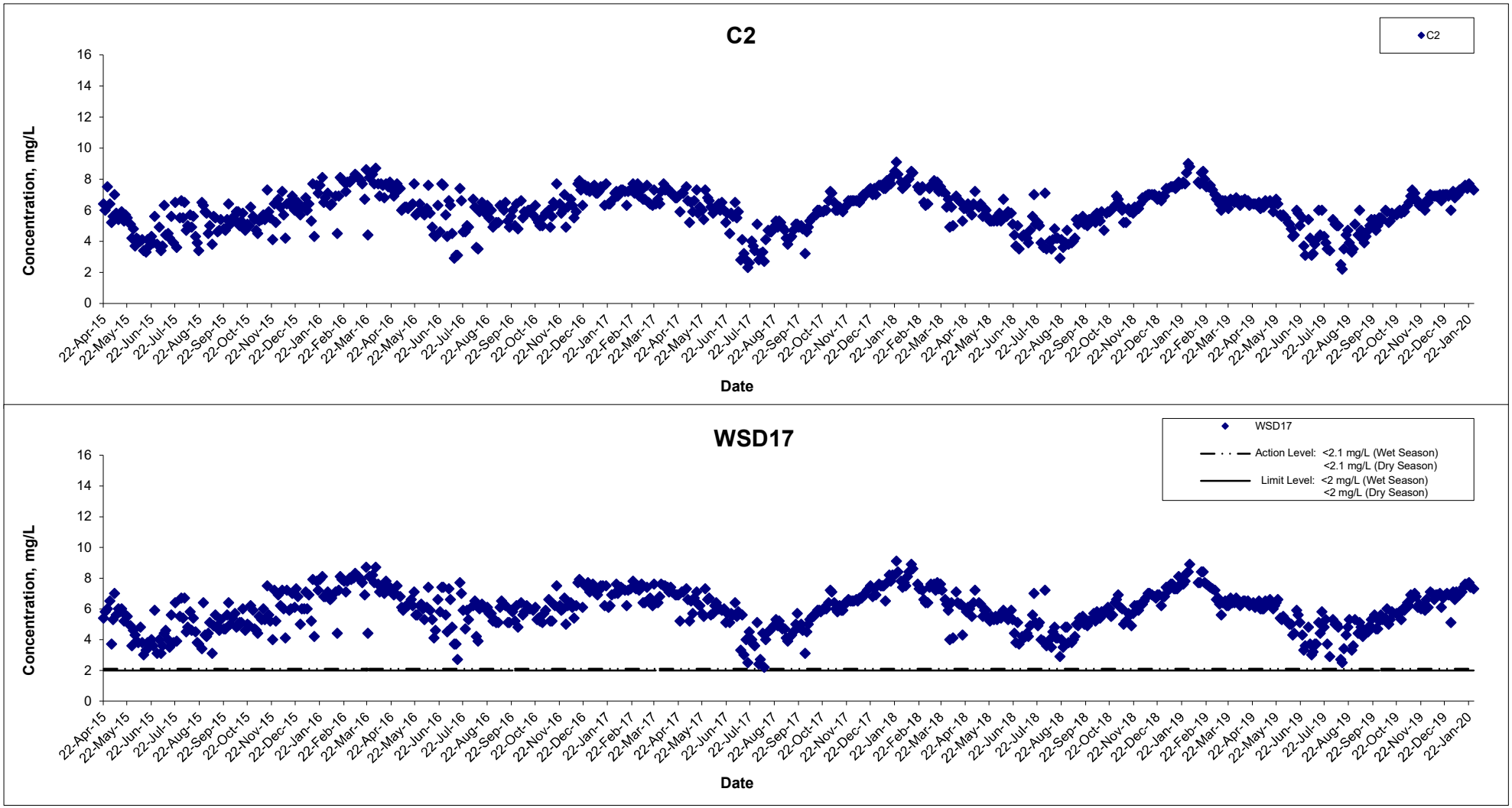
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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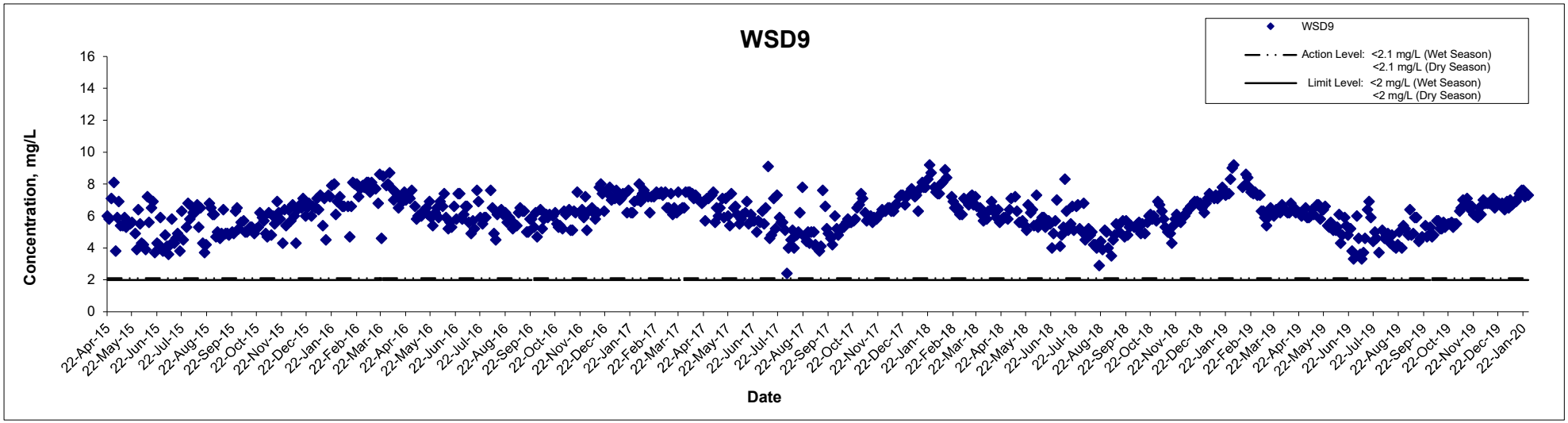
Dissolved Oxygen (Bottom) at Mid-Flood Tide



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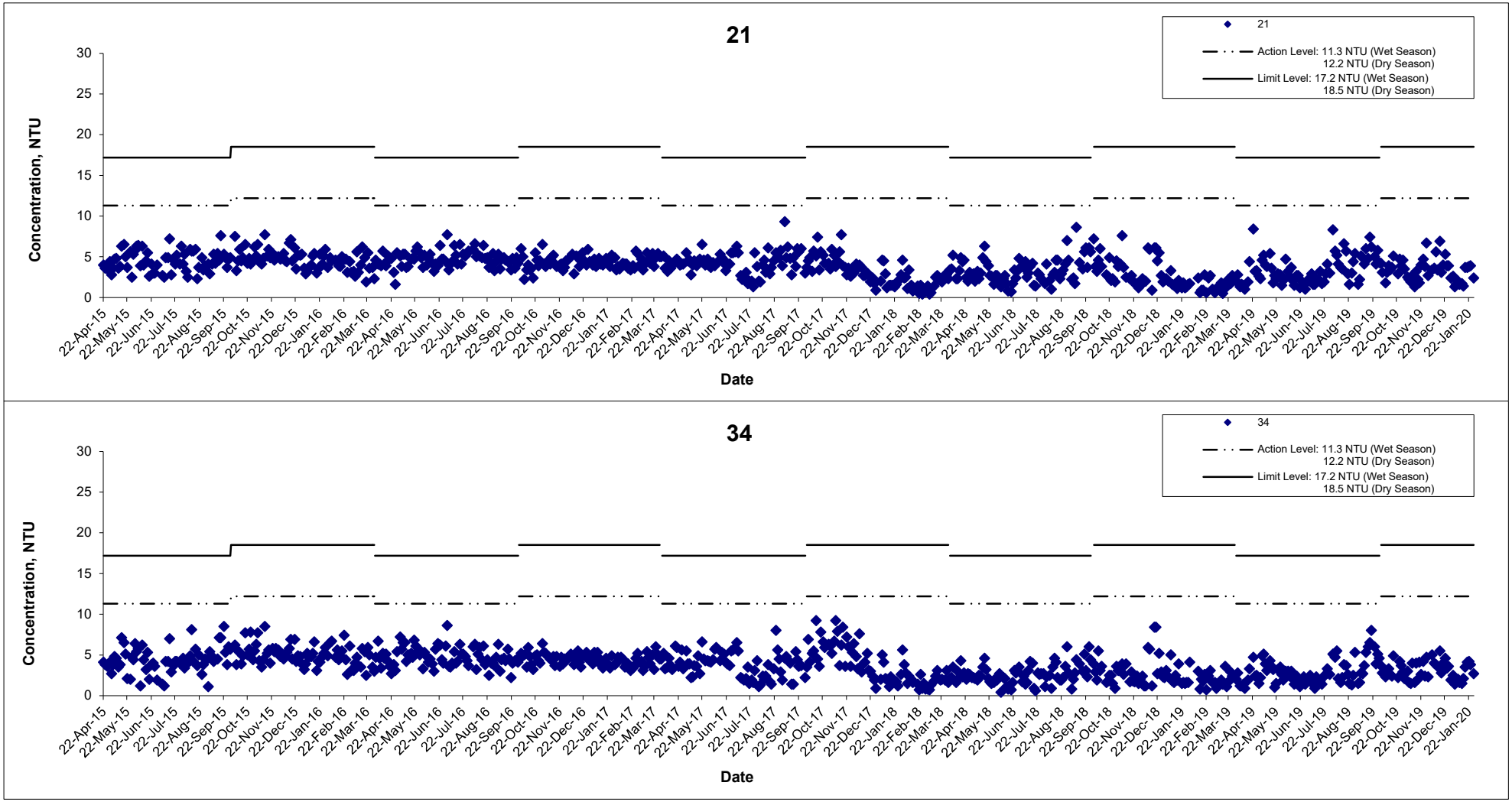
Turbidity (Depth-averaged) at Mid-Ebb Tide



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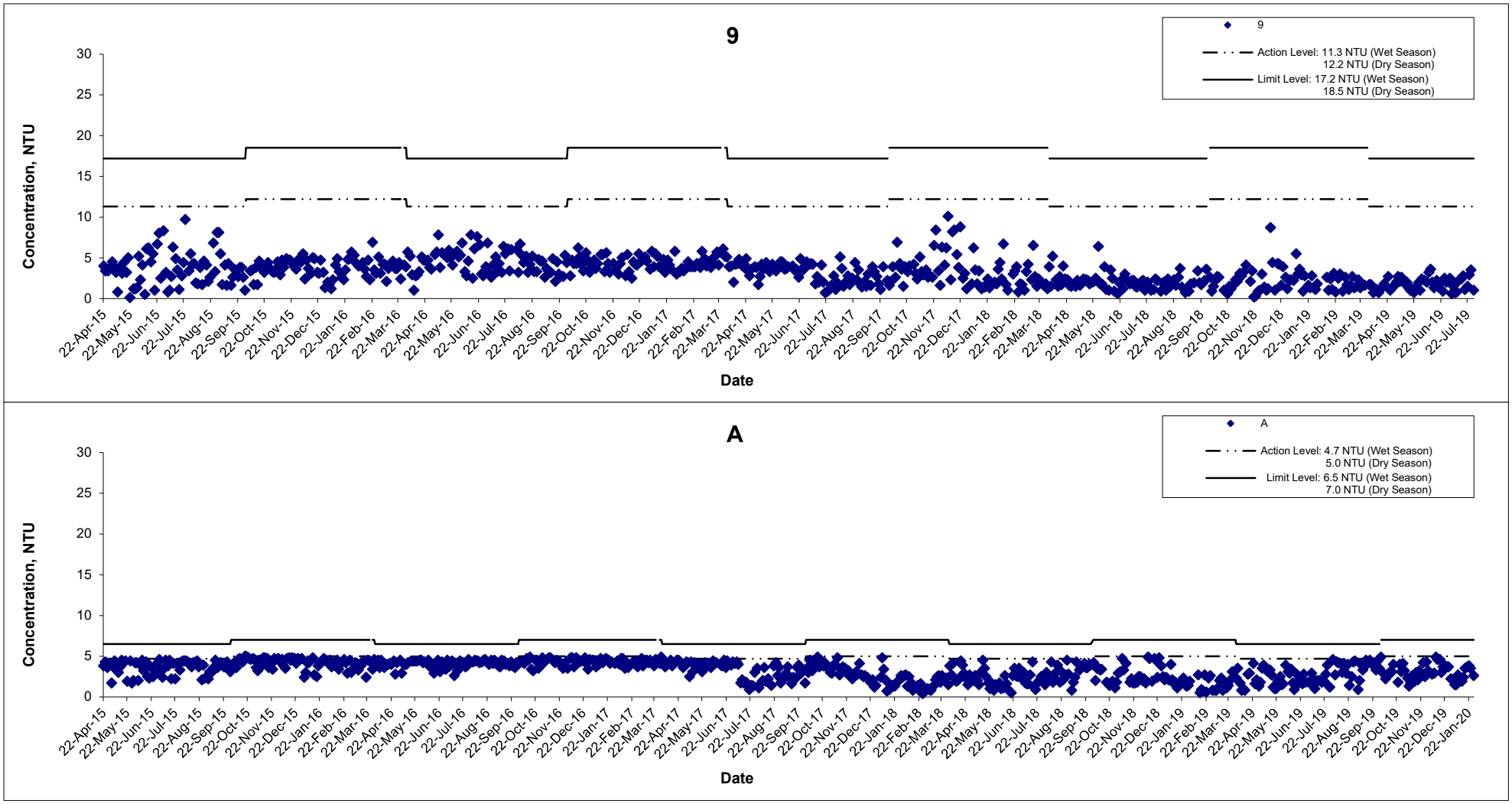
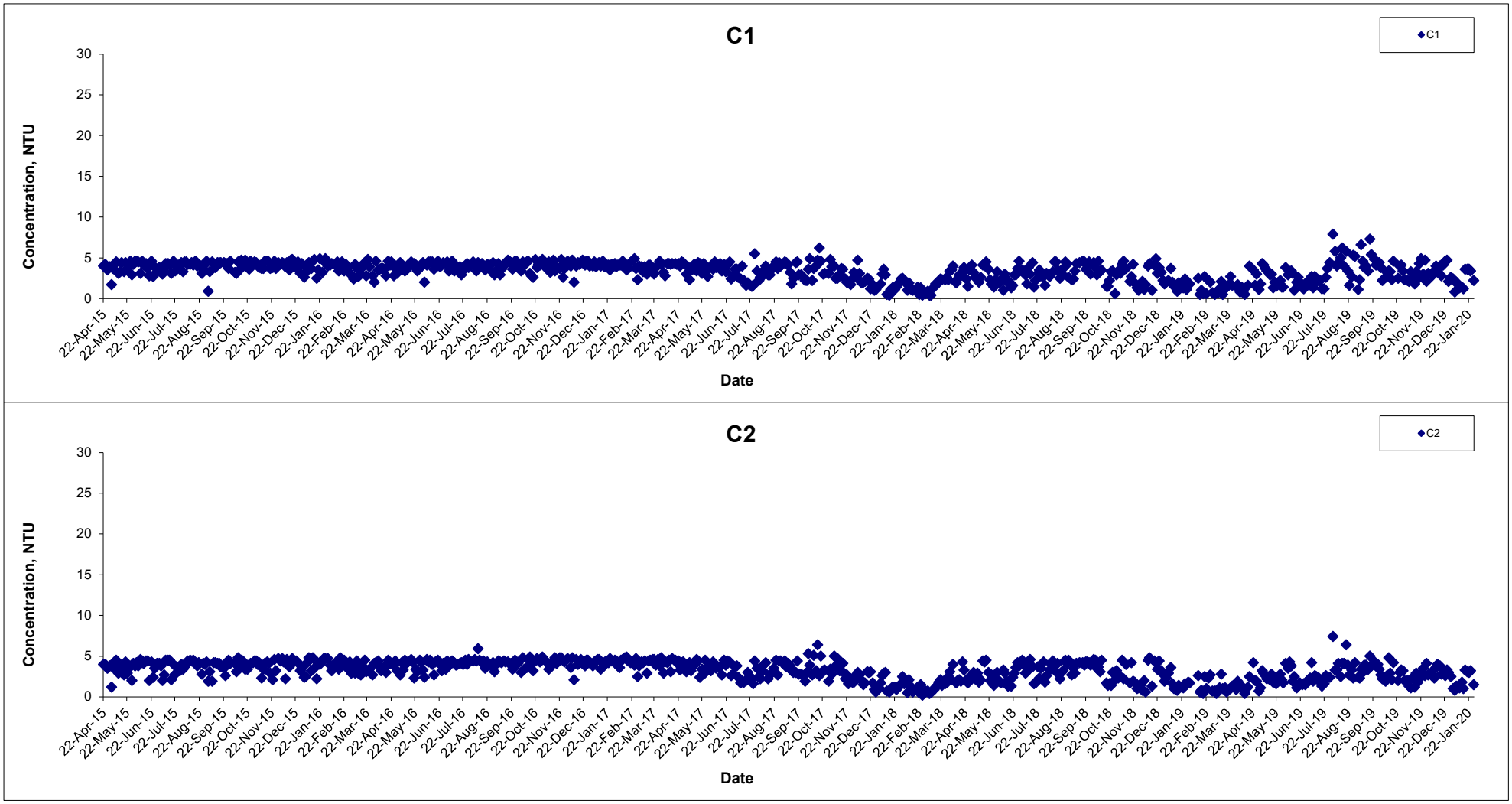
Turbidity (Depth-averaged) at Mid-Ebb Tide



Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S Date Jan 20	Project No. MA14047 Appendix C	WELLAB 匯力 consulting . testing . research

Turbidity (Depth-averaged) at Mid-Ebb Tide



Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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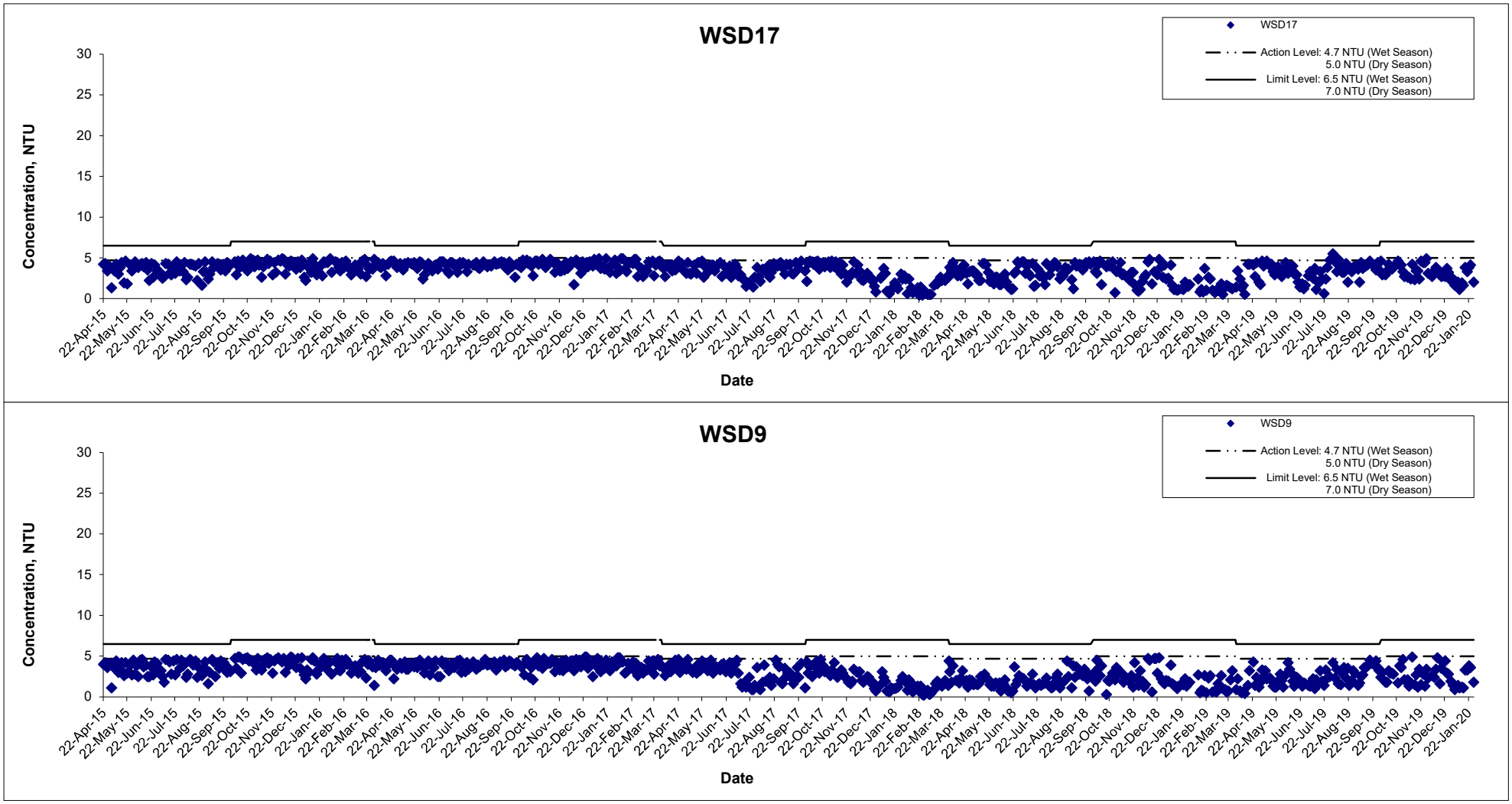
Turbidity (Depth-averaged) at Mid-Ebb Tide



Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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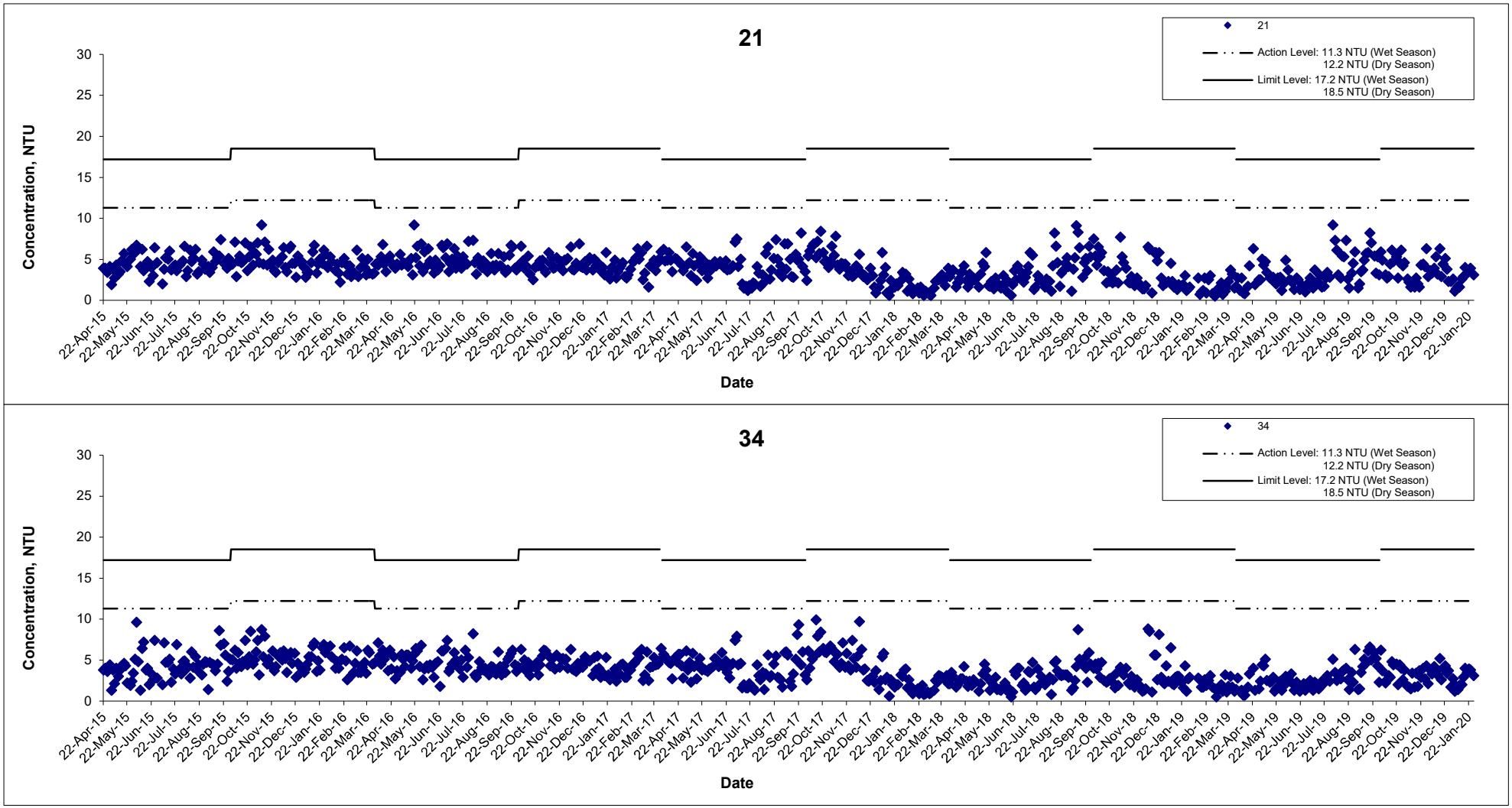
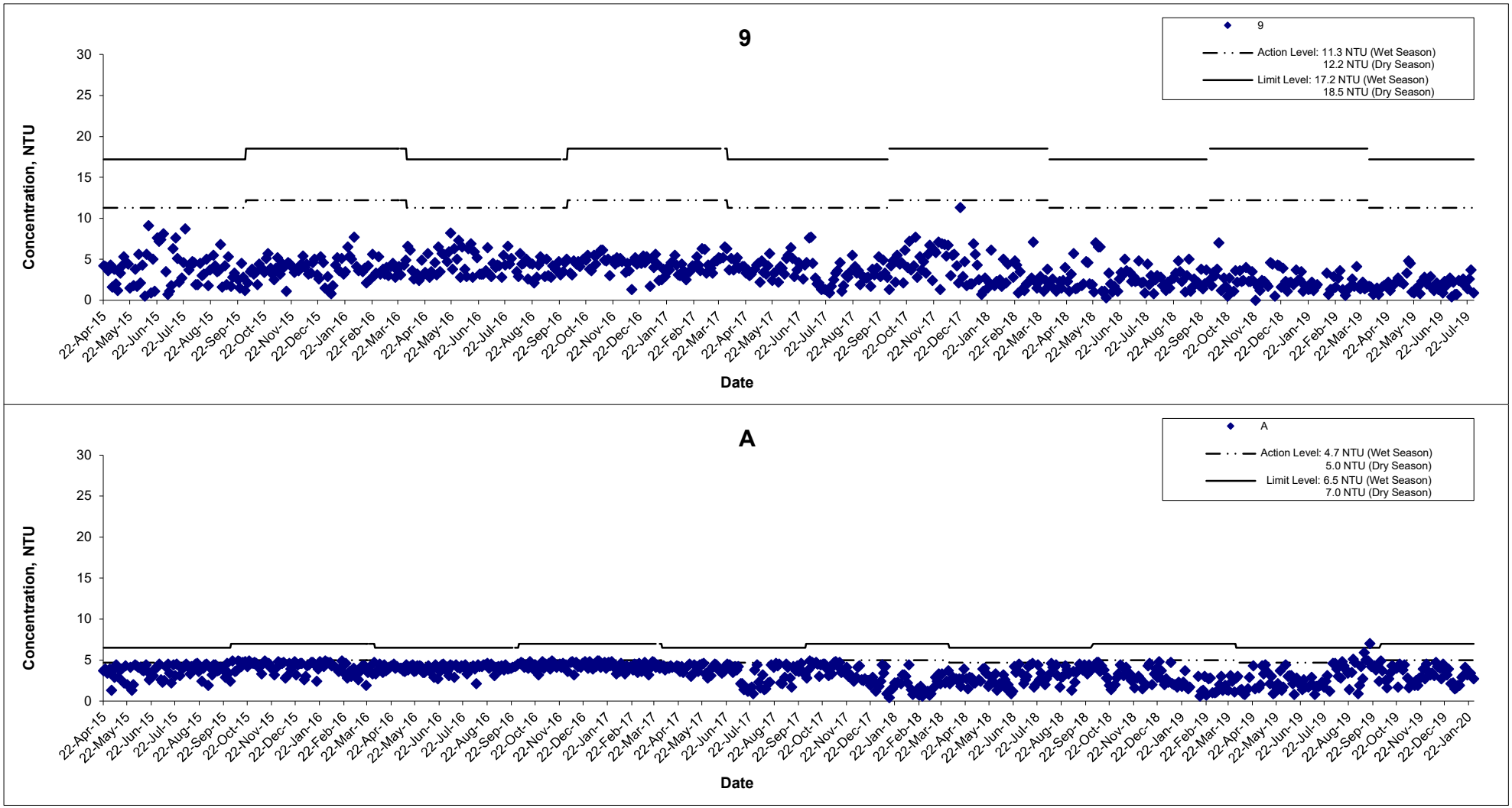
Turbidity (Depth-averaged) at Mid-Flood Tide



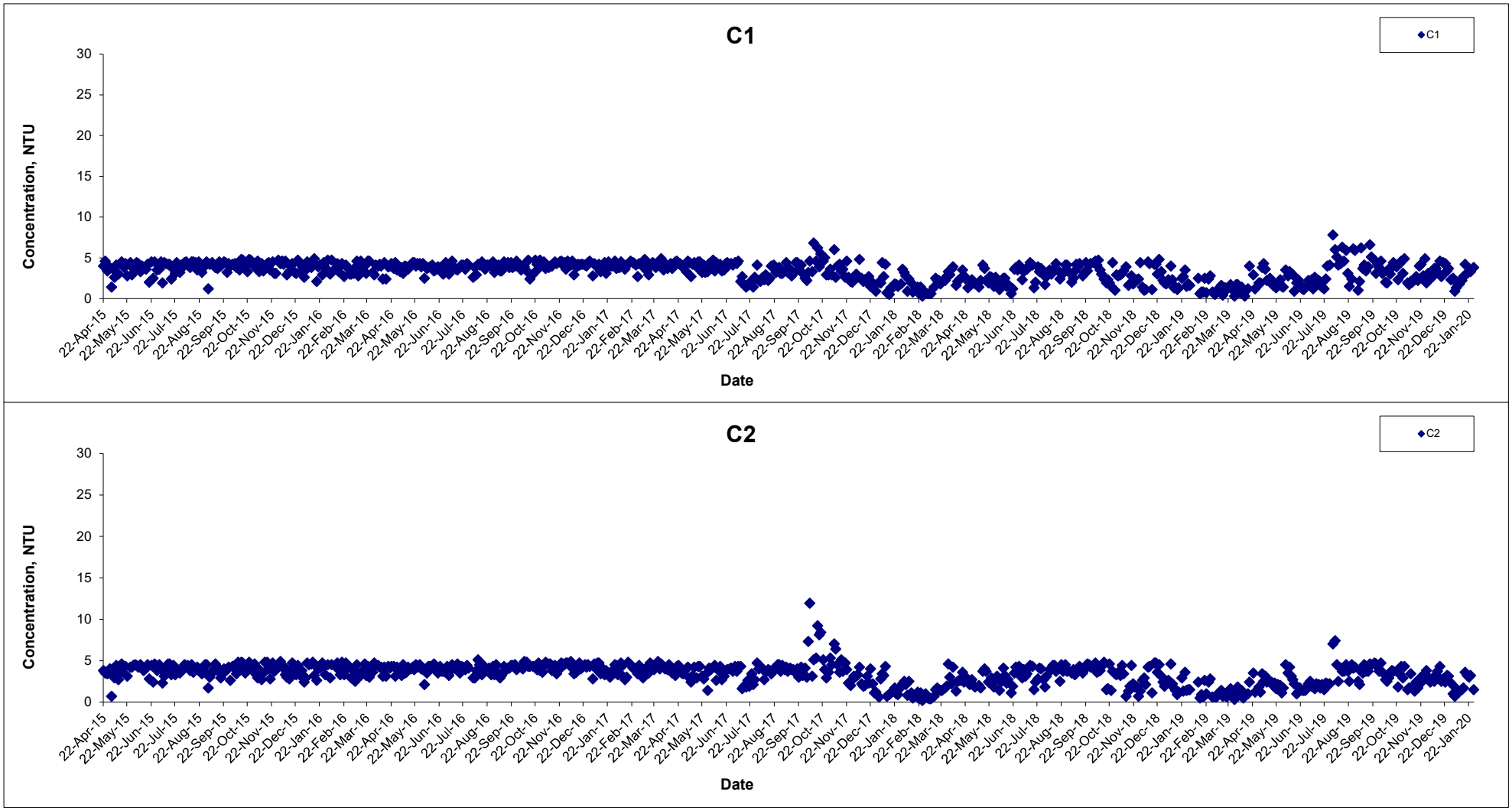
Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

Turbidity (Depth-averaged) at Mid-Flood Tide



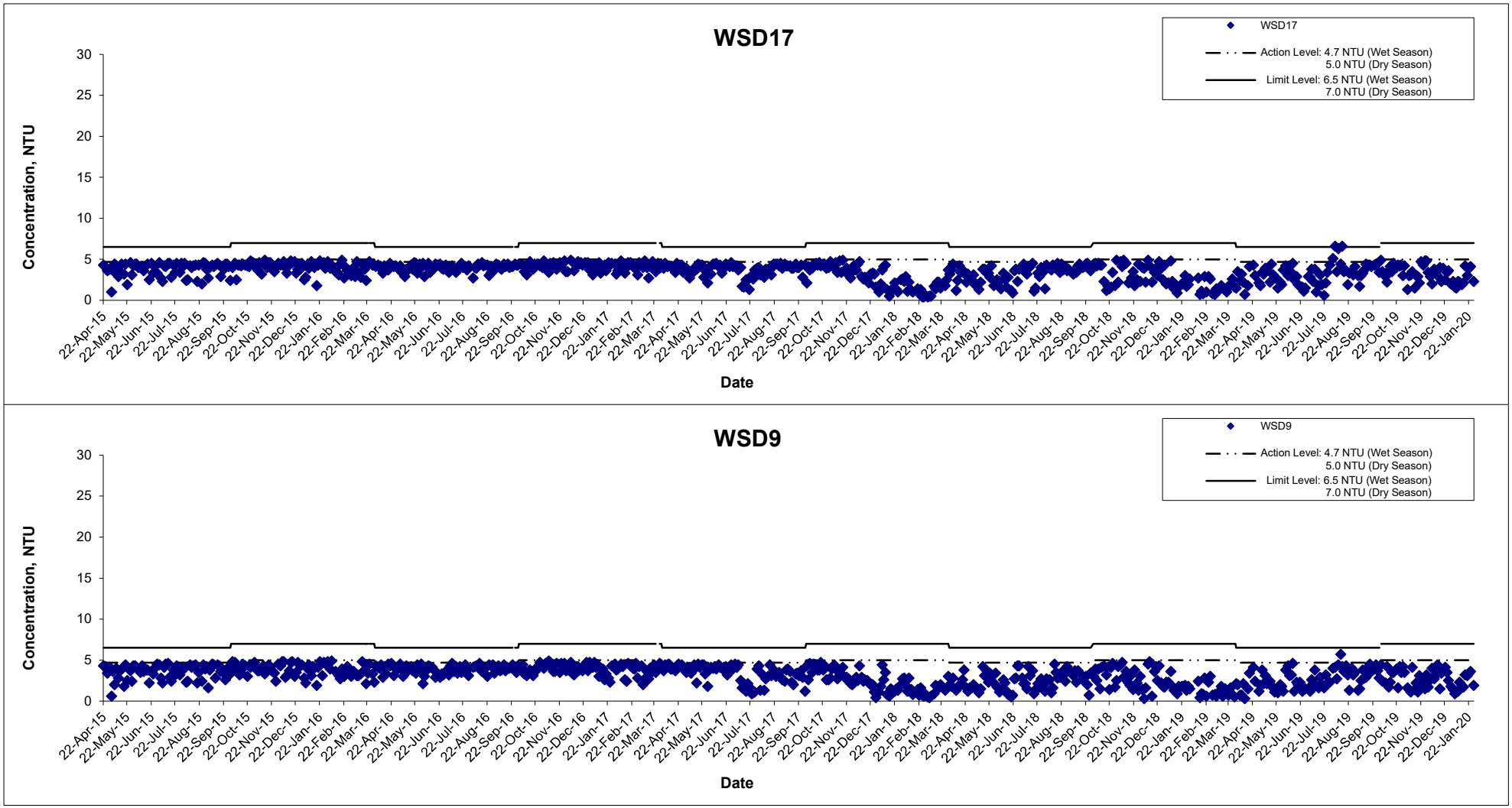
Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

Turbidity (Depth-averaged) at Mid-Flood Tide



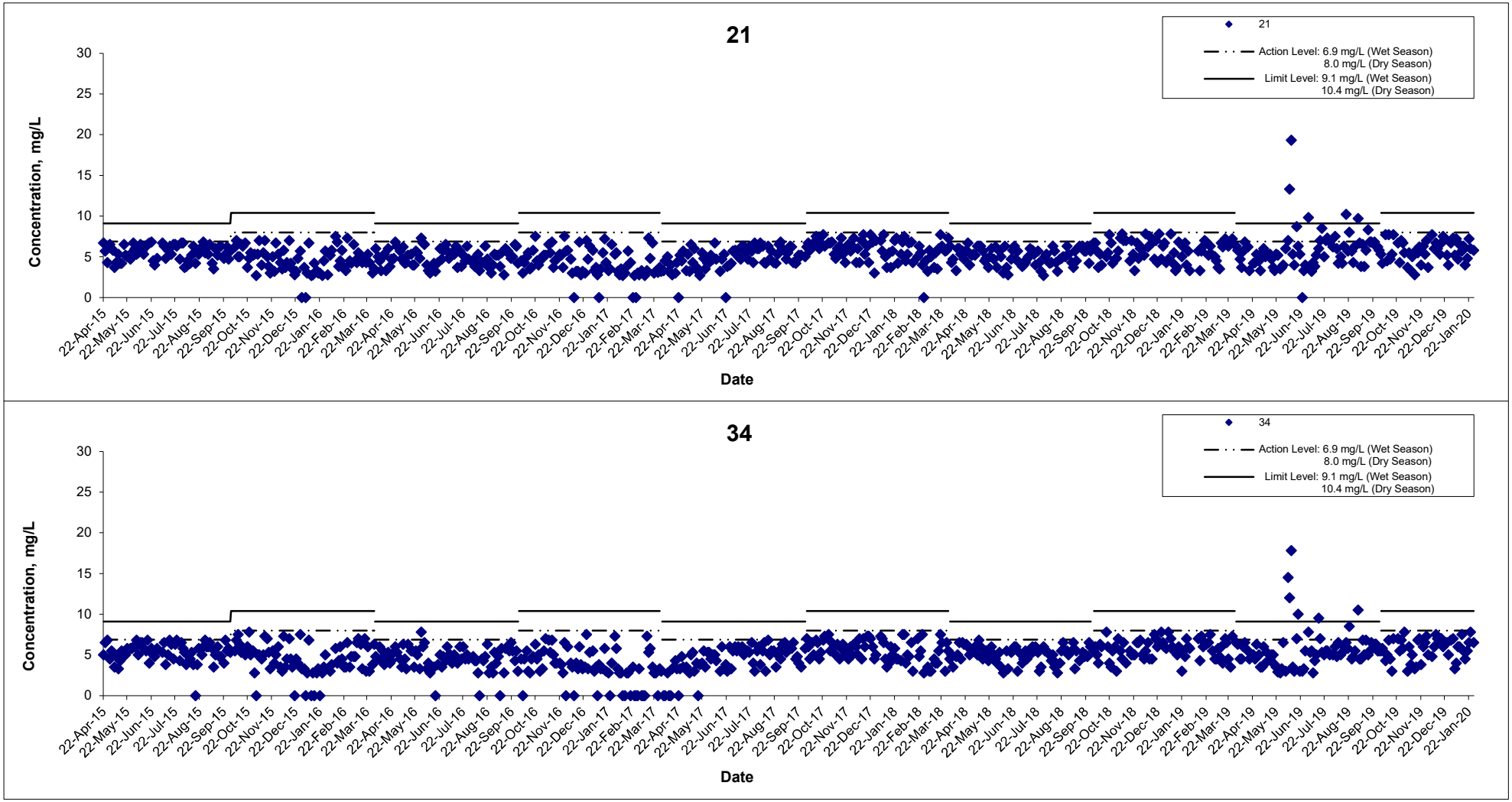
Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

Turbidity (Depth-averaged) at Mid-Flood Tide



Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

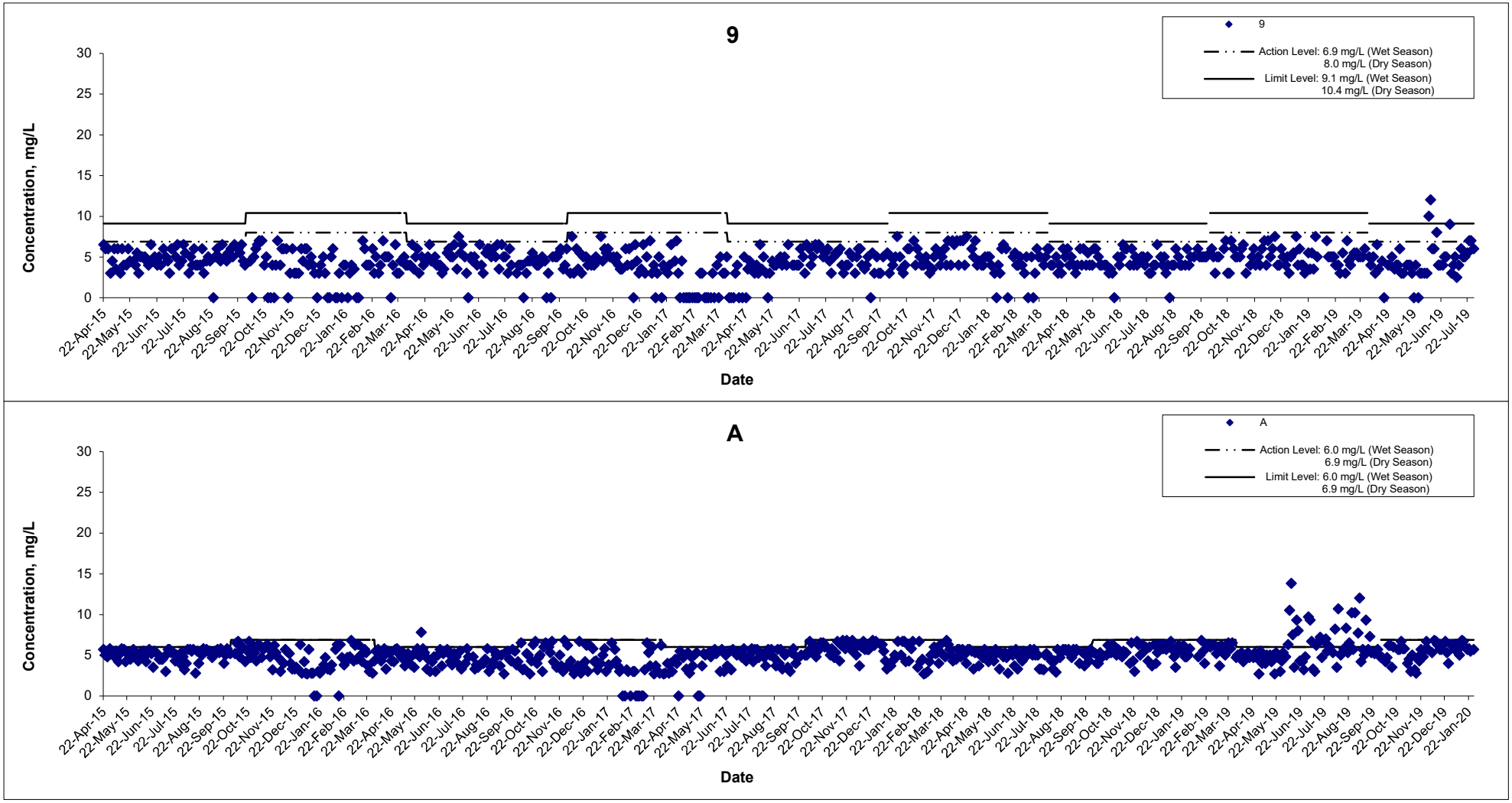
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

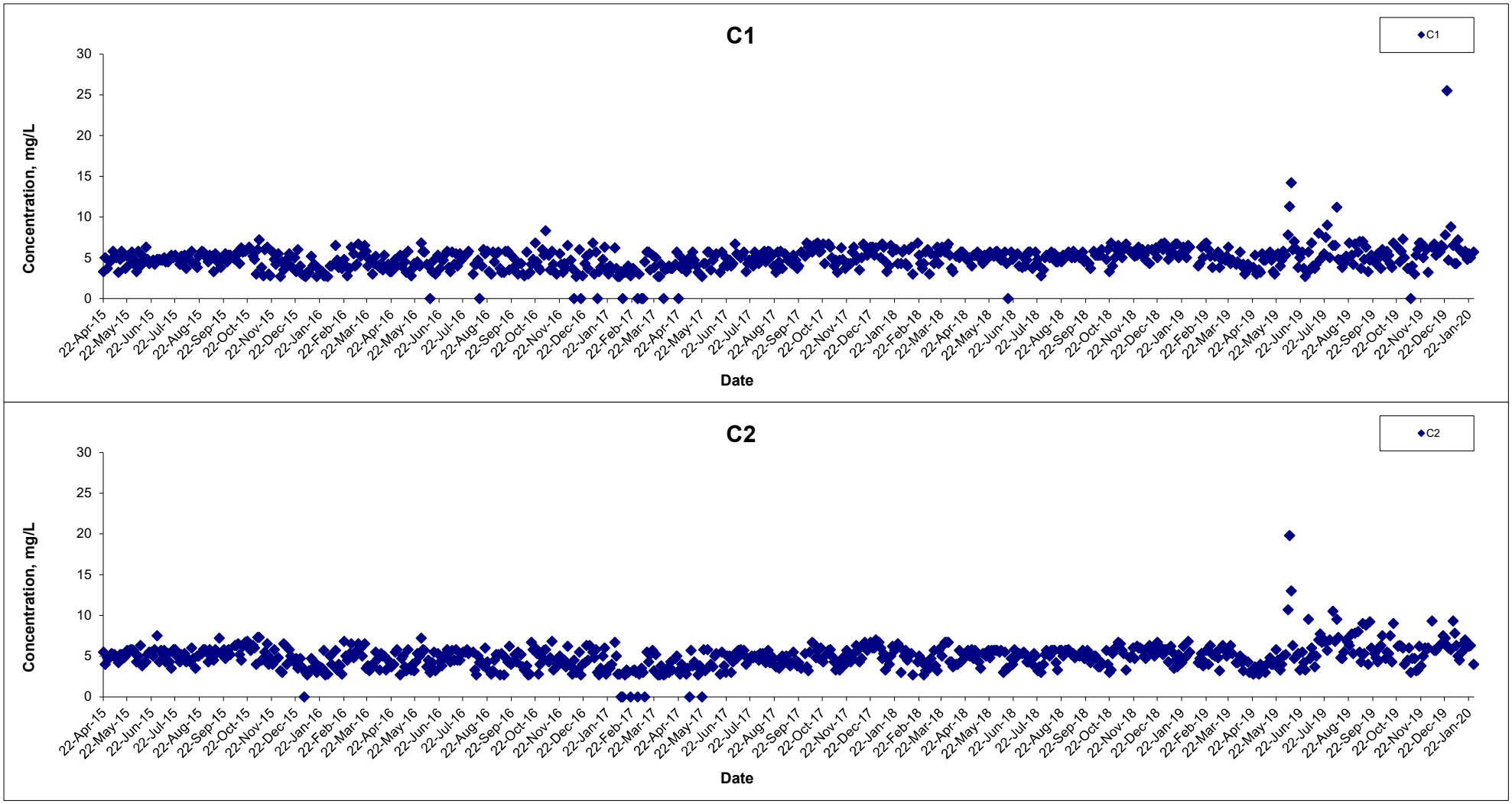
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

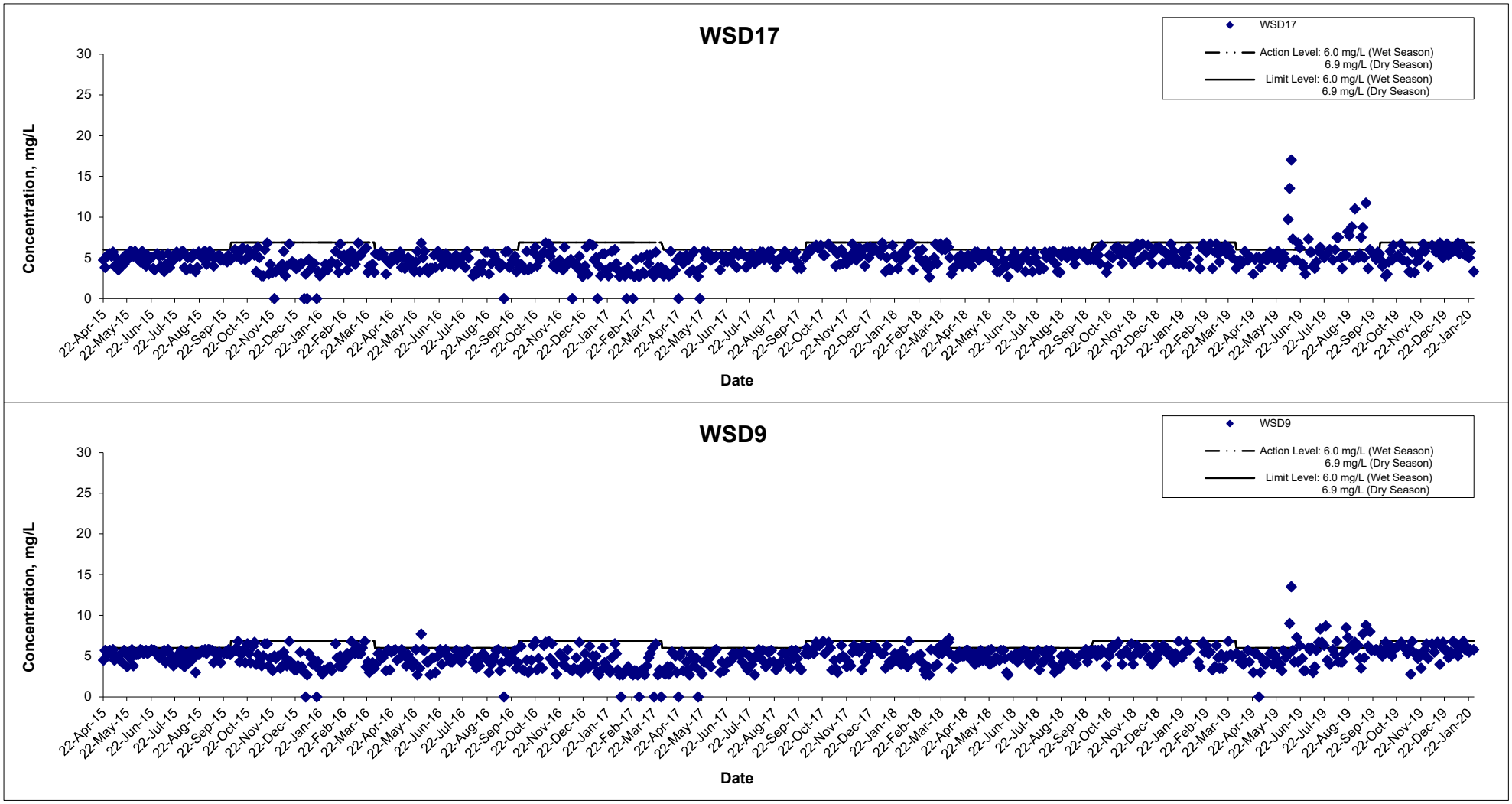
Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

Suspended Solids (Depth-averaged) at Mid-Ebb Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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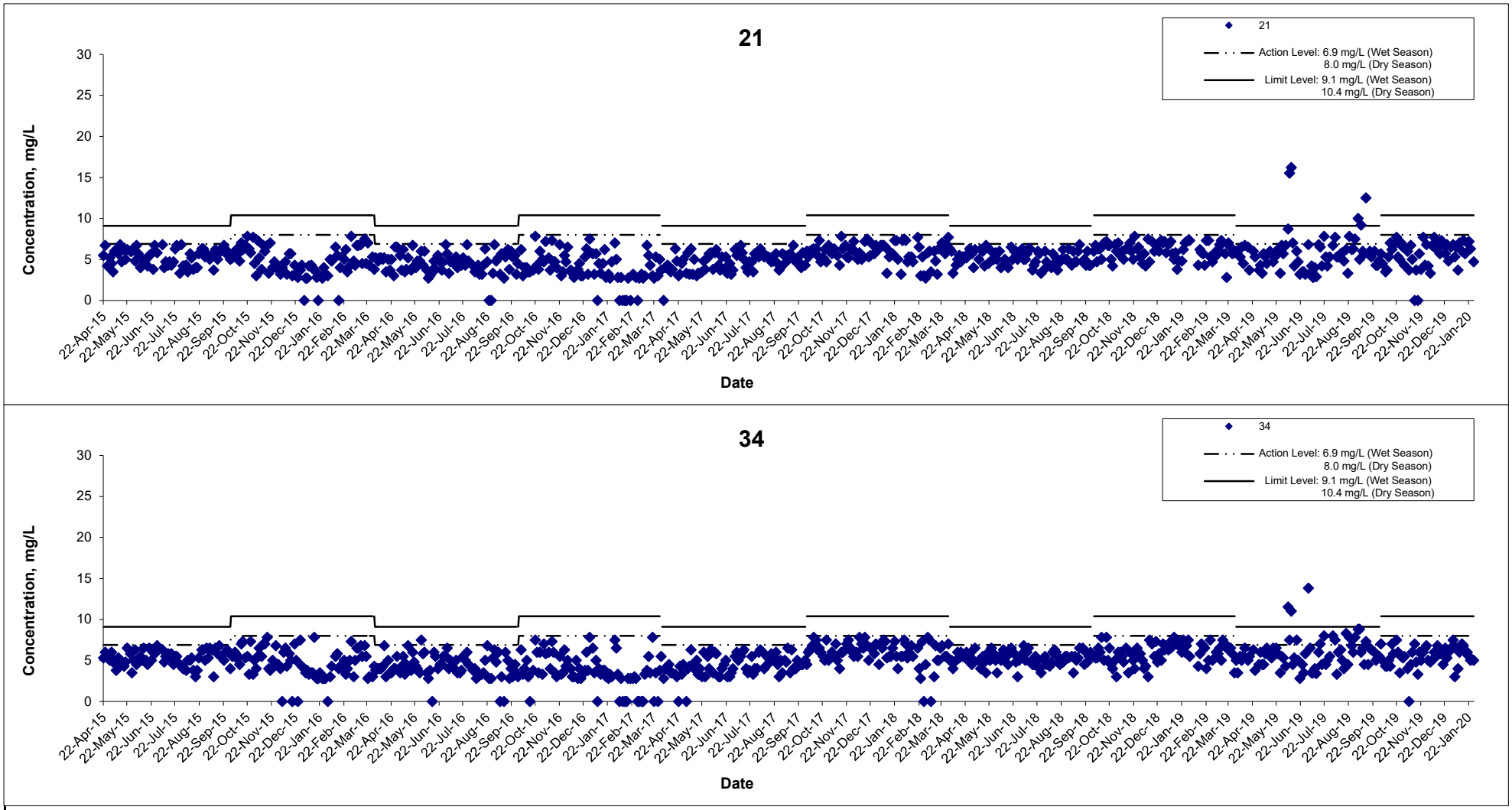
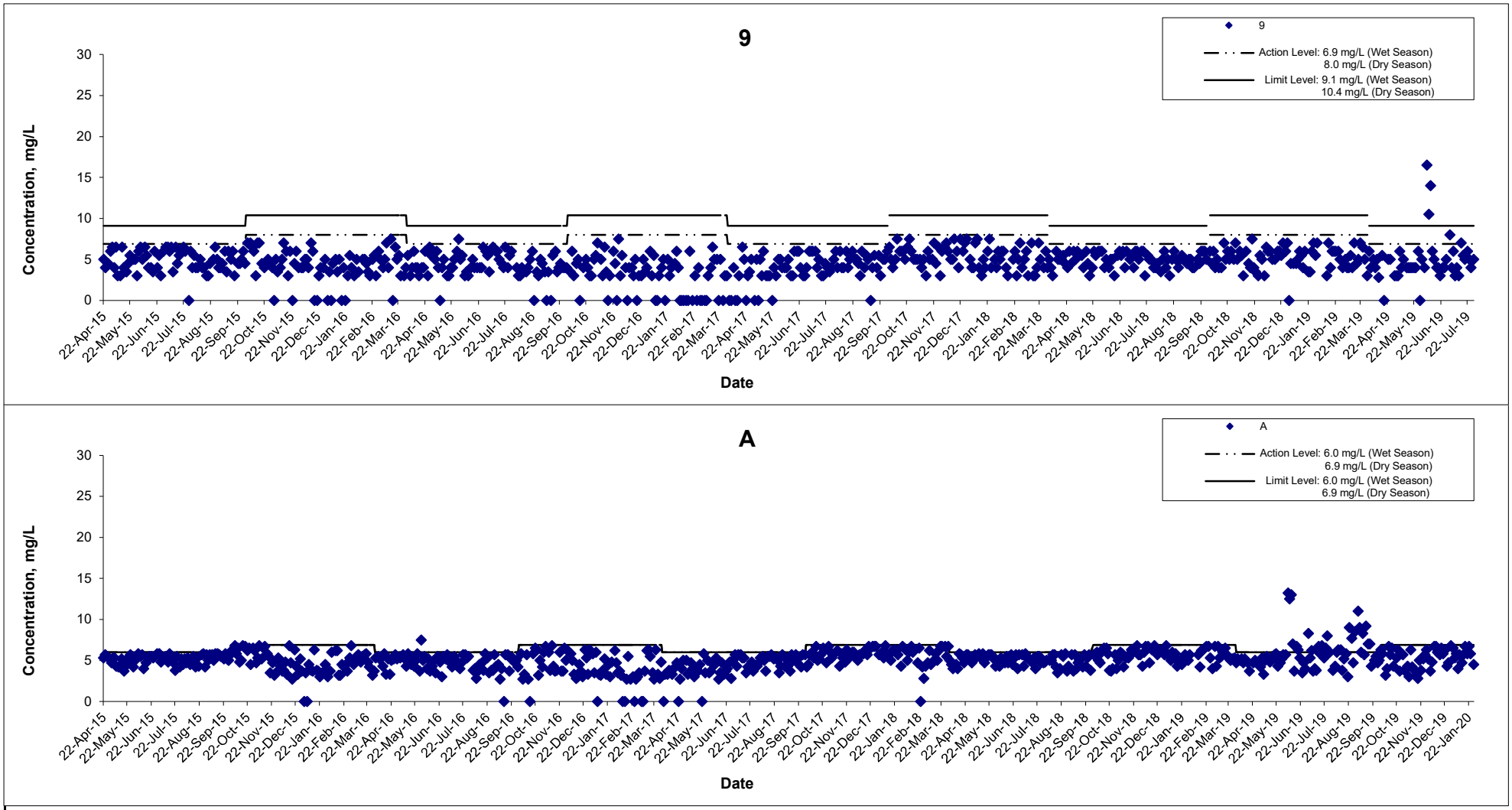
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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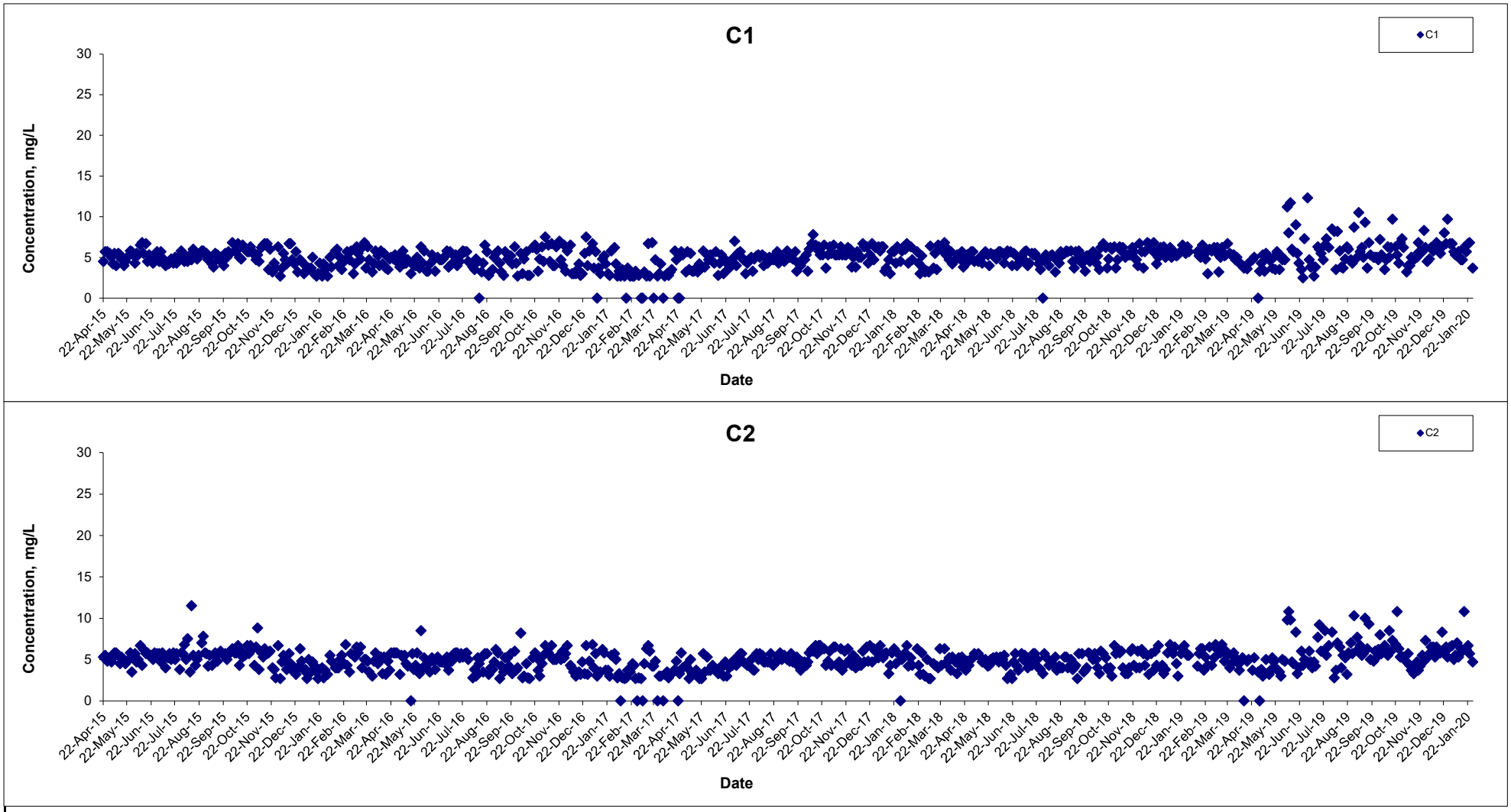
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
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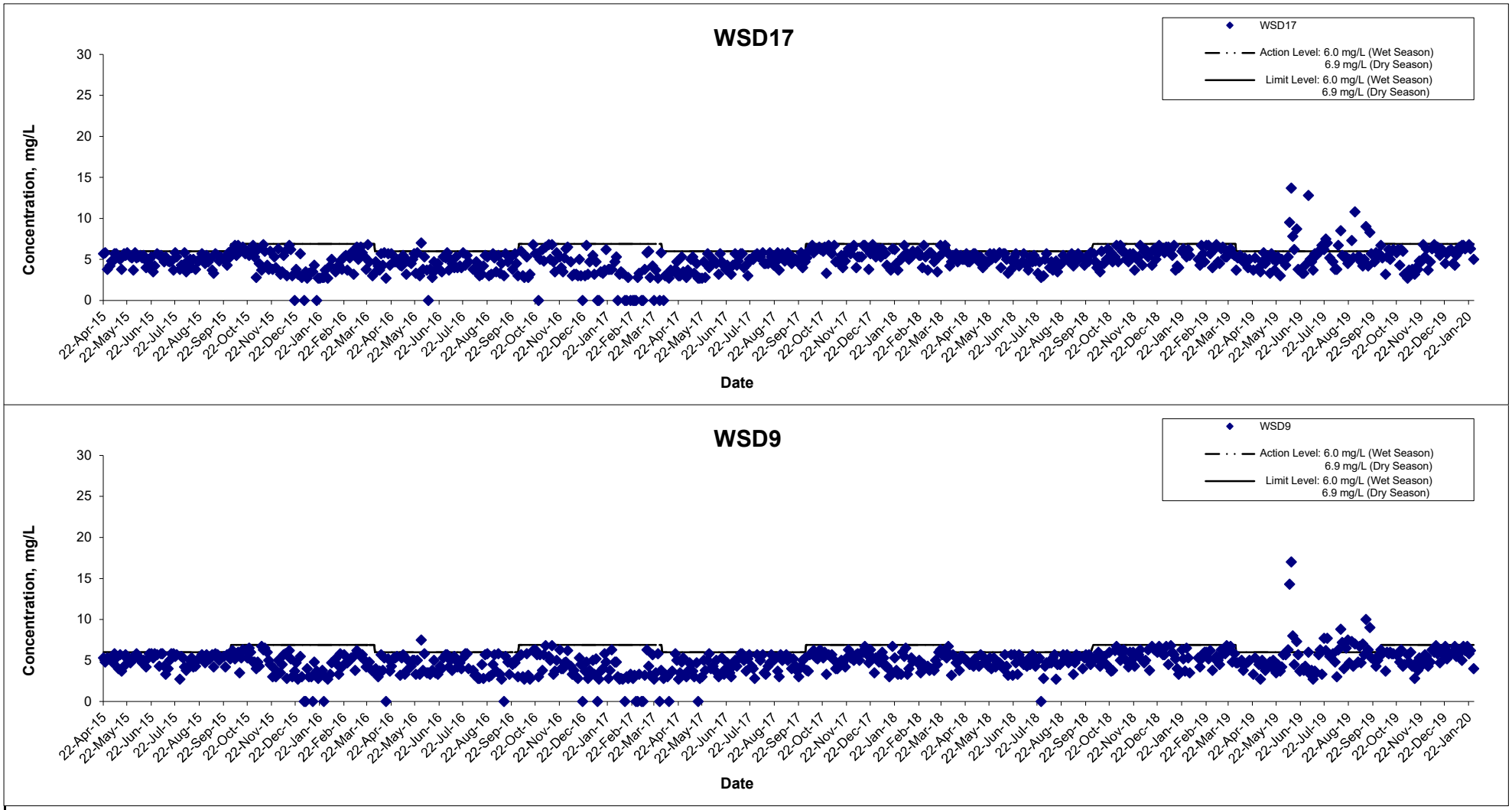
Suspended Solids (Depth-averaged) at Mid-Flood Tide



Remarks: The graphical point at zero concentration is presented as <2.5 mg/L

Shatin to Central Link – Contract 1121 Advance Works for NSL Cross Harbour Tunnels Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA14047	WELLAB 匯力 consulting . testing . research
	Date Jan 20	Appendix C	

APPENDIX D
METEOROLOGICAL DATA DURING MONITORING PERIOD

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
April 2015	23.6	77.0	64.5	020	18.2
May 2015	27.5	85.0	513.0	210	20.1
June 2015	29.7	80.0	302.1	220	20.3
July 2015	29.1	79.0	406.2	210	20.4
August 2015	29.3	78.0	143.3	220	12.8
September 2015	28.4	78.0	87.9	060	20.0
October 2015	26.0	77.0	168.3	080	23.0
November 2015	24.0	79.0	22.8	080	27.7
December 2015	18.6	76.0	64.3	020	26.2
January 2016	16.0	83.0	266.9	060	29.4
February 2016	15.5	74.0	24.8	020	21.3

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
March 2016	17.5	84.0	148.7	050	22.8
April 2016	23.6	89.0	211.4	040	17.1
May 2016	26.7	83.0	233.6	070	20.2
June 2016	29.4	82.0	347.4	220	18.0
July 2016	29.8	79.0	175.9	230	19.2
August 2016	28.4	84.0	532.7	060	17.1
September 2016	27.9	79.0	323.1	080	18.9
October 2016	26.8	80.0	624.4	070	26.3
November 2016	22.3	79.0	131.3	070	27.0
December 2016	19.6	70.0	6.6	070	26.7
January 2017	18.5	66.0	7.8	070	26.4

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
February 2017	17.0	65.0	19.9	060	26.7
March 2017	19.3	80.0	48.0	060	26.5
April 2017	23.3	69.0	58.8	070	20.1
May 2017	26.0	77.0	399.3	080	18.6
June 2017	28.8	78.0	656.0	240	23.0
July 2017	28.7	79.0	570.7	090	22.1
August 2017	29.3	70.0	489.1	230	20.7
September 2017	29.0	65.0	192.4	080	17.5
October 2017	26.3	57.0	99.6	070	32.8
November 2017	22.2	74.0	31.2	060	28.8
December 2017	17.8	54.0	Trace	070	29.6

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
January 2018	16.1	77.0	62.2	060	29.6
February 2018	16.8	70.0	4.5	050	23.7
March 2018	19.1	82.0	22.7	060	20.8
April 2018	22.6	83.0	28.1	070	16.1
May 2018	25.9	77.0	57.5	220	20.2
June 2018	28.6	80.0	458.8	230	24.8
July 2018	28.8	81.0	341.1	090	24.2
August 2018	28.6	81.0	6151.0	230	20.0
September 2018	28.0	78.0	383.3	090	19.5
October 2018	25.3	69.0	104.3	080	24.2
November 2018	22.9	78.0	73.4	070	29.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
December 2018	19.2	76.0	11.9	360	25.9
January 2019	18.1	76.0	4.7	060	22.8
February 2019	20.1	85.0	68.7	060	23.4
March 2019	21.0	84.0	186.5	060	24.5
April 2019	24.7	84.0	185.8	070	21.9
May 2019	25.3	86.0	234.6	070	26.1
June 2019	29.0	83.0	429.1	220	20.4
July 2019	29.5	81.0	328.5	230	24.2
August 2019	29	82.0	59.64	240	23.1
September 2019	28.7	73.0	198.9	080	20.1
October 2019	26.6	73.0	149.5	080	24.5
November 2019	23.0	69.0	Trace	070	25.9

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
December 2019	19.1	69.0	13.5	070	26.2
January 2020	18.6	76.0	14.8	060	26.1
April 2020	22.0	78.0	77.8	070	21.2
May 2020	27.7	83.0	352.5	220	18.4
June 2020	29.6	79.0	397.2	210	20.6
July 2020	30.2	76.0	125.4	230	21.0
August 2020	29.0	82.0	448.4	090	17.8
September 2020	28.4	84.0	708.8	080	19.4
October 2020	25.6	72.0	142.2	070	37.1
November 2020	23.5	71.0	5.1	070	26.9
December 2020	18.1	69.0	1.5	360	26.4
January 2021	19.3	62.0	Trace	050	25.2
February 2021	19.8	75.0	62.1	060	21.1

APPENDIX D –
WEATHER CONDITIONS DURING THE MONITORING PERIOD

I. General Information

Month	Mean Air Temperature (°C)	Mean Relative Humidity (%)	Total Precipitation (mm)	Prevailing Wind Direction (Degrees)	Mean Wind Speed (km/h)
March 2021	22.0	79.0	3.5	070	22.6
April 2021	24.1	79.0	32.5	070	24.4
May 2021	29.0	78.0	65.0	230	19.6
June 2021	28.8	82	628.0	230	23.1
July 2021	29.7	80	379.5	090	19.5
August 2021	28.8	83	350.5	230	16.5
September 2021	29.7	78	129.6	080	16.7
October 2021	26.0	76	631.1	080	34.4
November 2021	22.4	67	5.8	080	24.9
December 2021	18.9	68	19.5	070	27.7
January 2022	18.0	78	4.1	***	***

* The above information was extracted from Hong Kong Observatory.

** Trace means rainfall less than 0.05mm

*** Unavailable

APPENDIX E
SUMMARY OF EXCEEDANCES

APPENIDX E – SUMMARY OF EXCEEDANCE

Reporting Period: April 2015 to January 2022

a) Exceedance Report for 24-hr TSP (NIL)

b) Exceedance Report for Water Quality Monitoring

Regular Water Quality Monitoring:

(37) Action and (144) Limit Level for Suspended Solids (SS) in Water Quality Monitoring as followed:

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
30th May 2019	A	Mid-ebb	6.0	6.0	***7.8***
	WSD17				***6.8***
	WSD9				***7.7***
	A	Mid-flood	6.0	6.0	***7.5***
	WSD17				***7.0***
	WSD9				***7.5***
6th June 2019	21	Mid-ebb	6.9	9.1	***7.0***
	34				***14.5***
	A		6.0	6.0	***6.3***
	WSD17				***9.7***
	21	Mid-flood	6.9	9.1	***8.7***
	34				***11.5***
	9				***16.5***
	A		6.0	6.0	***13.2***
	WSD9				***6.3***
8th June 2019	21	Mid-ebb	6.9	9.1	***13.3***
	34				***12.0***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
	9				***10.0***
	A		6.0	6.0	***10.5***
	WSD17				***13.5***
	WSD9				***9.0***
	21	Mid-flood	6.9	9.1	***15.5***
	34				***7.5***
	9				***10.5***
	A		6.0	6.0	***12.5***
	WSD17				***9.5***
	WSD9				***14.3***
10th June 2019	21	Mid-ebb	6.9	9.1	***19.3***
	34				***17.8***
	9				***12.0***
	A		6.0	6.0	***13.0***
	WSD17				***17.0***
	WSD9				***13.5***
	21	Mid-flood	6.9	9.1	***16.2***
	34				***11.0***
	9				***14.0***
	A		6.0	6.0	***13.0***
	WSD17				***13.7***
	WSD9				***17.0***
12th June 2019	A	Mid-ebb	6.0	6.0	***7.5***
	WSD17				***7.3***
	21	Mid-flood	6.9	9.1	***7.0***
	A		6.0	6.0	***7.0***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
	WSD17				***7.8***
	WSD9				***8.0***
14th June 2019	WSD17	Mid-flood	6.0	6.0	***6.2***
17th June 2019	21	Mid-ebb	6.9	9.1	***8.7***
	34				***7.0***
	9				***8.0***
	A		6.0	6.0	***9.3***
	WSD9				***7.3***
	34	Mid-flood	6.9	9.1	***7.5***
	A		6.0	6.0	***6.7***
	WSD17				***8.7***
	WSD9				***7.3***
19th June 2019	34	Mid-ebb	6.9	9.1	***10***
	A		6.0	6.0	***8.0***
	WSD17				***6.8***
	A	Mid-flood	6.0	6.0	***6.3***
02th July 2019	21	Mid-ebb	6.9	9.1	***9.8***
	34				***7.8***
	A		6.0	6.0	***9.7***
	WSD17				***7.3***
	34	Mid-flood	6.9	9.1	***13.8***
	A		6.0	6.0	***8.3***
	WSD17				***12.8***
15th July 2019	34	Mid-ebb	6.9	9.1	***9.5***
	A		6.0	6.0	***6.7***
	WSD9				***6.7***
	A	Mid-flood	6.0	6.0	***6.7***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
17th July 2019	21	Mid-ebb	6.9	9.1	***7.0***
	34				***7.0***
	A		6.0	6.0	***7.2***
	WSD17				***6.3***
	WSD9				***8.3***
	34	Mid-flood	6.9	9.1	***7.0***
	WSD9		6.0	6.0	***6.3***
19th July 2019	21	Mid-ebb	6.9	9.1	***8.5***
	WSD9		6.0	6.0	***6.7***
	A	Mid-flood	6.0	6.0	***6.8***
	WSD17				***6.7***
22nd July 2019	A	Mid-ebb	6.0	6.0	***6.7***
	WSD9				***6.3***
	21	Mid-flood	6.9	9.1	***7.8***
	34				***8.0***
	WSD17		6.0	6.0	***6.2***
	WSD9				***7.7***
24th July 2019	21	Mid-ebb	6.9	9.1	***7.0***
	A		6.0	6.0	***7.0***
	WSD9				***8.7***
	A	Mid-flood	6.0	6.0	***6.5***
	WSD17				***7.5***
	WSD9				***6.2***
26th July 2019	21	Mid-ebb	6.9	9.1	***7.3***
	A	Mid-flood	6.0	6.0	***8.0***
	WSD17				***7.0***
	WSD9				***7.7***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
02nd August 2019	34	Mid-flood	6.9	9.1	***8.0***
05th August 2019	21	Mid-ebb	6.9	9.1	***7.5***
	A		6.0	6.0	***8.2***
	21	Mid-flood	6.9	9.1	***7.7***
	34				***7.5***
07th August 2019	WSD17	Mid-ebb	6.0	6.0	***7.5***
	WSD9				***6.8***
09th August 2019	A	Mid-ebb	6.9	9.1	***10.7***
	WSD17		6.0	6.0	***7.5***
	WSD17	Mid-flood	6.0	6.0	***6.7***
	WSD9				***6.3***
12th August 2019	WSD17	Mid-flood	6.0	6.0	***8.5***
	WSD9				***8.8***
19th August 2019	21	Mid-ebb	6.9	9.1	***10.2***
	A		6.0	6.0	***8.3***
	WSD9				***8.5***
	34	Mid-flood	6.9	9.1	***8.3***
	WSD9		6.0	6.0	***6.5***
21st August 2019	WSD17	Mid-ebb	6.0	6.0	***8.2***
	WSD9				***7.3***
	WSD9	Mid-flood			***7.5***
23rd August 2019	21	Mid-ebb	6.9	9.1	***8.0***
	34				***8.5***
	A		6.0	6.0	***6.5***
	WSD17				***7.7***
	21	Mid-flood	6.9	9.1	***7.8***
	34				***7.8***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
	A		6.0	6.0	***9.0***
26th August 2019	A	Mid-ebb	6.0	6.0	***10.2***
	WSD17				***8.8***
	WSD9				***6.3***
	A	Mid-flood			***7.7***
	WSD17				***7.3***
	WSD9				***7.3***
30th August 2019	A	Mid-ebb	6.0	6.0	***10.2***
	WSD17				***11.0***
	WSD9				***6.7***
	21	Mid-flood	6.9	9.1	***7.5***
	34				***7.8***
	A		6.0	6.0	***8.5***
	WSD17				***10.8***
	WSD9				***7.0***
3rd September 2019	21	Mid-ebb	6.9	9.1	***9.7***
	34				***10.5***
	A		6.0	6.0	***7.7***
	WSD9				***6.3***
	21	Mid-flood	6.9	9.1	***10.0***
	34				***8.8***
	A		6.0	6.0	***11.0***
5th September 2019	A	Mid-ebb	6.0	6.0	***12.0***
	34	Mid-flood	6.9	9.1	***8.8***
	A		6.0	6.0	***9.0***
	WSD9				***6.7***
7th September	WSD17	Mid-ebb	6.0	6.0	***7.5***

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
2019	21	Mid-flood	6.9	9.1	***9.2***
9th September 2019	WSD17	Mid-ebb	6.0	6.0	***8.7***
	WSD9				***7.7***
	A	Mid-flood			***8.3***
	WSD9				***7.0***
13th September 2019	A	Mid-ebb	6.0	6.0	***9.3***
	WSD17				***11.7***
	WSD9				***8.8***
	21	Mid-flood	6.9	9.1	***12.5***
	34				***7.3***
	A		6.0	6.0	***9.2***
	WSD17				***9.0***
	WSD9				***10.0***
16th September 2019	21	Mid-ebb	6.9	9.1	***8.3***
	WSD9		6.0	6.0	***6.2***
	A	Mid-flood			***7.0***
	WSD9				***6.3***
18th September 2019	A	Mid-ebb	6.0	6.0	***7.3***
	WSD9				***8.0***
	A	Mid-flood			***7.0***
	WSD17				***8.3***
	WSD9				***9.0***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

(6)Action and (1) Limit Level for turbidity (TURB) in Water Quality Monitoring as followed:

Sampling Date	Station(s)	Tide	Baseline Action Level (NTU)	Baseline Limit Level (NTU)	Depth-average Measured Value (NTU)
02nd August 2019	WSD17	Mid-ebb	4.7	6.5	***5.5***
		Mid-flood			***5.1***
05th August 2019	WSD17	Mid-flood			***6.6***
09th August 2019	WSD17	Mid-ebb			***4.8***
		Mid-flood			***6.3***
12th August 2019	WSD9	Mid-flood			***5.7***
11th September 2019	A	Mid-flood	4.7	6.5	***5.9***

Note: ***Bold Italic*** means Action Level exceedance
Bold Italic with underline means Limit Level exceedance

Post-construction water quality monitoring

(5)Action Level exceedances for Suspended Solids in Water Quality Monitoring as followed:

Sampling Date	Station(s)	Tide	Baseline Action Level (mg/L)	Baseline Limit Level (mg/L)	Depth-average Measured Value (mg/L)
02th July 2019	9	Mid-ebb	6.9	9.1	***9.0***
	9	Mid-flood			***8.0***
15th July 2019	9	Mid-flood			***7.0***
24th July 2019	9	Mid-ebb			***7.0***
26th July 2019	9	Mid-ebb			***7.0***

APPENDIX F
EVENT / ACTION PLAN

Event and Action Plan for Marine Water Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
Action level being exceeded by one sampling day	1. Inform the Contractor, IEC and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; and 3. Discuss remedial measures with the IEC and Contractor.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented mitigation measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Supervise the implementation of agreed remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER; and 7. Implement the agreed remedial measures.
Action level being exceeded by more than one consecutive sampling days	1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC and ER; 3. Check monitoring data, all plant, equipment and the Contractor's working methods; 4. Discuss remedial measures with the IEC and Contractor; and 5. Ensure remedial measures are implemented.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Make agreement on the remedial measures to be implemented; and 3. Discuss with the ET and IEC on the effectiveness of the implemented remedial measures.	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 7. Implement the agreed remedial measures.
LIMIT LEVEL				

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
1. Limit level being exceeded by one sampling day	1. Repeat in-situ measurement to confirm findings; 2. Inform the Contractor, IEC, EPD and ER; 3. Rectify unacceptable practice; 4. Check monitoring data, all plant, equipment and the Contractor's working methods; 5. Discuss with the ET and IEC and propose remedial measures to the IEC, EPD and ER; and 6. Ensure the agreed remedial measures are implemented.	1. Discuss with the ET, ER and Contractor on the implemented mitigation measures; 2. Review proposals on remedial measures submitted by Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; and 4. Assess the effectiveness of the implemented remedial measures.	1. Inform the ER and confirm notification of the non-compliance in writing; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Discuss with ET , IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; and 6. Implement the agreed remedial measures.
2. Limit level being exceeded by more than one consecutive sampling days	1. Inform the Contractor, IEC, EPD and ER; 2. Check monitoring data, all plant, equipment and the Contractor's working methods; 3. Discuss remedial measures with the IEC, EPD, ER and Contractor; 4. Ensure remedial measures are implemented; and 5. Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.	1. Discuss with the ET, ER and Contractor on the implemented measures; 2. Review proposals on remedial measures submitted by the Contractor and advise the ER accordingly; and 3. Review and advise the ET and ER the effectiveness of the implemented remedial measures.	1. Discuss with the ET, IEC and Contractor on the implemented mitigation measures; 2. Request the Contractor to critically review the working methods; 3. Make agreement on the remedial measures to be implemented; 4. Discuss with the the ET, IEC and Contractor on the effectiveness of the implemented remedial measures; and 5. Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine work until	1. Identify source(s) of impact; 2. Inform the ER and confirm notification of the non-compliance in writing; 3. Rectify unacceptable practice; 4. Check all plant and equipment; 5. Consider changes of working methods; 6. Discuss with the ET, IEC and ER and propose remedial measures to IEC and ER within 3 working days of notification; 7. Implement the agreed remedial measures; and 8. As directed by the ER, to slow down or to

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
			no exceedance of Limit level.	stop all or part of the marine works or construction activities.

Event and Action Plan for Air Quality Monitoring

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
ACTION LEVEL				
1. Exceedance for one sample	1. Inform the IEC, Contractor and ER; 2. Discuss with the Contractor, IEC and ER on the remedial measures required; 3. Repeat measurement to confirm findings; and 4. Increase monitoring frequency.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing;	1. Identify source(s), investigate the causes of exceedance and propose remedial measures; 2. Implement remedial measures; and 3. Amend working methods agreed with the ER as appropriate.
2. Exceedance for two or more consecutive samples	1. Inform the IEC, Contractor and ER; 2. Discuss with the ER, IEC and Contractor on the remedial measures required; 3. Repeat measurements to confirm findings; 4. Increase monitoring frequency to daily; 5. If exceedance continues, arrange meeting with the IEC, ER and Contractor; and 6. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by the ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER the effectiveness of the proposed remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. Review and agree on the remedial measures proposed by the Contractor; and 3. Supervise Implementation of remedial measures.	1. Identify source and investigate the causes of exceedance; 2. Submit proposals for remedial measures to the ER with a copy to ET and IEC within three working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal as appropriate.
LIMIT LEVEL				
1. Exceedance for one sample	1. Inform the IEC, EPD, Contractor and ER; 2. Repeat measurement to confirm	1. Check monitoring data submitted by the ET;	1. Confirm receipt of notification of exceedance in writing; 2. Notify the Contractor, IEC and ET;	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	findings; 3. Increase monitoring frequency to daily; and 4. Discuss with the ER, IEC and contractor on the remedial measures and assess the effectiveness.	2. Check the Contractor's working method; 3. Discuss with the ET, ER and Contractor on possible remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	3. Review and agree on the remedial measures proposed by the Contractor; and 4. Supervise implementation of remedial measures.	exceedance; 3. Submit proposals for remedial measures to ER with a copy to ET and IEC within three working days of notification; 4. Implement agreed proposals; and 5. Amend proposal if appropriate.
2. Exceedance for two or more consecutive samples	1. Inform the Contractor, IEC, EPD and ER; 2. Repeat measurement to confirm findings; 3. Increase monitoring frequency to daily; 4. Carry out analysis of the Contractor's working procedures with the ER to determine possible mitigation to be implemented; 5. Arrange meeting with the IEC, Contractor and ER to discuss the remedial measures to be taken; 6. Review the effectiveness of the Contractor's remedial measures and keep IEC, EPD and ER informed of the	1. Check monitoring data submitted by the ET; 2. Check the Contractor's working method; 3. Discuss with ET, ER, and Contractor on the potential remedial measures; and 4. Review and advise the ER and ET on the effectiveness of Contractor's remedial measures.	1. Confirm receipt of notification of exceedance in writing; 2. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 3. Supervise the implementation of remedial measures; and 4. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source(s) and investigate the causes of exceedance; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial measures to the ER with a copy to the IEC and ET within three working days of notification; 4. Implement the agreed proposals; 5. Revise and resubmit proposals if problem still not under control; and 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

EVENT	ACTION			
	ET	IEC	ER	CONTRACTOR
	results; and 7. If exceedance stops, cease additional monitoring.			

APPENDIX G
ENVIRONMENTAL MITIGATION
IMPLEMENTATION SCHEDULE (EMIS)

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Cultural Heritage Impact (Construction Phase)							
S4.93 & Table 4.2	Erection of decorative and sensibly designed hoarding along the boundary of the works area	To mitigate the temporary visual impact due to surface works.	Contractor	Works Areas in Causeway Bay and Wan Chai	Construction phase	EIAO	^
Ecology (Construction Phase)							
S 5.133	The following mitigation measures in controlling water quality change shall be implemented: - Installation of silt curtains around the dredgers, where appropriate, during dredging activities; - Use of closed grab dredger during dredging; and - Reduction of dredging rate	To minimize changes in water quality impact on marine flora and fauna	Contractor	All reclamation and dredging works areas	Construction phase	• EIAO-TM	^ ^ ^
S5.134	Accidental chemical spillage and construction site run-off to the receiving water bodies, mitigation measures such as removing the pollutants before discharge into storm drain and paving the section of construction road between the wheel washing bay and the public road as suggested in Sections 11.216 and 11.219 to 11.256 of the EIA Report shall be adopted	Minimise the contamination of wastewater discharge	Contractor	All land based works areas	Construction phase	• EIAO-TM	^
ERR S3.6.3	Installation of floating type silt curtains around the area of construction and removal of earth	Minimize indirect impact to the nearby subtidal and intertidal flora and fauna	Contractor	Shek O Casting Basin	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Fisheries Impact							
S5.132	The size of the dredging and underwater blasting areas shall be minimized as much as possible	To minimize loss of fishing ground and fisheries resources	Contractor/ MTR	All dredging and underwater blasting works areas	Construction phase	• EIAO-TM	^
S5.133	Mitigation measures recommended in Sections 11.200 to 11.207, 11.209 to 11.211 and 11.213 to 11.256 of the EIA Report to control water quality, i.e. use of effective site drainage in land-based construction site and installation of silt curtain surrounding the dredging point, use of closed grab dredger and reduction of dredging rate shall be implemented.	To minimize change in water quality impact on fisheries resources and operation	Contractor	Works Areas	Construction phase	• EIAO-TM	^
S6.59	After completion of armour rock filling, the final surfaces of the protective armour tock layer shall be checked by ultrasonic sounding survey. Measures such as removing the rock or breaking the rock into pieces shall be implemented in case of non-compliance	To minimize the IMT protrusion above the seabed	Contractor	Along IMT laying works areas	Construction phase	• EIAO-TM	^
Landscape & Visual (Construction Phase)							
Table 7.9	CM3 - Control of night-time lighting glare	Minimize the night time glare due to the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
Table 7.9	CM4 - Erection of decorative screen hoarding compatible with the surrounding setting.	Minimize the visual impact of the Project during construction phase	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM5 - Management of facilities on work sites which give control on the height and disposition/arrangement of all facilities on the works site to minimize visual impact to adjacent VSRs.	Control of height and deposition/arrangement of temporary facilities in works areas	MTR	All works sites	Construction phase	• EIAO-TM	^
Table 7.9	CM6 - All hard and soft landscape areas disturbed temporarily during construction shall be reinstated on like-to-like basis to the satisfaction of the relevant Government Departments.	Reinstatement of temporary works areas.	MTR	All works sites	Construction phase	• EIAO-TM	^
Construction Dust Impact							
EP 2.25	All diesel fuelled construction plant used by the contractors within the works areas of the Project shall be powered by ultra-low sulphur diesel fuel.	Mitigating Aerial Emissions from Construction Plant	Contractor	All works areas	Construction phase	• EIAO-TM	^
Table 8.5	Barging facilities: (i) Pave all road surfaces within the barging facilities and provide watering once along with the haul road for every	To minimize dust impacts	Contractor	Barging facility at Shek O Casting Basin	Construction phase	APCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	working hours to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.0 L/m^2 once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.0L/m^2 to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual (ii) Unloading of spoil materials – Undertake the unloading process within a 3-sided screen with top tipping hall. Provide water spraying and flexible dust curtains at the discharge point for dust suppression. (iii) Vehicles leaving the barging facilities – Pass vehicles						^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	through the wheel washing facilities provided at site exits.						
S8.63	For concrete batching plant, the requirements and mitigation measures stipulated in the Guidance Note on the Best Practicable Means for Cement Works (Concrete Batching Plant) BPM 3/2(93) shall be followed and implemented.	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	APCO	^
Table 8.6	During operation of concrete batching plant: (i) Unloading of aggregates from the tipper trucks to receiving hopper – unload the aggregates from the tipper trucks to the receiving hopper equipped with enclosures on 3 sides and top cover, and water spraying system. (ii) Unloading of cement and PFA from tankers into the silo – Directly load the cement and PFA into the silo via a flexible duct. Install dust collectors at cement/PFA silos. (iii) Storage of aggregates in overhead storage bins – Store the aggregates in fully enclosed overhead storage bins. Cover the top of overhead storage bins with cladding. Install water spraying system at the top of storage bins for watering the aggregates, and fully enclose aggregates storage bins. (iv) Weighing and batching of cementitious materials – Perform the whole process of weighing and mixing in a fully	To minimize dust impact	Contractor	Concrete Batching Plant	Construction phase	APCO	^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	enclosed environment. Equip all the mixers with dust collectors. (v) Loading of concrete from mixer into transit mixer of a truck – Directly load the concrete from the mixer into the transit mixer of a truck in "wet form". (vi) Tipper trucks and cement tankers leaving the Concrete Batching Plant – Haul road within the site is unpaved. Install wheel washing pit at the gate of the concrete batching plant. (vii) Transportation of materials within the plant – Provide watering twice a day would be provided.						^ ^ ^
S8.89	Watering once every working hour on active works areas, exposed areas and paved haul roads to reduce dust emission by 91.7%. This dust suppression efficiency is derived based on the average haul road traffic, average evaporation rate and an assumed application intensity of 1.7 L/m2 for Kowloon side and 1.0 L/m^2 for Hong Kong side once every working hour. Any potential dust impact and watering mitigation would be subject to the actual site condition. For example, a construction activity that produces inherently wet conditions or in cases under rainy weather, the above water application intensity may not be unreservedly applied. While	To minimize dust impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS Breakwater of CBTS to SOV • Shek O Casting Basin	Construction phase	APCO	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	the above watering frequency is to be followed, the extent of watering may vary depending on actual site conditions but should be sufficient to maintain an equivalent intensity of no less than 1.7 L/m^2 for Kowloon side and 1.0 L/m^2 for Hong Kong side to achieve the removal efficiency. The dust levels would be monitored and managed under an EM&A programme as specified in the EM&A Manual.						
S8.90	Dust suppression measures stipulated in the Air Pollution Control (Construction Dust) Regulation and good site practices: - Use of regular watering to reduce dust emissions from exposed site surfaces and unpaved roads, particularly during dry weather. - Use of frequent watering for particularly dusty construction areas and areas close to ASRs. - 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. - Open stockpiles shall be avoided or covered. Where possible, prevent placing dusty material storage piles	To minimize dust impact	Contractor	Works areas at: • Hung Hom • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV	Construction phase	APCO and Air Pollution Control (Construction Dust) Regulation	^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	near ASRs. - Tarpaulin covering of all dusty vehicle loads transported to, from and between site locations. - Establishment and use of vehicle wheel and body washing facilities at the exit points of the site. - 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. - 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. - Imposition of speed controls for vehicles on site haul roads. - Where possible, routing of vehicles and positioning of construction plant shall be at the maximum possible distance from ASRs. - Every stock of more than 20 bags of cement or dry						^ ^ ^ ^ ^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	pulverised fuel ash (PFA) shall be covered entirely by impervious sheeting or placed in an area sheltered on the top and the 3 sides. - 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.						^
Air Quality (Construction Phase)							
/	Emission from Vehicles and Plants • 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	^ ^ ^
/	Valid Non-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	^
Construction Noise (Airborne)							
S9.55	Implement the following good site practices:	Control construction	Contractor	Works areas	Construction	• EIAO-TM	

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • machines and plant (such as trucks, cranes) that may be in intermittent use should be shut down between work periods or should be throttled down to a minimum; • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSRs; • silencers or mufflers on construction equipment should be properly fitted and maintained during the construction works; • mobile plant should be sited as far away from NSRs as possible and practicable; • material stockpiles, mobile container site office and other structures should be effectively utilised, where practicable, to screen noise from on-site construction activities.	airborne noise			phase		^ ^ ^ ^ ^ ^
S9.56 & Table 9.16	The following quiet PME shall be used: • Crane lorry, mobile	To minimize construction noise impact	Contractor	Works areas at: • Hung Hom	Construction stage	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Crane, mobile • Asphalt paver • Backhoe with hydraulic breaker • Breaker, excavator mounted (hydraulic) • Hydraulic breaker • Concrete lorry mixer • Poker, vibrator, hand-held • Concrete pump • Crawler crane, mobile • Mobile crane • Dump truck • Excavator • Truck • Rock drill • Lorry • Wheel loader • Roller vibratory			• Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV			
S9.58 – S9.59 & Table 9.17	Movable noise barrier shall be used for the following PME: • Air compressor • Asphalt paver • Backhoe with hydraulic breaker	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of	Construction stage	• EIAO-TM	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	• Bar bender • Bar bender and cutter (electric) • Breaker, excavator mounted • Concrete pump • Concrete pump, stationary/lorry mounted • Excavator • Generator • Grout pump • Hand held breaker • Hydraulic breaker • Saw, concrete			CBTS • Breakwater of CBTS to SOV			
S9.60 & Table 9.17	Noise insulating fabric shall be used for • Drill rig, rotary type • Piling, diaphragm wall, bentonite filtering plant • Piling, diaphragm wall, grab and chisel • Piling, diaphragm wall, hydraulic extractor • Piling, large diameter bored, grab and chisel • Piling, hydraulic extractor • Piling, earth auger, auger • Rock drill, crawler mounted (pneumatic)	To minimize construction noise impact	Contractor	Works areas at: • Cross Harbour section up to Breakwater of CBTS • Breakwater of CBTS to SOV	Construction stage	• EIAO-TM	^
Water Quality (Construction Phase)							

SCL Works Contract 1121 - Environmental Mitigation Implementation Schedule

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
S11.200 & 201	All excavation and tunnel construction works will be undertaken within the cofferdam and there will be no open dredging. Removal of fender piles of Hung Hom Bypass and minor marine piling works will be carried out prior to the construction of the elevated platform adjacent to the cofferdam at Hung Hom Landfall. Reinstatement of the fender piles will be carried out upon completion of tunnel section. Potential release of sediment due to abovementioned works could be minimized by installation of silt curtains surrounding the works area as appropriate. All excavation and tunnel construction works will be undertaken within the cofferdam. No open dredging shall be allowed.	To minimize release of sediment and contaminants during temporary reclamation.	Contractor	Marine works at Hung Hom Landfall	Construction phase	• EIAO-TM • WPCO	^ ^ ^
S11.202	All temporary reclamation works will adopt an approach where temporary seawalls will first be formed to enclose each phase of the temporary reclamation. Installation of diaphragm wall on temporary reclamation as well as any bulk filling will proceed behind the completed seawall. Any gaps that may need to be provided for marine access will be shielded by silt curtains to control sediment plume dispersion away from the	To minimize loss of fines and contaminants during temporary reclamations	Contractor	All temporary reclamation works areas	Construction phase	• EIAO-TM • WPCO	^

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	site. Demolition of temporary reclamation including the demolition of the diaphragm wall and dredging to the existing seabed levels will also be carried out behind the temporary seawall. Temporary seawall will be removed after completion of all excavation and dredging works for demolition of the temporary reclamation.						^ ^
S11. 202	During construction of the temporary reclamation, temporary seawall will be partially constructed to protect the nearby seawater intakes from further dredging activities. For example, the seawalls along the southeast and northeast boundaries of PW1.1 shall be constructed first (above high water mark) so that the seawater intake at the inner water would be protected from the impacts from the remaining dredging activities along the northwest boundary.	To minimize water quality impact upon the cooling water intakes in CBTS from temporary reclamation works	Contractor	Temporary reclamation works areas in CBTS	Construction phase	• EIAO-TM • WPCO	^
S11. 202	Dredging will be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging.	To minimize loss of fines and contaminants during dredging in CBTS	Contractor	All temporary reclamation and dredging works areas within CBTS	Construction phase	• EIAO-TM • WPCO	^
S11. 202 & Table	Silt curtains will be deployed to fully enclose the closed grab	To minimize loss of fines	Contractor	All temporary	Construction	• EIAO-TM	^

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11.25	dredger and shall be extended from water surface to the seabed, as far as practicable, during any dredging operation.	and contaminants during dredging in CBTS		reclamation and dredging works areas within CBTS	phase	• WPCO	
S11. 202 & Table 11.23	Silt screens will be installed at the cooling water intakes within the CBTS during the temporary reclamation period.	To minimize water quality impact upon the cooling water intakes in CBTS from marine construction activities	Contractor	Cooling water intakes inside CBTS	Construction phase	• EIAO-TM • WPCO	^
S11. 203 & Table 11.24	No more than two dredgers (of about 8 m^3 capacity each) shall be operated for dredging within the typhoon shelter at any time for the tunnel construction works. Moreover, the combined dredging rate for all concurrent dredging works (include dredging works for concurrent projects such as WDII and CWB) to be undertaken within the CBTS shall not exceed 4,500 m^3 per day (and 281 m^3 per hour with a maximum working period of 16 hours per day) throughout the entire construction period.	To minimize loss of fines and contaminants during dredging in CBTS	Contractor	All dredging works areas within CBTS	Construction phase	• EIAO-TM • WPCO	^
ERR 6.7.1	Closed grab dredger shall be used for any dredging operations, except at for removal of fill material at the gap at the IMT/ME4 interface, which will be carried out by air lift or	To minimize water quality impact in CBTS from marine construction	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	^

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	sand pump method	activities					
ERR 6.7.1	Fill materials removed by air lift or sand pumping method shall be stored inside impermeable compartment of the barge	To minimize water quality impact in CBTS from marine construction activities	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	^
ERR 6.7.1	Bulk filling operation within CBTS shall be carried out by closed grab dredger and/or by feeding the fill material into a down pipe for placing of fill materials	To minimize water quality impact in CBTS from marine construction activities	Contractor	All marine works areas within CBTS	Construction phase	• EIAO-TM • WPCO	^
EP 2.18.1a	Pipe piles shall be used to form temporary seawalls for IMT construction within CBTS.	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	^
EP 2.18.1b	The temporary seawalls shall not be removed before completion of all dredging or filling works for IMT construction, except for a small section of pipe piles adjoining IMT11 to facilitate the necessary dredging works for placing the IMT11.	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	^
EP 2.18.1j	Water quality monitoring shall be conducted at cooling water intake 9 for Windsor House during IMT construction within CBTS. The monitoring frequency, parameters, equipment and methodology shall follow those for dredging and filling as	To minimize water quality impact in CBTS from IMT construction	Contractor	IMT construction works within CBTS	Construction phase	• EIAO-TM • WPCO	^

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	stipulated in the EM&A Manual.						
S11. 204	Bulk filling along the IMT tunnel alignment for SCL shall be carried out after the bulk dredging works along the IMT alignment are completed. Hence, bulk dredging and bulk filling along the IMT alignment shall not be undertaken at the same time.	To minimize loss of fines and contaminants during IMT construction	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^
S11. 204	Dredging for IMT and SCL2 construction shall be carried out by closed grab dredger to minimize release of sediment and other contaminants during dredging.	To minimize loss of fines and contaminants during dredging in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^
S11.204	No more than one closed grab dredger shall be operated outside the CBTS in the open harbor for SCL construction.	To minimize loss of fines and contaminants from dredging in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^
S11. 204	Dredging for temporary reclamation outside the CBTS (at SCL2) shall not be carried out concurrently with the dredging / filling works for IMT construction.	To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^
S11. 205	Floating type or frame type silt curtains shall be deployed around the dredging operations within 200m from the Hung Hom landfall.	To minimize loss of fines and contaminants from dredging in the Victoria	Contractor	Construction of northern IMT segment in the	Construction phase	• EIAO-TM • WPCO	^

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		Harbour		near shore region within 200 m from the Hung Hom landfall			
EP 2.19e	Frame type silt curtains shall be deployed around the dredging operations for the remaining IMT segments outside 200 m from the Hung Hom landfall.	To minimize water quality impacts in Victoria Harbour from IMT construction	Contractor	Construction of northern IMT segment in Victoria Harbour outside 200m from the Hung Hom landfall	Construction phase	• EIAO-TM • WPCO	^
S11. 205 & Table 11.23	Silt screens shall be installed at the cooling water intakes for East Rail Extension, Metropolis and Hong Kong Coliseum (namely 21, 34 and 35 respectively) which are in close vicinity of the northern IMT segment.	To protect the beneficial use of water intakes along the Kowloon waterfront from dredging / filling activities	Contractor	Construction of northern IMT segment in the near shore region within 200 m from the Hung Hom landfall	Construction phase	• EIAO-TM • WPCO	^
S11.207	If underwater blasting is required for SCL construction, the following precautionary / mitigation measures shall be adopted:	To protect the water quality in Victoria Harbour from any possible underwater	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^

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	• Charge shall be placed in cores within the rock in order that there will be no blast directly into the water. • In terms of the construction sequence, sediment dredging (within the planned IMT works area) shall be conducted prior to any underwater blasting.	blasting					
Table 11.23	Silt screens shall be installed at the WSD Flushing Water Intakes at Kowloon Station, Tai Wan, Quarry Bay and Wan Chai (namely Intakes 14, WSD9, WSD17 and A respectively) during any dredging / filling works outside the CBTS for temporary reclamation at SCL2 or for IMT construction	To protect the beneficial use of flushing water intakes in Victoria Harbour from dredging / filling activities	Contractor	Flushing water intake points in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^
S11.210 - S11.211 & Table 11.24 ERR S6.7.1	If the marine works for SCL are to be carried out concurrently with other dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction, except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 2,500 m^3 per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS, except for	To minimize loss of fines and contaminants from dredging / filling in the Victoria Harbour	Contractor	Marine works areas in Victoria Harbour	Construction phase	• EIAO-TM • WPCO	^

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	the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 156 m^3 per hour (if there are other concurrent marine works in Victoria Harbour) and the maximum working hour for the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. If the marine works for SCL are to be carried out with no other concurrent dredging / filling activities in the Victoria Harbour, the production rates of any dredging / filling work to be undertaken outside the CBTS for SCL construction in the open harbour (including temporary reclamation at SCL2 and IMT construction except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 4,500 m^3 per day at any time throughout the entire construction period. The hourly production rate for dredging or bulk filling within the open Victoria Harbour (outside the breakwater of CBTS except for the area within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall) shall not exceed 281 m^3 per hour (if there is no other concurrent marine works in Victoria Harbour) and the						

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	maximum working hour for the dredging / bulk filling works shall be 16 hours per day. Silt screen shall be deployed at the Kowloon Station Intake to minimize the water quality impact. Only one chiseling machine or hydraulic breaker shall be adopted for rock breaking. For any dredging / filling work for IMT construction within 60m from the southern boundary of the temporary reclamation at Hung Hom Landfall: • The daily production rate shall not exceed 1,500m^3 per day • the hourly production rate shall not exceed 93m^3						^ ^
S11.215	The following good site practices shall be undertaken during filling and dredging: • mechanical grabs, if used, shall be designed and maintained to avoid spillage and sealed tightly while being lifted; • all vessels shall 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;	To minimize loss of fines and contaminants from dredging / filling	Contractor	Marine works areas	Construction phase	• EIAO-TM • WPCO	^ ^

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	• all hopper barges and dredgers shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material; • construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds; • loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation; • before commencement of the temporary reclamation works, the holder of the Environmental Permit shall submit plans showing the phased construction of the reclamation, design and operation of the silt curtain.						^ ^ ^ ^
S11.216	The following mitigation measures are proposed to minimize the potential water quality impacts from the construction works at or close to the seafront: ・Temporary storage of construction materials (e.g. equipment, filling materials, chemicals and fuel) and	minimize release of construction wastes from construction works at or close to the seafront	Contractor	Construction works at or close to the seafront	Construction phase	・ EIAO-TM ・ WPCO	^

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	temporary stockpile of construction and demolition materials shall be located well away from the seawater front and storm drainage during carrying out of the works. ・Stockpiling of construction and demolition materials and dusty materials shall be covered and located away from the seawater front and storm drainage. ・Construction debris and spoil shall be covered up and/or disposed of as soon as possible to avoid being washed into the nearby receiving waters.						^ ^
S11.217	The following mitigation measures are proposed to minimize the potential water quality impacts from any marine piling works: • The potential release of sediment or excavated materials could be controlled through the installation of silt curtains surrounding the working area as necessary. • Spoil shall be collected by sealed hopper barges for proper disposal.	To minimize release of sediment and pollutants from marine piling activities	Contractor	Marine piling works areas	Construction phase	・EIAO-TM ・WPCO	^ ^
S11.218	Silt screens are recommended to be deployed at the seawater intakes during the construction works period. Regular maintenance of the silt screens and refuse collection shall be performed at the silt screens at regular intervals on a	To avoid the pollutant and refuse entrapment problems at the silt screens to be installed at the water	Contractor	Proposed silt screens at water intakes	Construction phase	・EIAO-TM ・WPCO	^

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	daily basis. The Contractor shall be responsible for keeping the water behind the silt screen free from floating rubbish and debris during the impact monitoring period.	intakes.					
S11.219	It is recommended that collection and removal of floating refuse shall be performed within the marine construction areas at regular intervals on a daily basis. The Contractor shall be responsible for keeping the water within the site boundary and the neighbouring water free from rubbish during the dredging works.	To minimize water quality impacts from illegal dumping and littering from marine vessels and runoff from the coastal area	Contractor	Marine works area	Construction phase	• EIAO-TM • WPCO • WDO	^
S11.220 & 221	Any wastewater including washdown waters and any concrete curing waters generated from the casting basin shall be drained to the wastewater treatment unit. Appropriate treatment process such as sedimentation and oil removal shall be employed for the wastewater treatment units so that any discharge from the casting basin will comply with standards stipulated in the TM-DSS. Recovered oil from any oil interceptor shall be properly contained, labeled and stored on site prior to collection by licensed collectors for disposal. During the flooding of the basin with seawater (accomplished by pumps) no escape of water could occur as the cofferdam will still be in place. Prior to opening a channel through the	To minimize water quality impacts from the washdown, flooding and draining operation at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• EIAO-TM • WPCO	^

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	cofferdam, water inside the basin will be skimmed of floating debris. A period of settling of 24 hours before opening the basin to the sea would allow much of the suspended material to settle out. The channel through the cofferdam will only be opened with the approval of the Site Engineer to the effect that all reasonable steps had been taken to remove contaminants.						
S11.222 to 11.245	The site practices outlined in ProPECC PN 1/94 “Construction Site Drainage” shall be followed where practicable.	To minimize water quality impacts from construction site runoff and general construction activities	Contractor	Works areas	Construction phase	• EIAO-TM • WPCO • TMDSS, • WDO, • ProPECC PN 1/94	^
S11.246 & 11.247	Construction work force sewage discharges on site are expected to be discharged to the nearby existing trunk sewer or sewage treatment facilities. If disposal of sewage to public sewerage system is not feasible, appropriate numbers of portable toilets shall be provided by a licensed contractor to serve the construction workers over the construction site to prevent direct disposal of sewage into the water environment. The Contractor shall also be responsible for waste disposal	minimize water quality impacts due to sewage generated from construction workforce	Contractor	All works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

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	and maintenance practices. Notices shall be posted at conspicuous locations to remind the workers not to discharge any sewage or wastewater into the nearby environment.						^
S11.248	In case seepage of uncontaminated groundwater occurs, groundwater shall be pumped out from the works areas and discharged into the storm system via silt removal facilities. Uncontaminated groundwater from dewatering process shall also be discharged into the storm system via silt traps.	To minimize impact from discharge of uncontaminated groundwater	Contractor	Works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.252	The following good site practices shall be adopted for the proposed barging points: - all vessels shall be sized so that adequate clearance is 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 shall be fitted with tight fitting seals to their bottom openings to prevent leakage of material - construction activities shall not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site - loading of barges and hoppers shall be controlled to	To minimize water quality impacts generated from the barging points.	Contractor	Barging Points	Construction phase	• EIAO-TM • WPCO	^ ^ ^ ^

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	prevent splashing of material into the surrounding water. Barges or hoppers shall not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation						
S11.253	There is a need to apply to EPD for a discharge licence for discharge of effluent from the construction site under the WPCO. The discharge quality must meet the requirements specified in the discharge licence. All the runoff and wastewater generated from the works areas shall be treated so that it satisfies all the standards listed in the TM-DSS. Minimum distances of 100 m shall be maintained between the discharge points of construction site effluent and the existing seawater intakes. The beneficial uses of the treated effluent for other on-site activities such as dust suppression, wheel washing and general cleaning etc., can minimize water consumption and reduce the effluent discharge volume. If monitoring of the treated effluent quality from the works areas is required during the construction phase of the Project, the monitoring shall be carried out in accordance with the WPCO license which is under the ambit of Regional Office (RO) of EPD.	To minimize water quality impact from effluent discharges from construction sites	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS	^

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S11.254	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 shall be observed and complied with for control of chemical wastes.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.255	Any service shop and maintenance facilities shall be located on hard standings within a bunded area, and sumps and oil interceptors shall be provided. Maintenance of vehicles and equipment involving activities with potential for leakage and spillage shall only be undertaken within the areas appropriately equipped to control these discharges.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^
S11.256	Disposal of chemical wastes shall 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: • Suitable containers shall be used to hold the chemical wastes to avoid leakage or spillage during storage, handling and transport.	minimize water quality impact from accidental spillage of chemical	Contractor	All construction works areas	Construction phase	• EIAO-TM • WPCO • TM-DSS • WDO	^

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	• Chemical waste containers shall be suitably labelled, to notify and warn the personnel who are handling the wastes, to avoid accidents. • Storage area shall be selected at a safe location on site and adequate space shall be allocated to the storage area.						^ ^
ERR S 8.5.1	Floating type silt curtains would be installed around the area of construction and removal of earth bund during the respective works.	minimize water quality impact at Shek O Casting Basin	Contractor	Shek O Casting Basin	Construction phase	• WPCO	^
Waste Management (Construction Waste)							
S12.75	***Good Site Practices and Waste Reduction Measures*** - Prepare a Waste Management Plan (WMP) approved by the Engineer/Supervising Officer of the Project based on current practices on construction sites; - 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; - Regular cleaning and maintenance programme for	reduce waste management impacts	Contractor	All works sites	Construction phase	• Waste Disposal Ordinance (Cap. 354) • Land (Miscellaneous Provisions) Ordinance (Cap. 28) • DEVB TCW No. 6/2010	^ ^ ^ ^

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	drainage systems, sumps and oil interceptors; and - Separation of chemical wastes for special handling and appropriate treatment.						^
S12.76	***Good Site Practices and Waste Reduction Measures (Con't)*** - Sorting of demolition debris and excavated materials from demolition works to recover reusable/ recyclable portions (i.e. soil, broken concrete, metal etc.); - 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 aluminum cans by providing separate labeled 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; - Plan and stock construction materials carefully to minimize amount of waste generated and avoid unnecessary generation of waste; and - Training shall be provided to workers about the concepts of site cleanliness and appropriate waste management	achieve waste reduction	Contractor	All works sites	Construction phase	・Waste Disposal Ordinance (Cap. 354) ・ Land (Miscellaneous Provisions) Ordinance (Cap. 28)	^ ^ ^ ^ ^ ^

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	procedures, including waste reduction, reuse and recycle.						
S12.77	***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 ETWBTCW 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 shall incorporate site specific factors, such as the designation of areas for segregation and temporary storage of reusable and recyclable materials. The EMP shall be submitted to the Engineer for approval. The Contractor shall implement the waste management practices in the EMP throughout the construction stage of the Project. The EMP shall be reviewed regularly and updated by the Contractor, preferably in a monthly basis.	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^
S12.78	C&D materials would be reused in other local concurrent projects as far as possible. If all reuse outlets are exhausted during the construction phase, the C&D materials would be disposed of at Taishan, China as a last resort.	achieve waste reduction	Contractor	All works sites	Construction phase	• ETWB TCW No. 19/2005	^

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S12.79	***Storage, Collection and Transportation of Waste*** Should any temporary storage or stockpiling of waste is required, recommendations to minimize the impacts include: - Waste, such as soil, shall be handled and stored well to ensure secure containment, thus minimizing the potential of pollution; - Maintain and clean storage areas routinely; - Stockpiling area shall be provided with covers and water spraying system to prevent materials from wind-blown or being washed away; and - Different locations shall be designated to stockpile each material to enhance reuse	minimize potential adverse environmental impacts arising from waste storage	Contractor	All works sites	Construction phase	-	^ ^ ^ ^
S12.80	***Storage, Collection and Transportation of Waste (Con't)*** Waste haulier with appropriate permits shall be employed by the Contractor for the collection and transportation of waste from works areas to respective disposal outlets. The following suggestions shall be enforced to minimize the potential adverse impacts: - Remove waste in timely manner - Waste collectors shall only collect wastes prescribed by	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	-	^ ^ ^

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	their permits - Impacts during transportation, such as dust and odour, shall 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 shall be disposed of at licensed waste disposal facilities - Maintain records of quantities of waste generated, recycled and disposed						^ ^ ^ ^
S12.81	***Storage, Collection and Transportation of Waste (Con't)*** - Implementation of trip ticket system with reference to DevB TC(W) No.6/2010 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) shall be proposed	minimize potential adverse environmental impacts arising from waste collection and disposal	Contractor	All works sites	Construction phase	• DEVB TCW No. 6/2010	^
S12.83 – 12.86	***Sorting of C&D Materials*** - Sorting to be performed to recover the inert materials,	minimize potential adverse environmental impacts	Contractor	All works sites	Construction phase	• DEVB TCW No. 6/2010	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	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 shall at least be segregated into inert and non-inert materials, in which the inert portion could be reused and recycled as far as practicable before delivery to PFRFs as mentioned for beneficial use in other projects. While opportunities for reusing the non-inert portion shall be investigated before disposal of at designated landfills. - Possibility of reusing the spoil in the Project will be continuously investigated in the detailed design and construction stages, it includes backfilling to cut and cover construction works for the Hung Hom south and north approach	during the handling, transportation and disposal of C&D materials				• ETWB TCW No. 33/2002 • ETWB TCW No. 19/2005	^ ^ ^
S12.88	***Sediments*** The basic requirements and procedures for excavated / dredged sediment disposal specified under ETWB TC(W) No. 34/2002 shall be followed. MFC is managing the disposal facilities in Hong Kong for the dredged and excavated sediment, while EPD is the authority of issuing marine	To ensure the sediment to be disposed of in an authorized and least impacted way	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	dumping permit under the Dumping at Sea Ordinance						
S12.89	***Sediments*** The contractor for the excavation / dredging works shall apply for the site allocations of marine sediment disposal based on the prior agreement with MFC/CEDD. A request for reservation of sediment disposal space have been submitted to MFC for onward discussions of disposal approach and feasible disposal sites and the letter is attached in Appendix 12.6. The Project proponent shall also be responsible for the application of all necessary permits from relevant authorities, including the dumping permit as required under DASO from EPD, for the disposal of dredged and excavated sediment prior to the commencement of the excavation works.	To determine the best handling and disposal option of the sediments	Contractor	All works areas with sediments concern	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^
S12.91-12.94	***Sediments*** - Stockpiling of contaminated sediments shall be avoided as far as possible. If temporary stockpiling of contaminated sediments is necessary, the excavated sediment shall be covered by tarpaulin and the area shall be placed within earth bunds or sand bags to prevent leachate from entering the ground, nearby drains and/or surrounding water bodies. The stockpiling areas shall be	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	completely paved or covered by linings in order to avoid contamination to underlying soil or groundwater. Separate and clearly defined areas shall be provided for stockpiling of contaminated and uncontaminated materials. Leachate, if any, shall be collected and discharged according to the Water Pollution Control Ordinance (WPCO). - In order to minimise the potential odour / dust emissions during excavation and transportation of the sediment, the excavated sediments shall be wetted during excavation / material handling and shall be properly covered when placed on trucks or barges. Loading of the excavated sediment to the barge shall 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 shall be equipped with tight fitting seals to prevent leakage and shall 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.						^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Transport barges or vessels shall be equipped with automatic selfmonitoring devices as specified by the DEP. - In order to minimise the exposure to contaminated materials, workers shall, when necessary, wear appropriate personal protective equipments (PPE) when handling contaminated sediments. Adequate washing and cleaning facilities shall also be provided on site.						^
S12.95	***Sediments*** A 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. The technology is readily available for the manufacture of the geosynthetic containers to the project-specific requirements. Similar disposal methods have been used for projects in Europe, the USA and Japan and the issues of fill retention by the geosynthetic fabrics, possible	To ensure handling of sediments are in accordance to statutory requirements	Contractor	Work Sites, Sediment disposal sites	Construction Phase	ETWB TC(W) No. 34/2002 & Dumping at Sea Ordinance	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	rupture of the containers and sediment loss due to impact of thecontainer on the seabed have been addressed.						
S12.97	***Containers for Storage of Chemical Waste*** The Contractor shall register with 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. Containers used for storage of chemical waste shall: - Be compatible with the chemical wastes being stored, maintained in good condition and securely sealed; - Have a capacity of less than 450 litters unless the specifications have been approved by EPD; and - Display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Waste Disposal (Chemical Waste) (General) Regulation	register with EPD as a Chemical waste producer and store chemical waste in appropriate containers	Contractor	All works sites	Construction phase	・Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^ ^ ^
S12.98	***Chemical Waste Storage Area*** - Be clearly labeled to indicate corresponding chemical characteristics of the chemical waste and used for storage of chemical waste only; - Be enclosed on at least 3 sides; - Have an impermeable floor and bunding, of capacity to	prepare appropriate storage areas for chemical waste at works areas	Contractor	All works sites	Construction phase	・Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^ ^ ^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; - Have adequate ventilation; - Be covered to prevent rainfall from entering; and - Be properly arranged so that incompatible materials are adequately separated.						^ ^ ^
S12.99	***Chemical Waste*** - Lubricants, waste oils and other chemical wastes would be generated during the maintenance of vehicles and mechanical equipments. Used lubricants shall be collected and stored in individual containers which are fully labelled in English and Chinese and stored in a designated secure place.	clearly label the chemical waste at works areas	Contractor	All works sites	Construction phase	• Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes	^
S12.100	***Collection and Disposal of Chemical Waste*** A trip-ticket system shall be operated in accordance with the Waste Disposal (Chemical Waste) (General) Regulation to monitor all movements of chemical waste. The Contractor shall employ a licensed collector to transport and dispose of the chemical wastes, to either the approved CWTC at Tsing Yi, or another licensed facility, in accordance with the Waste	To monitor the generation, reuse and disposal of chemical waste	Contractor	All works sites	Construction phase	• Waste Disposal (Chemical Waste) (General) Regulation	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	Disposal (Chemical Waste) (General) Regulation						
S12.101	***General Refuse*** General refuse shall be stored in enclosed bins or compaction units separate from C&D materials and chemical waste. A reputable waste collector shall be employed by the contractor to remove general refuse from the site, separately from C&D materials and chemical wastes. Preferably, an enclosed and covered area shall be provided to reduce the occurrence of wind-blown light material.	properly store and separate from other C&D materials for subsequent collection and disposal	Contractor	All works sites	Construction phase	-	^
S12.102	***General Refuse (Con't)*** The recyclable component of general refuse, such as aluminum cans, paper and cleansed plastic containers shall be separated from other waste. Provision and collection of recycling bins for different types of recyclable waste shall be set up by the Contractor. The Contractor shall also be responsible for arranging recycling companies to collect these materials.	facilitate recycling of recyclable portions of refuse	Contractor	All works sites	Construction phase	-	^
S12.103	***General Refuse (Con't)*** The Contractor shall carry out an education programme for workers in avoiding, reducing, reusing and recycling of materials generation. Posters and leaflets advising on the	raise workers' awareness on recycling issue	Contractor	All works sites	Construction phase	-	^

EIA Ref.	Recommended Mitigation Measures	Objectives of the recommended Measures & Main Concerns to address	Who to implement the measures?	Location of the measures	When to Implement the measures?	What requirements or standards for the measures to achieve?	Status
	use of the bins shall also be provided in the sites as reminders						

Remarks: ^ Compliance of mitigation measure X Non-compliance of mitigation measure

• Non-compliance but rectified by the contractor

* Observation/reminder was made during site audit but improved/rectified by the contractor.

Observation/reminder was made during site audit but not yet improved/rectified by the contractor.

N/A Not Applicable

APPENDIX H
CUMULATIVE LOG FOR COMPLAINT LOGS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecutions

Cumulative Complaint Log

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
EPD Ref.: H18/RS/00020927-15	18 Aug 2015 / Shek O Casting Basin	Public / 20 Aug 2015	18/8--投訴人致電投訴私家路往石澳道，俗稱「鶴咀」，有人在公地放石頭建立平台及碼頭，並擺放兩個新的綠色化學桶，以支柱支撐起達6-7 呎高，要求部門盡快跟進。 18/8 投訴人致電補充資料，表示曾聯絡地政署，地政署表示鶴咀」範圍已交於香港地鐵公司作工場，每天都有化學原料運送到上址，綠色化學桶擺放，懷疑沒有進行環境評估，下雨時污水滲入海，污染環境，影響泳客，要求部門盡快跟進。	According to the information provided by the Contractor, the vertical tanks erected at the Barging Point at Shek O are not for chemical storage. The Contractor has implemented various mitigation measures to mitigate the possible marine water quality impact since the commencement of works in Shek O. To further ensure that no adverse marine water quality impact would be caused by the works, the following additional mitigation measures were implemented by the Contractor after the complaint was received: • Perimeter of the bottom of the perimeter channels are paved with cement; • Accumulated grit, sand materials and general refuse are regularly removed from the channels; • The outlet of sand traps are temporarily blocked and their design (especially inlet and outlet pipe levels) are under review to increase the efficiency to handle surface run-off; and • Empty chemical containers are removed from the site	Project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				Based on the findings of regular and additional mitigation measures implemented by the Contractor on site, no polluted wastewater is observed to be discharged out of site and no adverse water quality impact is caused by this Project to the sea waters near the Project site. The Complaint Investigation Report has been submitted to EPD on 11 Sep 2015 accordingly. File Closed.		
EPD Ref.: K01/RE/00024203-15	21 Sep 2015 / Tsim Sha Tsui East	Public / 22 Sep 2015	On 21st September 2015, EPD received a complaint from Incorporated Owners of a commercial building located in Tsim Sha Tsui East about the marine water quality in Tsim Sha Tsui East. The complainant mentioned that a lot of marine organism and blocking particles were found flowing in their central air-conditioning system of the building. The normal functioning of their central air-conditioning	The Contractor has implemented various mitigation measures to mitigate the possible marine water quality impact arising from the construction including: • No marine construction works was carried out until the opening is entirely closed up in order to prevent the escape of sediment to water column outside the silt curtain; • Silt curtain was installed to surround the piling works to control the potential release of sediment and excavated materials; and • Regular maintenance of silt curtain and refuse collection were performed. No significant amount of sediment or blocking particle generated from the marine work is released	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
			system was affected.	to the water intake of the working site and no adverse water quality impact is caused by this Project to the sea waters near the Project site.		
EPD Ref.: K01/RE/00024658-15	Not Specified / Harbour Plaza Metropolis, Tsim Sha Tsui	Public / 28 Sep 2015	A resident of Harbour Plaza Metropolis complains about the loud construction noise at about 10pm from construction site at Hung Hom.	The noise nuisance was not considered to be generated from this Project during the time of complaint. Despite, the Contractor was reminded to fully implement the relevant noise mitigation measures according to the EM&A Manual on site, such as: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • mobile plant should be sited as far away from NSR as possible and practicable; and • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSR.	Non project-related	Closed
EPD Ref.: K01/RE/00028968-15	12 Nov 2015 / Hung Hom Promenade	Public / 16 Nov 2015	On 12th November 2015, EPD received a complaint from the public about the marine water quality in Hung Hom. The complainant claimed that he saw muddy water in the sea near the old international mail centre from the	According to the weekly site inspections carried out on 9 and 16 November 2015, no environmental deficiency about the muddy seawater or adverse water quality was recorded. Also, according to the regular water quality monitoring conducted, no Action and Limit Exceedance was recorded at Station 21 and 34 from 1-14 November 2015. Therefore, it is considered that no adverse water quality impact was brought to these areas by the	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
			footbridge near Hung Hom Bypass.	project. The Contractor has implemented various mitigation measures to mitigate the possible marine quality impact arising from the construction including: • Installing additional silt curtain to surround the marine pilling work area to control the potential release of sediment; • No marine construction works were carried out until the 'opening' of the silt curtain was entirely closed up. • Frame type silt curtain was deployed to fully enclose the grab dredger during the dredging operation in Hung Hom works area; and • Regular maintenance of silt curtains installed at the cooling water intake which is in close vicinity of the work area.		
EPD Ref.: K01/RE/00006773-16	Not Specified / Harbourfront Horizon, Hung Hom	Public / 23 March 2016	A resident of Block A, Harbourfront Horizon complains about the construction noise at about 12am from SCL construction sites at Hung Hom.	After investigation, the construction noise was not generated from this Project during the time of complaint. Despite, the Contractor was reminded to fully implement the relevant noise mitigation measures according to the EM&A Manual on site, such as: • only well-maintained plant should be operated on-site and plant should be serviced regularly	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				during the construction programme; • mobile plant should be sited as far away from NSR as possible and practicable; and • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSR.		
EPD Ref.: H18/RS/00010577-16	Not Specified / Shek O	Public / 5 May 2016	投訴人投訴今日在紅山半島 1 期對出石澳礦場，有一個港鐵公司石倉，一個月至少 2 至 3 次，懷疑是港鐵公司的躉船停泊在石澳礦場近岸邊位置，流出似是油污(呈紅色)污水至海上(他表示本署職員在石澳道山上就可以看到污水情況)，他表示三日前已有此污染問題，當時很大片紅色污水，他立即致電海事處投訴，海事處三日後才安排職員到來跟進，污水已沒有了。現時他要求環保署跟進及回覆。	• As per the findings of the inspection for complaint received, no report of oil leakage from the barge was received by the Contractor on 2 – 5 May 2016. • No damage of oil storage tank or body of barge is reported as per the Contractor's regular maintenance checking of the barge. • Existing mitigation measures regarding oil or chemical leakage out of site were checked. No abnormal observation or dysfunction of these measures were recorded. • Based on the information gathered, it is considered that the red color on seawaters near the Shek O site observed by the complainant may be related to red tides recorded near vicinity of the Project site. These red tides are natural phenomena in	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				Hong Kong and not considered to be caused by the Project.		
EPD Ref.: K01/RE/00013547-16	Not Specified / Hung Hom Finger Pier	Public / 3 June 2016	XXX 投訴近香港體育館對出高鐵地盤(承辦商好似是五洋建築)，地盤泥頭車在碼頭岸邊，將沙泥運送至躉船時(沒有圍封好)，引致大量泥塵及沙泥隨處飄，沙泥更掉至海面上，要求環保署跟進及回覆。	• As per the findings of the inspection for complaint received, the Contractor has implemented various mitigation measures to reduce possible construction dust and other environmental impacts including: ➢ Watering once every working hour to keep active works areas, exposed areas and paved haul roads wet ➢ Enclosing the unloading process at any barging point tipping hall by a 3-sided screen with top, and operating water spraying and flexible dust curtains at the discharge point ➢ Water spray is provided to stockpile of dusty material, which is then covered by tarpaulin sheets ➢ Dusty materials transported on trucks are covered by side boards before unloading to the barge ➢ Height of the barrier on the hopper barge was increased to further prevent splash of spoil material into the sea during delivery of spoil material from barging facility; and ➢ Dump truck drivers were reminded to slow	Project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				down the speed of vehicles and the unloading process. • The Contractor was recommended to continue to properly implement construction dust mitigation measures based on the recommendations in the Environmental Monitoring & Audit Manual to minimize environmental impact..		
EPD Ref.: K01/RE/00016219-16	30 June 2016 / Hung Hom Finger Pier	Public / 4 July 2016	XXX投訴，說在海灣軒海景酒店A座旁邊、鄰近新建碼頭的地盤，在6月27日大約下午3時傳出臭味，造成滋擾。XXX要求環保署跟進及回覆。另外，XXX 透露臭味由地盤有人倒嘢落海產生。	• As per the findings of the inspection for complaint received, the source of malodour may be the chemical toilet located on the finger pier of the construction site. • To reduce possible malodour, regular cleaning by the Contractor of 3 times per week has been on-going and provided to the chemical toilet to avoid malodour. • After the complaint was received, the chemical toilet was relocated further away from the sensitive receivers nearby to further minimize possible malodour. • In addition, the Contractor shall further increase the frequency of cleaning all chemical toilets in Hung Hom works area if necessary. • The Contractor was recommended to continue	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				to properly implement construction dust mitigation measures based on the recommendations in the Environmental Monitoring & Audit Manual to minimize environmental impact.		
EPD Ref.: K01/RE/00019613-16	6 August 2016 / Hung Hom	Public / 8 August 2016	Complaint of Soil/muddy water from construction site at near Harbourfront Horizon All-Suite Hotel, HUNG LUEN ROAD , Tsim Sha Tsui	• As per the findings of the inspection for complaint received, the Contractor has implemented water quality mitigation measures to reduce possible marine water quality impact to adjacent sea waters. The mitigation measures for water quality implemented on site are observed to be in compliance with the EP. After the complaint was received, all the water quality mitigation measures on site were checked and repaired if necessary. In addition, no muddy water was observed in the sea in the Hung Hom works area during the weekly site inspections. • According to the regular water quality monitoring conducted at Stations 21 and 34, no Action or Limit Level Exceedance was recorded at Station 21 and Station 34 from 4-8 August 2016. Therefore, it is considered that no adverse water quality impact was brought to these stations by this Project during the time of complaint.	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				• Based on construction activities during the time of complaint provided by the Contractor, no violation of EP Conditions is observed regarding construction activities in the sea in Hung Hom. • Nevertheless, the Contractor was recommended to continue to properly implement water quality mitigation measures based on the recommendations in the Environmental Monitoring & Audit Manual to minimize environmental impact on the nearby sea waters. • The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored.		
EPD Ref.: H06/RS/00021017-16	August 2016 / Hung Hom	Public / 22 August 2016	The complainant claimed that: (1)muddy water was dripping from the grab of dredger into the sea; (2)no silt curtains were deployed in CBTS; and (3)two dredgers (one in Victoria Habour and one in CBTS) were carrying	• As per the findings of the inspection for complaint received, the Contractor has implemented water quality mitigation measures to reduce possible marine water pollution impact to adjacent sea waters. The mitigation measures for water quality implemented on site are observed to be in compliance with the EP. After the complaint was received, all the water quality mitigation measures on site were checked and repaired if	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
			out dredging activity simultaneously.	necessary. • According to the regular water quality monitoring conducted at all monitoring stations in Victoria Harbour, no Action or Limit Level Exceedance was recorded from 4 - 24 August 2016. Therefore, it is considered that no adverse water quality impact was brought to these stations by this Project during the time of complaint. • Nevertheless, the Contractor was recommended to continue to properly implement water quality mitigation measures based on the recommendations in the Environmental Monitoring & Audit Manual to minimize environmental impact on the nearby sea waters • The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored.		
K01/RE/00029060-16	9 November 2016 / Kin Wan Street, Tsim Sha Tsui	Public / 9 November 2016	Complaint of general construction noise from construction works around the finger pier within the site boundary of the SCL 1121 construction site in both	After investigation, construction noise impact due to works during the non-restricted hours is considered to be insignificant as the Contractor had implemented the relevant noise mitigation measures on site according to the EM&A Manual including: • only well-maintained plant should be operated	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
			daytime and night time.	on-site and plant should be serviced regularly during the construction programme; • mobile plant should be sited as far away from NSR as possible and practicable; • machines and plant that may be in intermittent use shall be shut down between work periods or shall be throttled down to a minimum; and • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSR. Construction noise nuisance during the restricted hours from 19:00 to 07:00 was not generated from this Project as no construction work was conducted near the finger pier in restricted hours.		
EP3/K01/RE/00012197-2017	21 April 2017 / SCL Construction site	27 April 2017	The complainant complained about the machine noise generated from the construction site between 06:00 am and 07:00 am near the Harbourfront Horizon Suites & Hotel since 21 April 2017.	After investigation, only 24-hour underground water pumping was used at Hung Hom during the restricted hours (1900 to 0700 hours) from 21 Apr to 23 Apr 2017. No other construction work was carried out during the restricted hours or started before 08:00 am from 21 Apr to 23 Apr 2017. A valid Construction Noise Permit (CNP) (No. GW-RE0072-17) was granted to the Project for the construction works in Hung Hom during restricted hours. According to the conditions in the CNP, water	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				pump is allowed to be operated on any day in 2300 - 0700 hours (next day). Therefore, no violation of CNP conditions is observed during the time of complaint. The noise nuisance between 06:00 am and 07:00 am near the Harbourfront Horizon Suites & Hotel was not considered to be generated from the site works.		
K01/RE/00032490-17	N/A / SCL Construction site	Anonymous / 9th October 2017	The complainant complained about the illegal dumping activity suspected not to comply with environmental regulation in Victoria Harbour.	After investigation, the major marine activities in Hung Hom during September 2017 mainly include (1) backfilling works at E1 to E4 near Hung Hom construction site (see photo no. 1); and (2) trimming works at E4 to E5 in the works area in the middle of the Victoria Harbour. A valid Construction Noise Permit (CNP) (No. GW-RE0402-17) was granted to the Project for the construction works in Hung Hom during restricted hours. The construction work were complied with the conditions of CNP, one dredger and two derrick barge are allowed to be operated on general holiday in 0700 – 2300 hours and any day not being a general holiday in 1900 - 2300 hours. Filled material was sourced from Lung Kwu Tan	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				sorting site and Contract no.: NE/2015/01 for backfilling works at E1 to E4 near the Hung Hom construction site. No other filled material was received by this Project. Type 1 - sediments (Category L) and Type 2 - Confined Marine Disposal (Category M) sediments were generated from this Project in September 2017 and those sediments were properly disposal at South Cheung Chau Open Sea Sediment Disposal Area and capping of the exhausted Confined Marine Disposal Facility at East of Sha Chau respectively in accordance with the dumping permit (EP/MD/18-033, EP/MD/17-179, EP/MD/18-064, EP/MD/18-058 & EP/MD/18-045). Therefore, no illegal dumping of sediment was observed in September 2017 in Hung Hom and Victoria Harbour. According to the regular water quality monitoring conducted at Stations 21 and 34, no Action or Limit Level Exceedance was recorded in September 2017. Therefore, it is considered that no adverse water quality impact was brought by this Project.		
N/A	15 March 2018	EPD / 15 March	During EPD's inspection at	During EPD's inspection at work area under the	Project-	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
	/ Hung Hong Marine Platform	2018	work area under the Project on the morning of 15 March 2018, a discharge pipe was observed directly discharging the muddy water into the sea at Hung Hom marine platform. A discharge pipe was removed immediately by the Contractor.	Project on the morning of 15 March 2018, a discharge pipe was observed directly discharging the muddy water into the sea at Hung Hom marine platform. A discharge pipe was removed immediately by the Contractor. After the investigation by the Contractor, a discharge pipe was found disconnected from the wastewater treatment plant. The causes of the incomplete connection of the discharge pipe and the unexpected start-up of the water pump from the Immersed Tube Tunnel (IMT) were due to the malpractice of the worker and the poor conversation between the staff. The Contractor has taken actions to rectify the situation to ensure that mitigation measures are well implemented: <u>Tidy up and systemize the water pipes at the wastewater treatment plant</u> • Coloring has been provided to the water pipes after properly connected to the wastewater treatment system in order to chase the source of the site water and check the condition of water pipes.	related	

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				<u>Daily checking the pipe system</u> • The pipe system is being checked by the designated worker in every working day to ensure that all water pipes are well connected to the wastewater treatment plant. <u>Well planning for water pipe installation and diversion</u> Approval of the Construction Manager should be obtained before installation or diversion of the water pipes on site. All water pipes will be checked by the designated worker after connected. Before the water pipes properly connected to the wastewater treatment plant, no power supply will be provided to the water pump to prevent of unexpected start-up. <u>Warning and briefing for the workers and the engineers</u> • The workers and the engineers were warned for the malpractice of improper connection of the water pipe.		

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				The Contractor also reminded the workers and the engineers to strictly follow the proper discharge procedure and the criteria stated in the discharge license. Site inspection was conducted by the Environmental Team on 19 March 2018. During the site inspection, no direct discharge of muddy water from discharge pipe was observed near the Hung Hom marine platform. Seawater was observed cleared. Also, unused water pipes were observed connecting to the wastewater treatment plant near the discharge point. The condition are observed to be rectified based on photos provided by the Contractor. All unused water pipes have been removed by the Contractor. The environmental condition of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored.		
--	7 March 2019 / SCL Construction	Resident nearby the construction	The complainant complained about the noise generated from breaking of	In accordance with the Site Diary provided by the Contractor, the major construction activities at SCL Construction Site – Hung Hum (Finger Pier)	Project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
	Site - Hung Hum (Finger Pier)	site/ 7 March 2019	concrete blocks.	conducted during the time of complaint are Housekeeping & general site works and breaking of concrete blocks. As per the details of the complaints, the operated excavator-mounted breaker and the noise stemmed from breaking of concrete blocks were considered the sources of noise. No construction work was carried out during the restricted hours on 7 March 2019. According to the Contractor, the abovementioned work was anticipated to be completed in March 2019. The Contractor had implemented environmental mitigation measures to minimize the noise from concrete breaking works (i.e Noise source on the breaker was covered). Based on the gathered information, the operated excavator-mounted breaker and the noise stemmed from breaking of concrete blocks were considered the sources of noise. The complaint is considered Project-related. Nevertheless, the Engineer and the Environmental Team have reminded the Contractor to carry out		

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				concrete breaking works with appropriate mitigation measures as far as practicable to reduce noise to nearby sensitive receivers. The environmental conditions of the site and effectiveness of the implementation of mitigation measures will be continuously reviewed and monitored by the Engineer and the Environmental Team.		
--	20 June 2019/ SCL Construction Site – Causeway Bay Typhoon Shelter (CBTS)	Public/Received on 9 July 2019	A public complained about the filling material on the barge was mixed with pollutant substance, sundries, garbage, ropes and the construction work polluted the water in the vicinity.	The major construction activities conducted on 20 June 2019 within CBTS was seabed leveling works. <u>Cause:</u> In the process of seabed leveling, the filling material extracted from the high spots in the seabed was mixed with the filling material on the barge. It is suspected that the garbage from the seabed were also taken up accidentally and the sub-contractor's operator overlooked the garbage and continue the filling unintentionally. <u>Follow-up action:</u> -To assign a foreman to check every load of filling materials for reinstatement works. -Sorting of filling material and garbage will be done once the foreman noticed the material is mixed with	Project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				any garbage. -To continue conducting visual checking by Contractor and Engineer to ensure the filling materials are eligible to use.		
EPD Ref No: K01/RE/00012252-20	Not specified / SCL Construction Site – Hung Hom	Resident nearby the construction site / 29th May 2020	The complainant complained about the low frequency machine noise emanated from SCL 1121 construction site daily at around 00:00 and the noise nuisance was particular serious at the midnight on 26th May 2020.	According to the Site Diary prepared by the Engineer and provided by the Contractor, no construction work was conducted at Hong Hom under this Project during the restricted hours (19:00 to 07:00) from 25th May to 29th May 2020. In view of this, the construction noise nuisance from 19:00 to 07:00 was not considered to be generated from this Project during the time of complaint. Despite, the Contractor was reminded to fully implement the relevant noise mitigation measures according to the EM&A Manual on site, such as: • only well-maintained plant should be operated on-site and plant should be serviced regularly during the construction programme; • mobile plant should be sited as far away from Noise Sensitive Receivers (NSR) as possible and practicable; • machines and plant that may be in intermittent use shall be shut down between work periods	Non project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				or shall be throttled down to a minimum; and • plant known to emit noise strongly in one direction, where possible, be orientated so that the noise is directed away from nearby NSR.		
EPD Ref No.: K01/RE/00018154-21, K01/RE/00018170-21 & K01/RE/00018333-21	3rd, 4th, and 5th August 2021/ SCL 1121 Construction Site – Hung Hom (Finger Pier)	Residents near the construction site	The complainant complained about construction noise nuisance generated from concrete breaking work at Finger Pier.	According with the Site Diary provided by the Engineer and information provided by the Contractor, an excavator-mounted breaker was used to remove the winch tower footing at Finger Pier during the time of complaint. As per the details of the complaints, the operated excavator-mounted breaker and the noise stemmed from breaking of concrete blocks were considered as the sources of noise. Additional noise monitoring was conducted at roof of the site office building next to Harbourfront Horizon to monitor the concrete breaking works at Finger Pier on 9th August 2021, to ensure that the noise mitigation measures are properly implemented. The average measured noise level is 71.3 dB(A), which have not caused exceedance of the daytime construction noise criteria. Upon receipt of the Complaint, the Contractor had undertaken the follow up action as follow: 1. Noise source on the breaker was covered/wrapped with insulating materials 2. Operation hour of concrete breaking was confined between 08:30 and 17:30;	Project-related	Closed

Log Ref.	Date/Location	Complainant/ Date of Contact	Details of Complaint	Investigation/ Mitigation Action	Validity of Complaint	File Closed
				3. No concrete breaking would be conducted on Saturday 4. The breaker was sited as far away from Noise Sensitive Receivers (NSR) as possible and practicable; and 5. The breaker was shut down between work periods or throttled down to a minimum Nevertheless, the Contractor was reminded to carry out concrete breaking works with appropriate mitigation measures as far as practicable.		

Cumulative Log for Notifications of Summons

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since project commencement
ESS41852/2016	4 May 2016/ CMP Vd at East Sha Chau	Contrary to: Sections 8 (1) (a) and 25 (1) (b) Dumping at Sea Ordinance	The case is adjourned to 18-Jan-17	1	1

Cumulative Log for Successful Prosecutions

Log Ref.	Date/Location	Subject	Status	Total no. Received in this reporting month	Total no. Received since the commencement of the project
ESS41852/2016	4 May 2016/ CMP Vd at East Sha Chau	Contrary to: Sections 8 (1) (a) and 25 (1) (b) Dumping at Sea Ordinance	One (1) successful prosecution was recorded in August.	0	1

Appendix H - Cumulative Log for Complaints, Notifications of Summons and Successful Prosecution

Reporting Month	Number of Complaints in Reporting Month	Number of Summons in Reporting Month	Number of Successful Prosecutions in Reporting Month
March 2015	0	0	0
April 2015	0	0	0
May 2015	0	0	0
June 2015	0	0	0
July 2015	0	0	0
August 2015	1	0	0
September 2015	1	0	0
October 2015	1	0	0
November 2015	1	0	0
December 2015	0	0	0
January 2016	0	0	0
February 2016	0	0	0
March 2016	1	0	0
April 2016	0	0	0
May 2016	1	0	0
June 2016	1	0	0
July 2016	1	0	0
August 2016	2	0	0
September 2016	0	0	0
October 2016	0	0	0
November 2016	1	1	0
December 2016	0	0	0
January 2017	0	0	0
February 2017	0	0	0
March 2017	0	0	0
April 2017	1	0	0
May 2017	0	0	0
June 2017	0	0	0
July 2017	0	0	0
August 2017	0	0	1
September 2017	0	0	0
October 2017	1	0	0
November 2017	0	0	0
December 2017	0	0	0
January 2018	0	0	0
February 2018	0	0	0
March 2018	1	0	0
April 2018	0	0	0
May 2018	0	0	0
June 2018	0	0	0
July 2018	0	0	0
August 2018	0	0	0
September 2018	0	0	0
October 2018	0	0	0
November 2018	0	0	0
December 2018	0	0	0
January 2019	0	0	0
February 2019	0	0	0
March 2019	1	0	0
April 2019	0	0	0
May 2019	0	0	0
June 2019	0	0	0
July 2019	1	0	0
August 2019	0	0	0
September 2019	0	0	0
October 2019	0	0	0
November 2019	0	0	0
December 2019	0	0	0
January 2020	0	0	0
February 2020	0	0	0
March 2020	0	0	0
April 2020	0	0	0
May 2020	1	0	0
June 2020	0	0	0
August 2020	0	0	0
September 2020	0	0	0
October 2020	0	0	0
November 2020	0	0	0
December 2020	0	0	0
January 2021	0	0	0
February 2021	0	0	0
March 2021	0	0	0
April 2021	0	0	0
May 2021	0	0	0
June 2021	0	0	0
July 2021	0	0	0
August 2021	1	0	0
September 2021	0	0	0
October 2021	0	0	0
November 2021	0	0	0
December 2021	0	0	0
Total	**18**	**1**	**1**

APPENDIX I
SUMMARY OF AMOUNT OF WASTE GENERATED

Monthly Summary Waste Flow Table for _2015_ (year)

Contract No: **SCL1121**
Date Reported: **December 2015**

Month		Actual Quantities of Inert C&D Materials Generated Monthly							Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Delivered to Hong Hum Barging Point and disposed by 1112* [Note: (5)]	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.005
May	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.007
June	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.015
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0932	0.000	0.000	0.000	0.000	0.010
Aug	0.048	0.000	0.000	23.673	0.000	5.695	18.415	0.000	0.000	0.000	0.000	0.000	0.035
Sept	0.981	0.000	0.000	18.842	0.000	5.748	13.163	N/A	0.000	0.22	0.000	0.000	0.025
Oct	1.514	0.000	0.000	23.126	0.000	7.106	14.189		0.000	0.000	0.000	0.000	0.018
Nov	1.265	0.000	0.000	13.810	0.000	6.210	7.019		27.22	0.000	0.000	0.000	0.060
Dec	**1.280**	**0.000**	**0.000**	**18.721**	**0.000**	**5.933**	**9.811**		**0.000**	**0.000**	**0.000**	**0.000**	**0.064**
Total	**5.088**	**0.000**	**0.000**	**98.172**	**0.000**	**30.692**	**62.597**	**0.0932**	**27.22**	**0.22**	**0.000**	**0.000**	**.239**

Notes:
(1) The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.
(3) Broken concrete for recycling into aggregates.
(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.
(5) "*" The inert C&D was delivered to the Hong Hum Barging Point and disposed by 1112.

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Monthly Summary of Marine Sediment Flow for 2015 (year)

Contract No: SCL1121
Date Reported: December 2015

Month	Volume of Sediments Generated Monthly Bulk Volume)															
	Type 1 – Open Sea Disposal				Type 1 – Open Sea Disposal (Dedicated Site)				Type 2 – Confined Marine Disposal				Type 3 – Special Treatment Disposal			
	Generated from 1111	Generated from 1112	Generated from 1121	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Disposed
Unit	(in '000m^3)				(in '000m^3)				(in '000m^3)				(in '000m^3)			
Jan	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Feb	0.000	0.000	0.000	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Mar	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Apr	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
May	0.000	0.000	9.535	9.535	0.000	0.000	0.000	0.000	0.000	0.000	6.583	6.583	0.000	0.000	0.000	0.000
June	0.000	0.000	3.190	3.190	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sub-Total	**0.00**	**0.00**	**12.725**	**12.725**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**6.538**	**6.538**	**0.00**	**0.00**	**0.00**	**0.00**
July	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Aug	6.941	0.000	0.000	6.306	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sept	5.542	0.000	0.000	6.176	0.000	0.000	0.000	0.000	0.000	1.942	0.000	1.542	0.000	0.000	0.000	0.000
Oct	5.675	0.528	0.000	5.538	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	3.984	5.668	0.000	9.696	0.000	0.000	0.000	0.000	0.000	2.323	0.829	3.552	0.000	0.000	0.000	0.000
Dec	**1.140**	**14.440**	**0.000**	**15.633**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.022**	**0.000**	**0.736**	**0.000**	**0.000**	**0.000**	**0.000**
Total	**23.282**	**20.636**	**12.725**	**56.075**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**5.287**	**7.412**	**12.368**	**0.000**	**0.000**	**0.000**	**0.000**

Monthly Summary Waste Flow Table for 2016 (year)

Contract No: SCL1121
Date Reported: December 2016

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	0.531	0.000	0.000	19.544	0.000	7.242	13.218	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.111
Feb	0.308	0.000	0.000	8.572	0.000	3.812	4.306	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.081
Mar	0.2	0.000	0.000	8.095	0.000	4.132	3.478	0.000	0.000	0.000	0.000	0.462	0.000	0.000	0.123
Apr	0.66	0.000	0.000	16.374	0.000	3.691	11.359	0.000	0.000	0.000	0.000	0.377	0.000	0.000	0.171
May	5.795	0.000	0.000	1.47	0.124	1.728	2.080	0.000	0.000	0.000	0.000	0.363	0.000	0.000	0.185
June	1.15	0.000	0.000	4.377	0.000	2.627	2.381	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.204
July	5.509	0.000	0.000	7.743	0.000	1.209	8.502	0.000	0.000	0.000	0.000	0.307	0.000	0.000	0.141
Aug	4.915	0.000	0.000	13.977	0.000	0.733	1.953	0.041	0.246	0.015	0.000	0.399	0.000	0.000	0.123
Sept	7.253	0.000	0.000	16.754	0.000	0.275	1.437	0.071	1.404	0.000	0.000	0.000	0.000	0.008	0.142
Oct	14.199	0.000	0.000	17.6	0.000	0.112	3.004	0.013	0.273	0.000	249.210	0.273	0.000	0.000	0.114
Nov	11.196	0.000	0.000	13.451	0.000	0.445	1.290	0.000	0.000	0.000	14.400	0.000	0.000	0.000	0.188
Dec	**3.5**	**0.000**	**0.000**	**5.88**	**0.000**	**1.286**	**1.096**	**0.000**	**0.000**	**0.000**	**167.680**	**0.000**	**0.000**	**0.000**	**0.2**
Total	**55.216**	**0.000**	**0.000**	**133.837**	**0.124**	**27.292**	**54.104**	**0.125**	**2.196**	**0.015**	**430.99**	**1.601**	**0.000**	**0.000**	**1.783**

Notes:

(1) The performance targets are given below:
- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

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Monthly Summary of Marine Sediment Flow for 2016 (year)

Contract No: SCL1121
Date Reported: December 2016

Month	Volume of Sediments Generated Monthly Bulk Volume)																
	Type 1 – Open Sea Disposal					Type 1 – Open Sea Disposal (Dedicated Site)					Type 2 – Confined Marine Disposal					Type 3 – Special Treatment Disposal	
	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1121	Disposed
Unit	(in '000m^3)					(in '000m^3)					(in '000m^3)					(in '000m^3)	
Jan	0.013	16.584	5.342		21.801	0	0	0		0	0	0.019	21.339		21.339	0	0
Feb	0.003	1.253	10.172		11.566	0	0	0		0	0	4.041	11.611		15.152	0	0
Mar	0	3.850	10.842	N/A	14.694	0	0	0	N/A	0	0	2.298	29.771	N/A	32.087	0	0
Apr	0	0	6.253		6.253	0	0	6.825		6.825	0	0.358	31.814		31.814	0.557	0.557
May	0	0	12.046		12.046	0	0	1.675		1.675	0	4.057	31.508		35.838	0.441	0.441
June	0	0	6.775	0.148	6.775	0	0	0	0	0	0	6.4472	33.845	0.031	40.365	0	0
Sub-Total	**0.016**	**21.687**	**51.43**	**0.148**	**73.135**	**0**	**0**	**8.5**	**0**	**8.5**	**0**	**17.220**	**159.888**	**0.031**	**176.595**	**0.998**	**0.998**
July	0	0	27.008	0.0475	27.056	0	0	0	0	0	0	0	20.254	0.0464	20.254	0	0
Aug	0	0	15.213	0	15.213	0	0	0	0	0	0	0	12.034	0.008	12.034	0	0
Sept	0	0	36.996	0	36.996	0	0	0	0	0	0	0	5.272	0	5.272	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0	0	11.318	0	11.318	0	0
Nov	0	0	1.103	0	1.103	0	0	0	0	0	0	0	20.702	0	20.702	1.996	1.996
Dec	**0**	**0**	**2.266**	**0**	**2.266**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**48.76**	**0**	**48.76**	**1.497**	**1.497**
Total	**0.016**	**21.687**	**134.016**	**0.196**	**155.669**	**0**	**0**	**8.5**	**0**	**8.5**	**0**	**17.220**	**278.228**	**0.0774**	**294.935**	**4.491**	**4.491**

Monthly Summary Waste Flow Table for _2017_ (year)

Contract No: SCL1121
Date Reported: December 2017

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000tonne)	(in '000m³)	(in '000m³)	(in '000tonne)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	10.211	0.000	0.000	8.265	0.000	0.963	2.191	0.004	0.000	0.000	0.000	0.346	0.000	0.000	0.190
Feb	1.046	0.000	0.000	1.325	0.000	0.766	1.036	0.000	0.000	0.000	0.000	0.210	0.000	0.000	0.111
Mar	0.207	0.000	0.000	1.764	0.000	0.664	0.893	0.000	0.000	0.000	0.000	0.418	0.000	0.000	0.264
Apr	0.322	0.308	0.000	1.563	0.308	0.716	0.832	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.120
May	0.764	0.693	0.000	1.669	0.693	0.402	1.231	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.067
June	2.582	2.582	0.000	0.975	2.582	0.278	0.697	0.000	0.000	0.000	0.000	0.000	0.000	0.200	0.082
July	0.028	0.016	0.000	2.033	0.016	0.296	0.985	0.000	0.000	0.735	0.000	0.000	0.000	0.000	0.077
Aug	0.059	0.000	0.000	1.789	0.000	0.204	0.632	0.000	0.000	0.000	0.452	0.534	0.000	0.000	0.257
Sept	0.046	0.000	0.000	1.226	0.000	0.975	0.205	0.000	0.000	0.000	0.000	0.314	0.000	0.000	0.121
Oct	0.083	0.000	0.000	1.871	0.000	1.537	0.250	0.000	0.000	0.000	0.000	0.000	0.000	1.000	0.070
Nov	2.473	3.709	1.21	1.864	0.000	1.234	0.657	0.000	0.000	0.000	0.000	0.297	0.000	0.000	0.156
Dec	**2.838**	**7.640**	**2.056**	**1.463**	**0.000**	**0.757**	**0.913**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**1.378**	**0.129**
Total	**19.991**	**13.103**	**3.266**	**25.807**	**3.599**	**8.792**	**10.52**	**0.004**	**0**	**0.735**	**0.452**	**2.119**	**0**	**2.578**	**1.644**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

五洋建設-中國建築聯營
Penta-Ocean – China State Joint Venture

Monthly Summary of Marine Sediment Flow for 2017 (year)

Contract No: SCL1121
Date Reported: December 2017

Month	Volume of Sediments Generated Monthly Bulk Volume)																
	Type 1 – Open Sea Disposal					Type 1 – Open Sea Disposal (Dedicated Site)					Type 2 – Confined Marine Disposal					Type 3 – Special Treatment Disposal	
	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1121	Disposed
Unit	(in '000m^3)					(in '000m^3)					(in '000m^3)					(in '000m^3)	
Jan	0.000	0.000	7.472	0.000	7.472	0.000	0.000	0.000	0.000	0.000	0.000	0.000	29.228	0.000	29.228	2.495	2.495
Feb	0.000	0.000	1.150	0.000	1.150	0.000	0.000	0.000	0.000	0.000	0.000	0.000	16.739	0.000	16.739	0.000	0.000
Mar	0.000	0.000	6.679	0.000	6.679	0.000	0.000	0.000	0.000	0.000	0.000	0.000	5.726	0.000	5.726	0.000	0.000
Apr	0.000	0.000	5.416	0.000	5.416	0.000	0.000	0.000	0.000	0.000	0.000	0.000	2.071	0.000	2.071	0.000	0.000
May	0.000	0.000	6.640	0.000	6.640	0.000	0.000	0.000	0.000	0.000	0.000	0.000	3.923	0.000	3.923	0.000	0.000
June	0.000	0.000	14.182	0.000	14.182	0.000	0.000	0.000	0.000	0.000	0.000	0.000	1.116	0.000	1.116	0.000	0.000
Sub-Total	**0.000**	**0.000**	**41.539**	**0.000**	**41.539**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**58.803**	**0.000**	**58.803**	**2.495**	**2.495**
July	0.000	0.000	9.473	0.000	9.473	0.000	0.000	0.000	0.000	0.000	0.000	0.000	8.950	0.000	8.950	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	0.000	7.337	0.000	7.337	0.000	0.000
Sept	0.000	0.000	4.207	0.000	4.207	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.993	0.000	0.993	0.000	0.000
Oct	0.000	0.000	15.288	0.000	15.288	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Nov	0.000	0.000	7.649	0.000	7.649	0.000	0.000	0.000	0.000	0.000	0.000	0.000	13.579	0.000	13.579	0.000	0.000
Dec	**0.000**	**0.000**	**9.207**	**0.000**	**9.207**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**4.615**	**0.000**	**4.615**	**0.000**	**0.000**
Total	**0.000**	**0.000**	**87.363**	**0.000**	**87.363**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**94.277**	**0.000**	**94.277**	**2.495**	**2.495**

Monthly Summary Waste Flow Table for 2018 (year)

Contract No: SCL1121
Date Reported: December 2018

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	3.026	2.182	1.428	0.253	0	0.979	0.832	0	0	0	235.48	0	0	0	0.170
Feb	0.09	0	4.543	4.191	0	0.173	0.349	0	0	0	37.654	0	0	0	0.08
Mar	2.754	0	0.163	0.003	0	0	0	0	0	0	79.96	4.07	0	0	0.154
Apr	3.546	3.546	0	0	0	0	0	0	0	0	124.25	9.62	0	0	0.141
May	5.86	5.86	0	0	0	0	0	0	0	0	339.21	6.67	0	0	0.150
June	1.446	1.446	0	0	0	0	0	0	0	0	0	2.4	0	0	0.133
July	0.9	0.3	0.6	0	0	0	0	0	0	0	280.08	1.168	0	0	0.126
Aug	0.115	0.1	0.015	0.1	0	0	0	0	0	0	25.49	1.805	0	0	0.142
Sept	0.1	0	0.1	0	0	0	0	0	0	0	60.93	0	0	0	0.0913
Oct	0.24	0.24	0	0.24	0	0	0	0	0	0	224.003	1.825	0	0	0.111
Nov	0.20	0.12	0.08	0.12	0	0	0	0	0	0	0	1.005	0	0	0.117
Dec	**0.14**	**0**	**0.06**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1007.8**	**0**	**0**	**0**	**0.102**
Total	**18.317**	**13.668**	**6.915**	**4.787**	**0**	**1.152**	**1.181**	**0**	**0**	**0**	**2014.72**	**28.563**	**0**	**0**	**1.276**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

五洋建設-中國建築聯營
Penta-Ocean – China State Joint Venture

Monthly Summary of Marine Sediment Flow for 2018 (year)

Contract No: SCL1121
Date Reported: December 2018

Month	Volume of Sediments Generated Monthly Bulk Volume)																
	Type 1 – Open Sea Disposal					Type 1 – Open Sea Disposal (Dedicated Site)					Type 2 – Confined Marine Disposal					Type 3 – Special Treatment Disposal	
	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1121	Disposed
Unit	(in '000m^3)					(in '000m^3)					(in '000m^3)					(in '000m^3)	
Jan	0	0	0.582	0	0.582	0	0	0	0	0	0	0	6.054	0	6.054	0	0
Feb	0	0	4.579	0	4.579	0	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub-Total	**0**	**0**	**5.161**	**0**	**5.161**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6.054**	**0**	**6.054**	**0**	**0**
July	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sept	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Total	**0**	**0**	**5.161**	**0**	**5.161**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6.054**	**0**	**6.054**	**0**	**0**

Monthly Summary Waste Flow Table for 2019 (year)

Contract No: SCL1121
Date Reported: December 2019

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	1.324	0	1.324	0	0	0	0	0	0	0	0	0	0	0	0.113
Feb	0	0	0	0	0	0	0	0	0	0	0	0.717	0	0	0.052
Mar	0.532	0	0.4	0.132	0	0	0	0	0	0	0	0	0	0	0.114
Apr	0.841	0	0	0.841	0	0	0	0	0	0	0	1.302	0	0	0.100
May	1.216	0	1.216	0	0	0	0	0	0	0	59.78	1.26	0	0	0.0614
June	2.048	0	2.048	0	0	0	0	0	0	0	0	1.42	0	0	0.014
July	0.107	0	0	0	0.107	0	0	0	0	0	58.08	1.59	0	1.12	0.05285
Aug	0.0678	0	0	0	0.0678	0	0	0	0	0	9.45	3.083	0	0	0.0248
Sept	0.0126	0	0	0	0.0126	0	0	0	0	0	0	2.711	0	0	0.0237
Oct	0.1402	0	0	0	0.1402	0	0	0	0	0	29.12	2.556	0	0	0.0426
Nov	0.1348	0	0	0	0.1348	0	0	0	0	0	17.74	1.425	0	0	0.027
Dec	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**42.34**	**2.751**	**0**	**0**	**0.02734**
Total	**6.4234**	**0**	**4.988**	**0.973**	**0.4624**	**0**	**0**	**0**	**0**	**0**	**216.51**	**18.815**	**0**	**1.12**	**0.65269**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

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Penta-Ocean – China State Joint Venture

Monthly Summary of Marine Sediment Flow for 2019 (year)

Contract No: SCL1121
Date Reported: Dec 2019

Month	Volume of Sediments Generated Monthly Bulk Volume)																
	Type 1 – Open Sea Disposal					Type 1 – Open Sea Disposal (Dedicated Site)					Type 2 – Confined Marine Disposal					Type 3 – Special Treatment Disposal	
	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1111	Generated from 1112	Generated from 1121	Generated from 1128	Disposed	Generated from 1121	Disposed
Unit	(in '000m^3)					(in '000m^3)					(in '000m^3)					(in '000m^3)	
Jan	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Feb	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Apr	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
May	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
June	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jul	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aug	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sept	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Oct	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Dec	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Monthly Summary Waste Flow Table for _2020_ (year)

Contract No: SCL1121
Date Reported: Dec 2020

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	0	0	0	0	0	0	0	0	0	0	3.80	1.354	0	0.138	0.0253
Feb	0	0	0	0	0	0	0	0	0	0	32.86	1.239	0	0	0.0262
Mar	0	0	0	0	0	0	0	0	0	0	24.72	1.410	0	0	0.0554
Apr	0	0	0	0	0	0	0	0	0	0	0	1.063	0	0	0.0254
May	0.0624	0	0	0	0.0624	0	0	0	0	0	0	1.117	0	0	0.0620
June	0.0499	0	0	0	0	0	0	0	0.0499	0	0	1.767	0	0	0.0504
July	0.0116	0	0	0	0.0116	0	0	0	0	0	20.50	1.301	0	0	0.0658
Aug	0.5188	0	0	0	0.0288	0	0	0	0.49	0	25.64	1.223	0	0	0.0285
Sept	0.6330	0	0	0	0.2689	0	0	0	0.3641	0	9.61	2.265	0	0	0.0463
Oct	0.4043	0	0	0	0.4043	0	0	0	0	0	14.85	1.204	0.28	0	0.0532
Nov	0.3053	0	0	0	0.3053	0	0	0	0	0	4.05	1.289	0	0	0.0507
Dec	**0.0338**	**0**	**0**	**0**	**0.0338**	**0**	**0**	**0**	**0**	**0**	**4.07**	**1.272**	**0**	**0**	**0.0272**
Total	**2.0191**	**0**	**0**	**0**	**1.1151**	**0**	**0**	**0**	**0.9040**	**0**	**140.1**	**16.504**	**0.28**	**0.138**	**0.5164**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

Monthly Summary Waste Flow Table for _2021_ (year)

Contract No: SCL1121
Date Reported: Dec 2021

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	0.1902	0	0	0	0.1902	0	0	0	0	0	2.36	0.667	0	0	0.0352
Feb	0.2086	0	0	0	0.2086	0	0	0	0	0	2.11	1.684	0	0	0.0262
Mar	0.0312	0	0	0	0.0312	0	0	0	0	0	1.30	9.379	0	0	0.0268
Apr	0.0835	0	0	0	0.0835	0	0	0	0	0	4.84	1.183	0	0	0.0205
May	0.1145	0	0	0	0.1145	0	0	0	0	0	24.27	1.028	0	0	0.0256
June	0.0373	0	0	0	0.0373	0	0	0	0	0	0	1.049	0	0	0.0136
July	0.0487	0	0	0	0.0487	0	0	0	0	0	4.26	0.958	0	0	0.0251
Aug	0.2484	0	0	0	0.2484	0	0	0	0	0	6.36	6.552	0	0	0.0348
Sept	0.0413	0	0	0	0.0413	0	0	0	0	0	1.00	3.641	0	0	0.0263
Oct	0.0177	0	0	0	0.0177	0	0	0	0	0	3.31	1.287	0	0	0.0098
Nov	0.1022	0	0	0	0.1022	0	0	0	0	0	11.41	1.913	0.8	0	0.0166
Dec	**0.0000**	**0**	**0**	**0**	**0.0000**	**0**	**0**	**0**	**0**	**0**	**13.57**	**2.480**	**0**	**0**	**0.0051**
Total	**1.1236**	**0**	**0**	**0**	**1.1236**	**0**	**0**	**0**	**0**	**0**	**74.79**	**31.821**	**0.8**	**0**	**0.2656**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates.

(4) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(5) All the C&D material come from SCL1111, 1112, 1114, 1121, 1123, 1128 will be reussed in other project

Monthly Summary Waste Flow Table for _2022_ (year)

Contract No: SCL1121
Date Reported: Jan 2022

Month		Actual Quantities of Inert C&D Materials Generated Monthly									Actual Quantities of Non-inert C&D Wastes Generated Monthly				
	Total Quantity Generated	Hard Rocks and Large Broken Concrete (See Note 3)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Imported Fill from 1111	Imported Fill from 1112	Imported Fill from 1114	Imported Fill from 1123	Imported Fill from 1128	Metals	Paper/ cardboard packaging	Plastics (see Note 2)	Chemical Waste	Others, e.g. general refuse
	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000m³)	(in '000kg)	(in '000kg)	(in '000kg)	(in'000kg)	(in '000tonne)
Jan	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6.45**	**0.000**	**0.2**	**0**	**0.0138**
Feb															
Mar															
Apr															
May															
June															
July															
Aug															
Sept															
Oct															
Nov															
Dec															
Total	**0.0000**	**0**	**0**	**0**	**0.0000**	**0**	**0**	**0**	**0**	**0**	**6.45**	**0.0**	**0.2**	**0**	**0.0138**

Notes:

(1) The performance targets are given below:

- All excavated materials to be sorted for recovering the inert portion of C&D materials, e.g. hard rocks, soil and broken concrete, for reuse on the Site or disposal to designated outlets;
- All metallic waste to be recovered for collection by recycling contractors;
- All cardboard and paper packaging (for plant, equipment and materials) to be recovered, properly stockpiled in dry and covered condition to prevent cross contamination;
- All chemical wastes to be collected and properly disposed of by specialist contractors; and
- All demolition debris to be stored to recover broken concrete, reinforcement bars, mechanical and electrical fittings, hardware as well as other fitting / materials that have established recycling outlets.

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